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AS22520/1

FEDERAL SUPPLY CLASS
5120

RATIONALE

AS22520/1 PERMITS THE CANCELLATION AND SUPERSESION OF MIL-DTL-22520 /1 WITH THIS DOCUMENT. IT INCLUDES ENGINEERING POSITION LETTERS, MILITARY SPECIFICATION AMENDMENTS, AND MINOR TECHNICAL CHANGES REQUIRED TO REFLECT THE APPROVED QUALIFIED TOOLS. GOVERNMENT DOCUMENTATION REFERENCES ARE REMOVED WHEREVER POSSIBLE; M22520/1-18 HAS BEEN ADDED TO ELIMINATE A PRIVATE BRAND PART NUMBER CALLOUT IN AS39029 CONTACT SPECIFICATION, AND AN APPLICATION INDEX ADDED AS TABLE 1.

NOTICE

THE COMPLETE REQUIREMENTS FOR PROCURING THE PRODUCT DESCRIBED HEREIN SHALL CONSIST OF THIS DOCUMENT AND THE LATEST ISSUE OF AS22520.

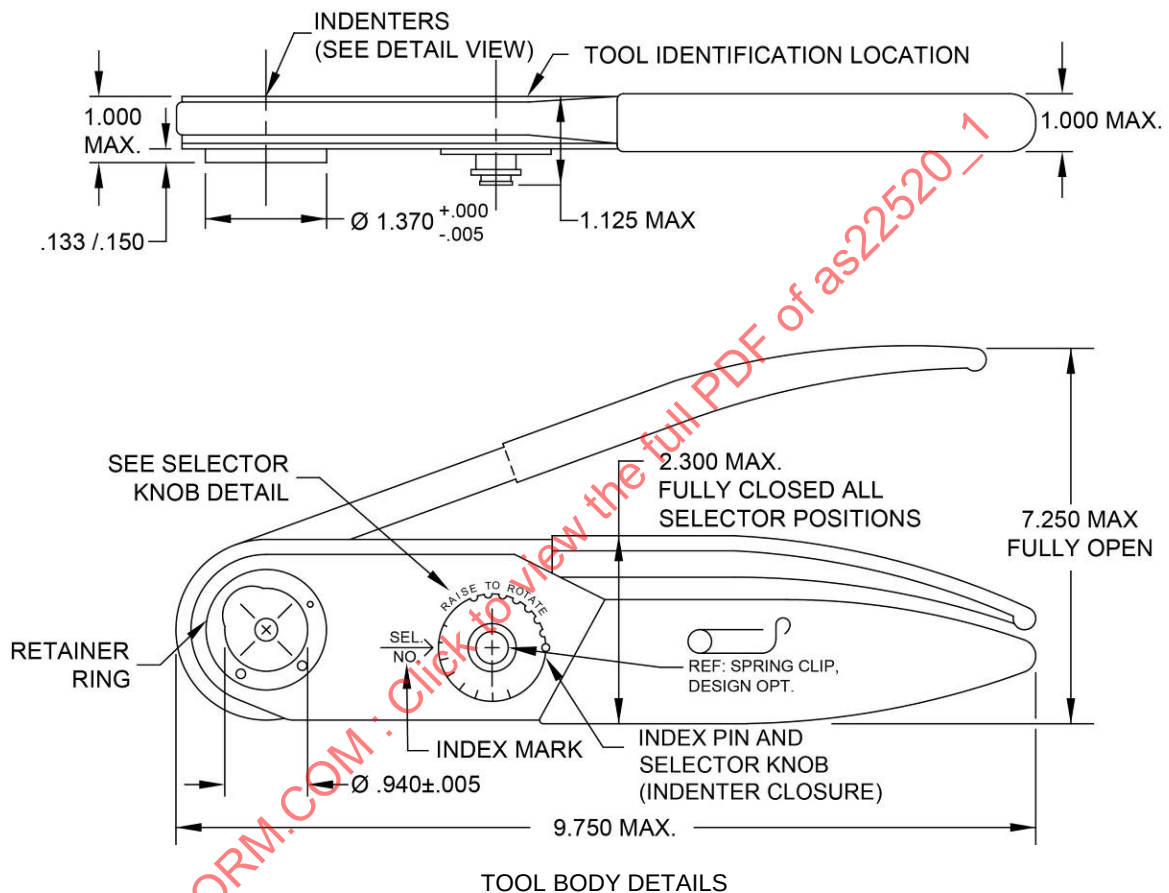
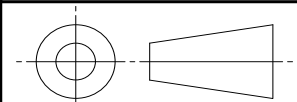


FIGURE 1 - M22520/1-01 TOOL

SAE values your input. To provide feedback
on this Technical Report, please visit
<http://www.sae.org/technical/standards/AS22520/1>

THIRD ANGLE PROJECTION



CUSTODIAN: AE-8/AE-8C2

PROCUREMENT SPECIFICATION: AS22520



AEROSPACE STANDARD

CRIMPING TOOLS, TYPE I, TERMINAL, HAND, WIRE
TERMINATION FOR WIRE BARREL SIZES 12
THROUGH 22 AND COAXIAL INNER CONTACTS

AS22520/1
SHEET 1 OF 41

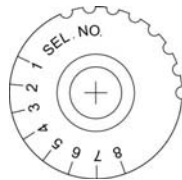
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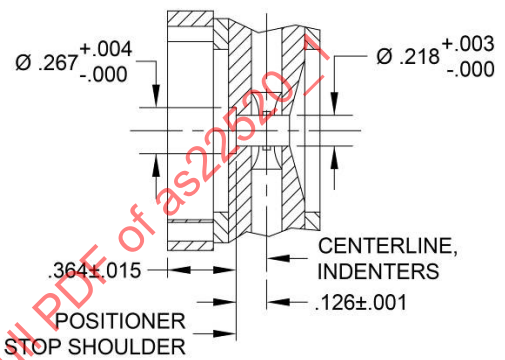
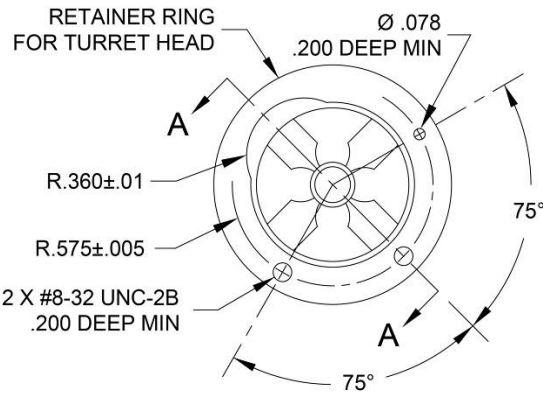
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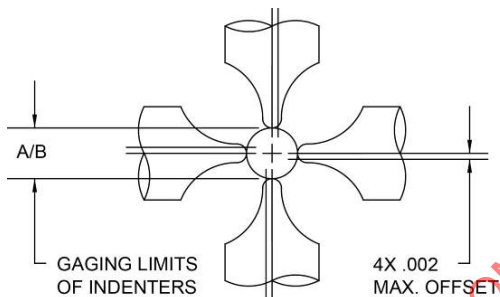
SELECTOR KNOB
(INDENTER CLOSURE)

NOTE: THE LOCATION/CONFIGURATION IS OPTIONAL FOR THE INDEX MARK AND LATCHING MECHANISM, PROVIDING THAT IT CLEARLY DESIGNATES THE SELECTOR NUMBER POSITION, AND PROVIDES A STABLE LATCH SO THE SETTING WILL NOT CHANGE FROM NORMAL HANDLING.

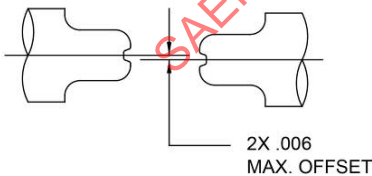
SELECTOR KNOB DETAILS (CONFIGURATION OPTIONAL)



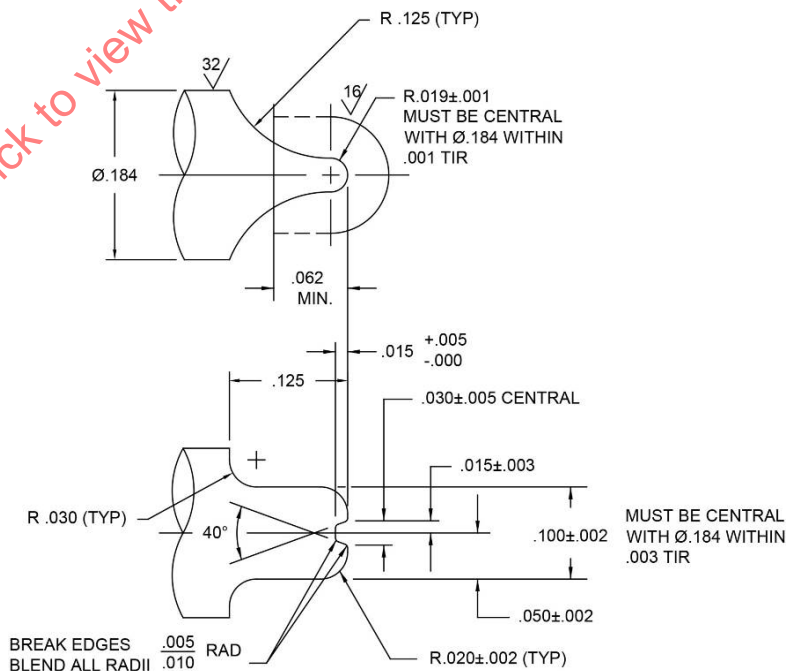
SECTION A-A



INDENTER LOCATIONS WITH TOOL
IN FULLY CLOSED POSITION



OPPOSITE AND ADJACENT
INDENTER CENTERLINES



INDENTER

FIGURE 1 - M22520/1-01 TOOL (CONTINUED)



AEROSPACE STANDARD

CRIMPING TOOLS, TYPE I, TERMINAL, HAND, WIRE
TERMINATION FOR WIRE BARREL SIZES 12
THROUGH 22 AND COAXIAL INNER CONTACTS

AS22520/1
SHEET 2 OF 41

BASIC TOOL MARKINGS

CRIMP TOOL PART NO. /1	BODY SURFACE COLOR	HANDLE GRIP COLOR	FOR INSPECTION GAGING USE (SEE APPLICATION NOTE)
M22520/1-01	BLUE	BLUE	M22520/3-1

1/ BASIC TOOL WITHOUT TURRET HEAD OR POSITIONER.

FIGURE 1 - M22520/1-01 TOOL (CONTINUED)

TABLE 1 - INDENTER INSPECTION GAGE LIMITS

SELECTOR NUMBER	GAGING LIMITS OF INDENTERS		
	INSPECTION GAGE (INCHES)		
	Ø GO	A ±.0001	Ø NO-GO B ± .0001
1	.0280		.0330
2	.0320		.0370
3	.0360		.0410
4	.0390		.0440
5	.0450		.0500
6	.0520		.0570
7	.0590		.0640
8	.0680		.0730

REQUIREMENTS: ALL REQUIREMENTS SHALL CONSIST OF THIS DOCUMENT AND THE LATEST ISSUE OF AS22520.

- DIMENSIONS: UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES, TOLERANCES (DECIMALS ±.010, ANGLES ±1/2°). OUTLINE CONFIGURATION OPTIONAL WITHIN MAXIMUM DIMENSIONS SHOWN.
- MARKING: IDENTIFICATION IN ACCORDANCE WITH MIL-STD-130, STAMP AND WHITE FILL OR LASER MARKED. UNLESS OTHERWISE SPECIFIED, LETTERING HEIGHT IS .093 MIN. PART NUMBER AND COLOR SHALL BE AS SPECIFIED. TOOL IDENTIFICATION SHALL INCLUDE THE M22520/1-01 PART NUMBER, MANUFACTURER'S IDENTIFICATION OR SYMBOL, AND AS22520/3-1 INSPECTION GAGE NUMBER. SYMBOLS SHALL BE IN ACCORDANCE WITH AIR1351.
- MATERIALS: MATERIAL IS IN ACCORDANCE WITH AS22520. SURFACE TEXTURE SHALL BE 63 RMS OVER ALL IN ACCORDANCE WITH ASME B46.1-2009 (AMERICAN NATIONAL STANDARDS INSTITUTE). INDENTER MATERIAL SHALL BE TOOL STEEL, HARDENED TO ROCKWELL "C" 58-60.
- WEIGHT: WEIGHT OF TOOL FRAME WITHOUT TURRET OR POSITIONER SHALL NOT EXCEED 1.5 POUNDS. WEIGHT OF THE TURRET HEAD ASSEMBLY OR POSITIONER SHALL NOT EXCEED .50 POUND.
- TOOL COMPRESSION FORCE: THE COMPRESSION FORCE REQUIRED TO MAKE SATISFACTORY CRIMPS SHALL NOT EXCEED 120 POUNDS WHICH IS APPLICABLE FOR THE M39029/58-365 CONTACT CRIMPED ON A SIZE 12 WIRE (OR EQUIVALENT). TESTING SHALL BE IN ACCORDANCE WITH AS22520, COMPRESSION FORCE.
- TOOL FRAME INDENTER GAGING LIMITS: INDENTER GAGING LIMITS ARE DEFINED IN TABLE 1. TOOL SHALL BE REJECTED IF GO OR NO-GO GAGING DOES NOT COMPLY (SEE APPLICATION NOTE).
- TURRET INDEXING: THE TURRET SHALL BE DESIGNED SO THAT POSITIONERS ARE CORRECTLY INDEXED AND ALIGNED BEFORE TURRET CAN BE LATCHED. WHERE WINDOW TYPE POSITIONERS ARE REQUIRED, THE FOUR WINDOWS WILL POSITIVELY ALIGN TO ALLOW CLEARANCE FOR EACH INDENTER TO ENTER A WINDOW IN THE POSITIONER WHEN THE TURRET IS MOUNTED TO THE TOOL AND LATCHED. ALL POSITIONERS ARE TO BE SPRING LOADED, AND SHALL ALIGN AND STOP AT THE POSITIONER TOP SHOULDER (SEE FIGURE 1) WHEN THE TURRET OR POSITION HEAD IS MOUNTED AND LATCHED TO THE TOOL FRAME.
- TURRET LATCHING FORCE: THE FORCE REQUIRED TO PUSH THE TURRET TO THE LATCHED POSITION SHALL NOT EXCEED 22 POUNDS.
- TURRET SCREWS: TURRET ATTACHMENT SCREWS SHALL BE RETAINED IN TURRET WHEN REMOVED FROM TOOL FRAME.
- RATCHET MECHANISM: THE TOOL SHALL BE MADE WITH A TAMPER-PROOF RATCHET WHICH LIMITS THE MOVEMENT OF THE TOOL HANDLE IN BOTH DIRECTIONS, AND ASSURES A COMPLETE CLOSURE OF THE TOOL HANDLE PRIOR TO RELEASE.

	AEROSPACE STANDARD	AS22520/1 SHEET 3 OF 41	
	CRIMPING TOOLS, TYPE I, TERMINAL, HAND, WIRE TERMINATION FOR WIRE BARREL SIZES 12 THROUGH 22 AND COAXIAL INNER CONTACTS		

11. TURRET HEAD, ORDER OF POSITIONERS: POSITIONER CONFIGURATION AND COLOR CODE SHALL BE AS SPECIFIED, BUT POSITIONER DESIGNATION ORDER (A, B, C, ETC.) IS OPTIONAL.
12. ALL TURRET HEADS OR POSITIONERS SHALL BE CONFIGURED TO MOUNT ONTO THE RETAINING RING (SEE FIGURE 1) WITH SCREWS (REQUIREMENT 9) AND ALLOW POSITIONERS TO INTERFACE WITH TOOL AS DEFINED IN REQUIREMENT 7.

APPLICATION NOTES:

1. POSITIONER OR TURRET HEAD SHOULD BE ATTACHED AND IN CORRECT POSITION FOR ALL CRIMPING OPERATIONS. CRIMPING OPERATIONS WITHOUT A POSITIONER OR TURRET HEAD IS PROHIBITED.
2. INSPECTION GAGE LIMITS ARE SHOWN IN TABLE 3. USE INSPECTION GAGE AS22520/3-1 AT SELECTOR NUMBER 4 FOR ROUTINE USAGE. FOR HIGH VOLUME USAGE (PRODUCTION APPLICATION, ETC.) INSPECTION OF THE TOOL AT OTHER SELECTOR POSITIONS MAY BE NEEDED IN ACCORDANCE WITH TABLE 2.
3. THE SELECTOR NUMBER IS DETERMINED BY WIRE SIZE AND IS PROVIDED ON THE DATA PLATE FOR EACH POSITIONER REFERENCED IN TABLE 1 (I.E., TABLE 5 FOR M22520/1-02).
4. AS22520/1 CONFIGURATION IS INTENDED FOR HAND CRIMPING APPLICATIONS ONLY. SEE M22520/29-01 FOR BENCH TOP MOUNTING AND PRODUCTION APPLICATIONS.

NOTICE

USE OF HAND CRIMPING TOOLS COVERED BY THIS SPECIFICATION AS A COMPONENT IN ANY POWERED "PRESS" MAY VIOLATE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATIONS CFR 1910.211.

5. FOR APPLICABLE TURRETS AND POSITIONERS SEE TABLE 2 AND THE FOLLOWING PAGES OF THIS SPECIFICATION.

TABLE 2 - TOOL/CONTACT CRIMP APPLICATIONS SHEET LOCATIONS

CRIMP TOOL FRAME M22520/1-01 (SHEET 2)		
CONTACT DETAIL SPECIFICATION NUMBER	REQUIRED TURRET OR POSITIONER M22520/1-	POSITIONER DESCRIPTION LOCATION (SHEET NUMBER)
AS39029/1-/5, /9-/12, /29-/32, /44, /45, /92	02	6
AS39029/34-/37	03	8
OS12814 BASIC TYPE P & M	03	8
M21097/9	03	8
AS39029/56-/58, /106, /107, /117, /118, /121, /122, /123	04	11
MIS. CONTACTS (VARIABLE POSITIONER)	05	14
OS12814 TYPE M	06	16
MS18232 & MS18233	07	18
AS39029/33, /46, /47	08	20
AS39029/16, /17, /18	09	23
AS39029/17	10	25
AS39029/11, /12	11	27
M39012/16-/20, /26-/30 (INNER)	12	29
M39012/01, /02, /05, /39 (INNER)	13	31
M39012/03, /35, /36, /38, /40 (INNER)	14	33
M39012/55, /57-/59 (INNER)	15	35
AS39029/57	16	37
AS39029/69, /70	17	39
AS39029/22	18	41

SUPERSESION INFORMATION:

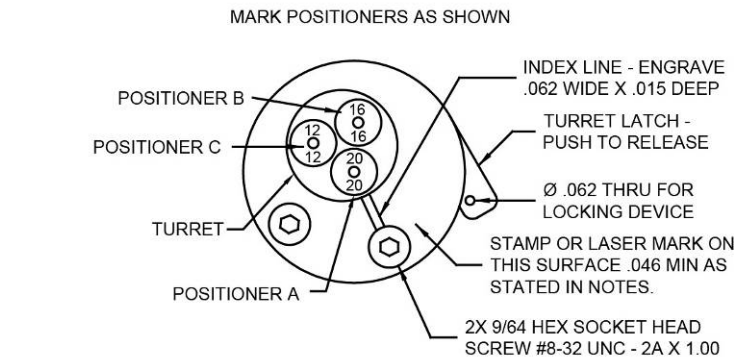
1. AS22520/1 SUPERSEDES MIL-DTL-22520/1C AND MIL-DTL-22520/1C AMENDMENT 2. PART NUMBERS REMAIN UNCHANGED.

SPECIFICATION NOTE:

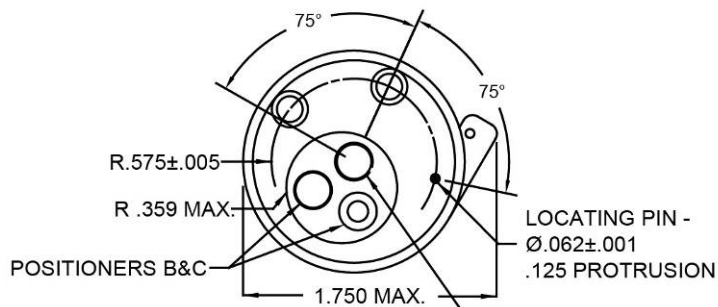
1. A CHANGE BAR (I) LOCATED IN THE LEFT MARGIN IS FOR THE CONVENIENCE OF THE USER IN LOCATING AREAS WHERE TECHNICAL REVISIONS, NOT EDITORIAL CHANGES, HAVE BEEN MADE TO THE PREVIOUS ISSUE OF THIS DOCUMENT. AN (R) SYMBOL TO THE LEFT OF THE DOCUMENT TITLE INDICATES A COMPLETE REVISION OF THE DOCUMENT, INCLUDING TECHNICAL REVISIONS. CHANGE BARS AND (R) ARE NOT USED IN ORIGINAL PUBLICATIONS NOR IN DOCUMENTS THAT CONTAIN EDITORIAL CHANGES ONLY.

	AEROSPACE STANDARD	AS22520/1 SHEET 4 OF 41	
	CRIMPING TOOLS, TYPE I, TERMINAL, HAND, WIRE TERMINATION FOR WIRE BARREL SIZES 12 THROUGH 22 AND COAXIAL INNER CONTACTS		

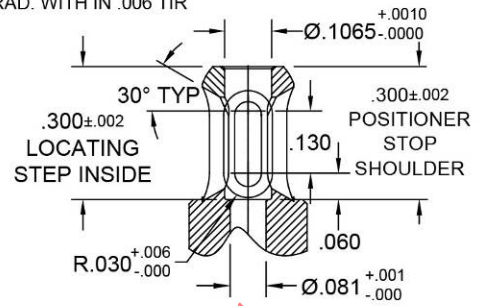
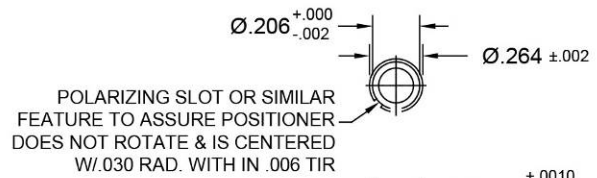
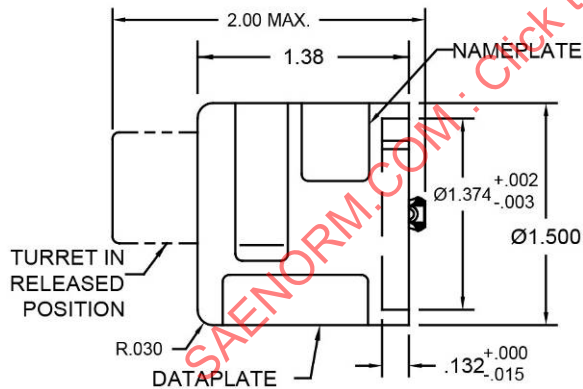
M22520/1-02 TURRET HEAD



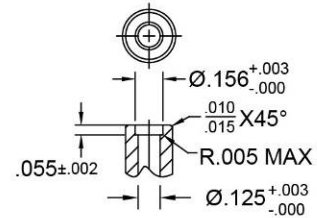
NOTE: STAMP OR LASER MARK TOP SURFACE
"M22520/1-02"



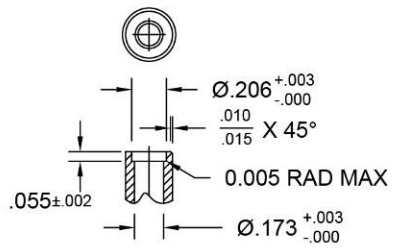
POSITIONER A- POLARIZE IN
RELATION TO INDENTERS
WHEN INSTALLED ONTO
CRIMP TOOL PIN AS SHOWN



POSITIONER
(WINDOW TYPE)
A (RED)



POSITIONER
B (BLUE)

POSITIONER
C (YELLOW)

M22520/1-02 TURRET HEAD ASSEMBLY MARKINGS

ASSEMBLY	POSITIONER			BODY	NAME PLATE
	A	B	C		
COLOR	RED	BLUE	YELLOW	BLUE	BLACK LETTERS ON CONTRASTING BACKGROUND
MARKINGS 1/	20/20	16/16	12/12	SEE FIG	

1/ CONTACT SIZE NUMBERS AS SHOWN ENGRAVED ON EACH POSITIONER TOP SURFACE.

FIGURE 2 - M22520/1-02 TURRET HEAD FOR M39029/1-5, /9-/12, /29-/32, /44-/45, /92

M22520/1-02 TURRET HEAD

M22520/1-02 DATAPLATE MARKINGS

CONTACT PART NUMBERS M39029/	COLOR CODE	CONTACT CRIMP BARREL SIZE	26	24	22	20	18	16	14	12	WIRE SIZE
1-101, 2-105, 3-108, 4-110, 5-115, 9-132 THRU -136, 10-138 THRU -142, 31-223 THRU -227, -240, -241, 32-242 THRU -246, -259, & -260, 92-532	RED	20	1	2	3	4					SELECTOR NO.
1-102, 2-106, 3-109, 4-111 & -112, 5-116 & -117, 11-146, 12-150, 29-212, 30-217 & -218, 31-228 THRU -233, 32-247 THRU -252, 44-287 & -288, 45-294 & -295, 92-533, -534	BLUE	22	1	2	3						
		20	1	2	3	4					
		16				4	5	6			
1-103, 4-113 & -114, 5-118 & -119, 29-213, 30-219, 31-234 THRU -239, 32-253 THRU -258, 44-289 & -290, 45-296 & -297, 92-535, -536	YELLOW	16				4	5	6			
		12							7	8	

NAMEPLATE MARKING (SEE FIGURE & REQUIREMENT 2)

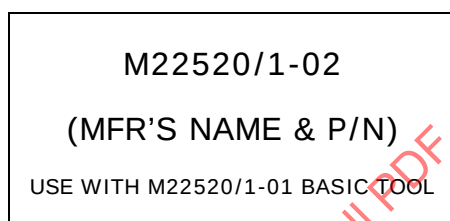


FIGURE 2 - M22520/1-02 TURRET HEAD FOR M39029/1-15, 19-112, 129-132, 144-145, 192 (CONTINUED)

APPLICATION:

- IN ADDITION TO THE STANDARD CONTACTS SPECIFIED ON THE DATAPLATE, THE POSITIONERS WILL ALSO CRIMP THE OBSOLETE CONTACTS SPECIFIED IN TABLE 3.

TABLE 3 - OBSOLETE CONTACTS FOR M22520/1-02

CONTACT BASIC PART NUMBER	OBSOLETE CONTACT DASH NUMBER ACCOMMODATION FOR EACH POSITION		
	A	B	C
MS3162 & MS3163	-20	-16	-12
MS3192 & MS3163			
MS18134 & MS18135			
MS24254 & MS24255			
MS90453 & MS90454			
MS83773/29 & /30			
MS83773/33 & /34			

SUPERSESSION:

- M22520/1-02 SUPERSEDES THE TOOLS AS INDICATED IN TABLE 4.

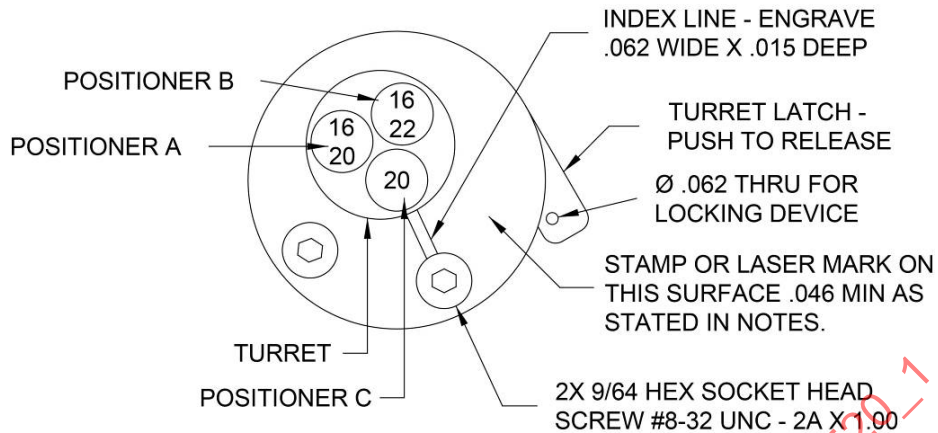
TABLE 4 - TOOL/POSITIONER SUPERSESSION INFORMATION

PART NUMBER	SUPERSEDED PART NUMBER
M22520/1-02 1/	MS27828-1

1/ MAY BE USED IN PLACE OF MS3191-3T, 12A, 16A, AND 20A, BUT IS NOT DIRECTLY INTERCHANGEABLE.

M22520/1-03 TURRET HEAD

MARK POSITIONERS AS SHOWN



NOTE: STAMP OR LASER MARK TOP SURFACE "M22520/1-03"

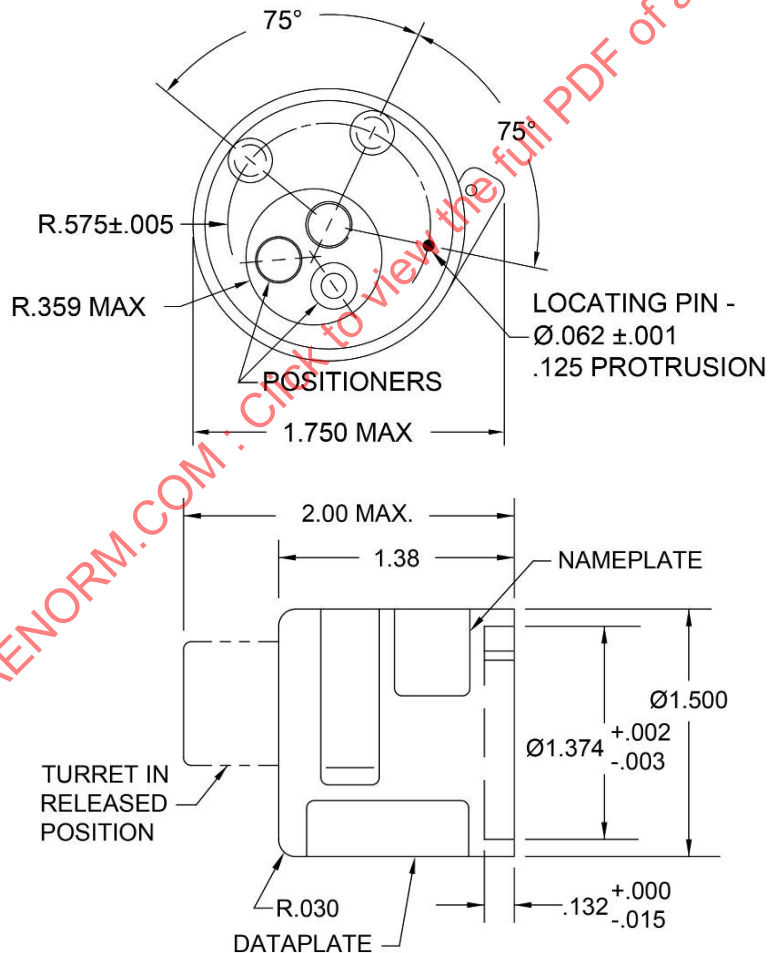
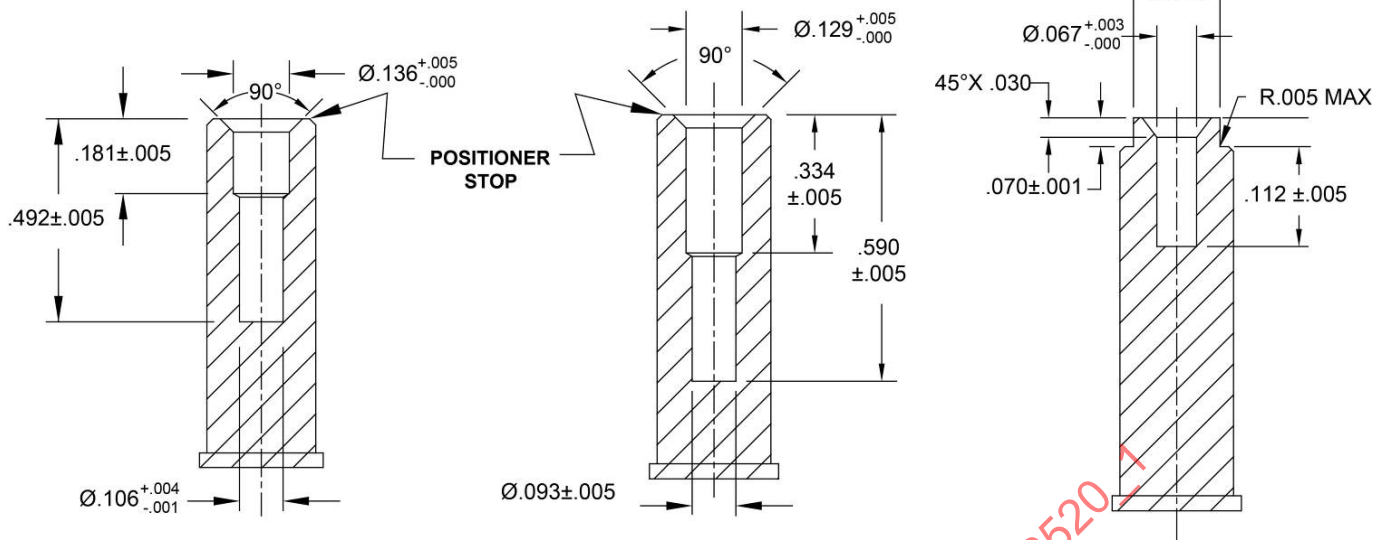


FIGURE 3 - M22520/1-03 TURRET HEAD FOR M39029/34-/37, OS12814 (TYPE P & M) CONTACTS

M22520/1-03 TURRET HEAD



COLOR CODE
(A) BLUE/RED

COLOR CODE
(B) BLACK

COLOR CODE
(C) GREEN

M22520/1-03 TURRET HEAD ASSEMBLY MARKINGS

ASSEMBLY	POSITIONER			BODY	NAME PLATE
	A	B	C		
COLOR	BLUE/RED	BLACK	GREEN	BLUE	BLACK LETTERS ON CONTRASTING BACKGROUND
MARKINGS 1/	16/20	16/22	20	SEE FIG	

1/ CONTACT SIZE NUMBERS AS SHOWN ENGRAVED ON EACH POSITIONER TOP SURFACE.

M22520/1-03 DATAPLATE MARKINGS

CONTACT PART NUMBER	POSITIONER COLOR	26	24	22	20	18	16	WIRE SIZE
M39029/34-271 THRU -273, 35-274 THRU -276, 36-277 & -278, 37-279 & -280	16 BLUE				6	7	7	SELECTOR NO.
	20 RED		4	5	6			
OS12814 BASIC TYPE P & M	16 BLACK				4	5	6	
	22 BLACK	2	3	4				
M21097/9-01	20 GREEN	1	2	3	4			

NAMEPLATE MARKING (SEE FIGURE & REQUIREMENT 2)

M22520/1-03

(MFR'S NAME & P/N)

USE WITH M22520/1-01 BASIC TOOL

FIGURE 3 - M22520/1-03 TURRET HEAD FOR M39029/34-/37, OS12814 (TYPE P & M) CONTACTS (CONTINUED)

M22520/1-03 TURRET HEAD

APPLICATION:

1. IN ADDITION TO THE STANDARD CONTACTS SPECIFIED ON THE DATAPLATE, THE POSITIONERS WILL ALSO CRIMP THE OBSOLETE CONTACTS SPECIFIED IN TABLE 5.

TABLE 5 - OBSOLETE CONTACTS FOR M22520/1-03

OBSOLETE CONTACT ACCOMMODATION FOR EACH POSITION		
A	B	C
MS17803-16-20	M21097/9-01	NONE
MS17803-16-16		
MS17803-20-20		
MS17804-16-20		
MS17804-16-16		
MS17804-20-20		
MS17807-16-16		
MS17807-16-20		
MS17808-16-16		
MS17808-16-20		

SUPERSESSION:

1. M22520/1-03 SUPERSEDES THE TOOLS AS INDICATED IN TABLE 6.

TABLE 6 - SUPERSESSION INFORMATION

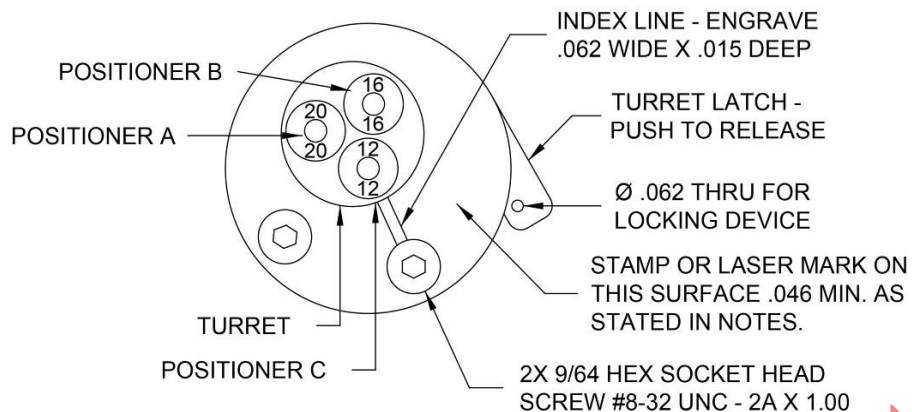
PART NUMBER	SUPERSEDED PART NUMBER
M22520/1-03 <u>1/</u>	MS27828-02

1/ MAY BE USED IN PLACE OF MS3191-8T, BUT IS NOT DIRECTLY INTERCHANGEABLE.

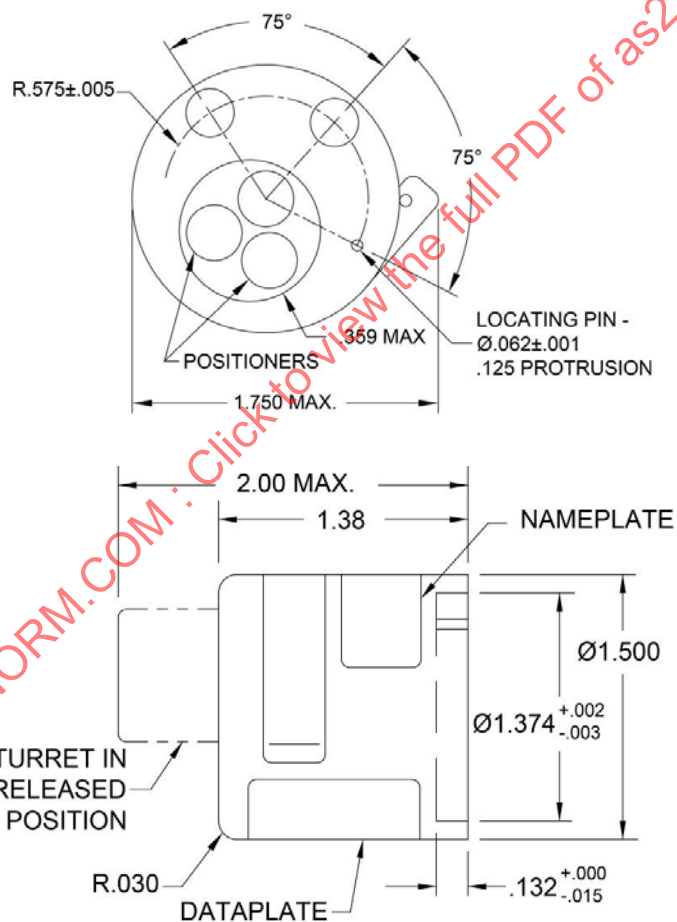
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M22520/1-04 TURRET HEAD

MARK POSITIONERS AS SHOWN



NOTE: STAMP OR LASER MARK TOP SURFACE "M22520/1-04"



FIGURES 4 - M22520/1-04 TURRET HEAD FOR M39029/56-/58, /117, /118, /121, /123 CONTACTS

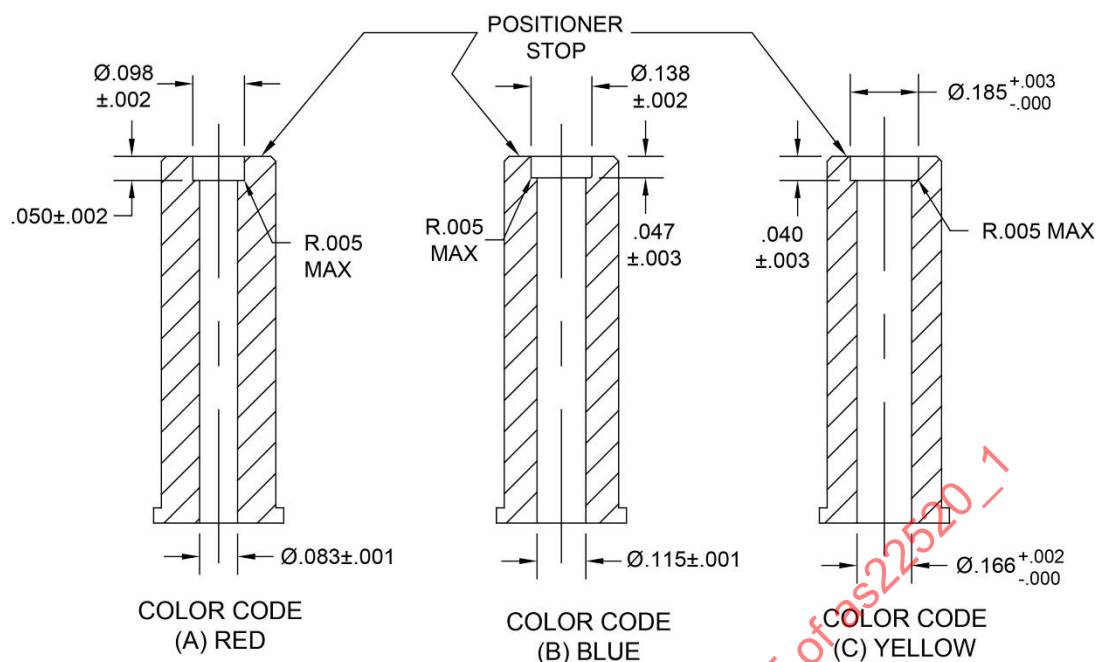


AEROSPACE STANDARD

CRIMPING TOOLS, TYPE I, TERMINAL, HAND, WIRE
TERMINATION FOR WIRE BARREL SIZES 12
THROUGH 22 AND COAXIAL INNER CONTACTS

AS22520/1
SHEET 10 OF 41

M22520/1-04 TURRET HEAD



M22520/1-04 TURRET HEAD ASSEMBLY MARKINGS

ASSEMBLY COLOR	POSITIONER			BODY BLUE SEE FIG.	NAME PLATE BLACK LETTERS ON CONTRASTING BACKGROUND
	A	B	C		
MARKINGS <u>1/</u>	20/20	16/16	12/12		

1/ CONTACT SIZE NUMBERS AS SHOWN ENGRAVED ON EACH POSITIONER TOP SURFACE.

M22520/1-04 DATAPLATE MARKINGS

CONTACTS M39029/	POSITIONER COLOR	24	22	20	18	16	14	12	WIRE SIZE
56-351, 57-357, 58-363, 106-615, 107-621, 117-632, 117- 644, 118-638, 118-650, 121-665, 122-672, 123-689	RED	1	2	3					SELECTOR NO.
56-352, 57-358, 58-364, 106-616, 107-622, 117-633, 117- 645, 118-639, 118-651, 121-666, 122-673, 123-690	BLUE			4	5	6			
56-353, 57-359, 58-365, 106-617, 107-623, 117-634, 117- 646, 118-640, 118-652, 121-667, 122-374, 123-691	YELLOW						7	8	



AEROSPACE STANDARD

CRIMPING TOOLS, TYPE I, TERMINAL, HAND, WIRE
TERMINATION FOR WIRE BARREL SIZES 12
THROUGH 22 AND COAXIAL INNER CONTACTS

AS22520/1
SHEET 11 OF 41

NAMEPLATE MARKING (SEE FIGURE & REQUIREMENT 2)

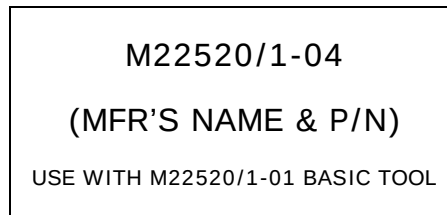


FIGURE 4 - M22520/1-04 TURRET HEAD FOR M39029/56-/58, /117, /118, /121, /123 CONTACTS (CONTINUED)

M22520/1-04 TURRET HEAD

APPLICATION:

1. IN ADDITION TO THE STANDARD CONTACTS SPECIFIED ON THE DATAPLATE, THE POSITIONERS WILL ALSO CRIMP THE OBSOLETE CONTACTS SPECIFIED IN TABLE 7.

SUPERSESSION:

1. M22520/1-04 SUPERSEDES THE TOOLS AS INDICATED IN TABLE 8.

TABLE 7 - OBSOLETE CONTACTS FOR AS22520/1-04

CONTACT BASIC PART NUMBER	OBSOLETE CONTACT DASH NUMBER ACCOMMODATION FOR EACH POSITION		
	A	B	C
MS27490	-20	-16	-12
MS27491			
MS27492			
MS27494			
MS27495			

TABLE 8 - SUPERSESSION INFORMATION

PART NUMBER	SUPERSEDED PART NUMBER
M22520/1-04 1/	MS27828-4

1/ MAY BE USED IN PLACE OF MS3191-9T, BUT IS NOT DIRECTLY INTERCHANGEABLE.

M22520/1-05 POSITIONER

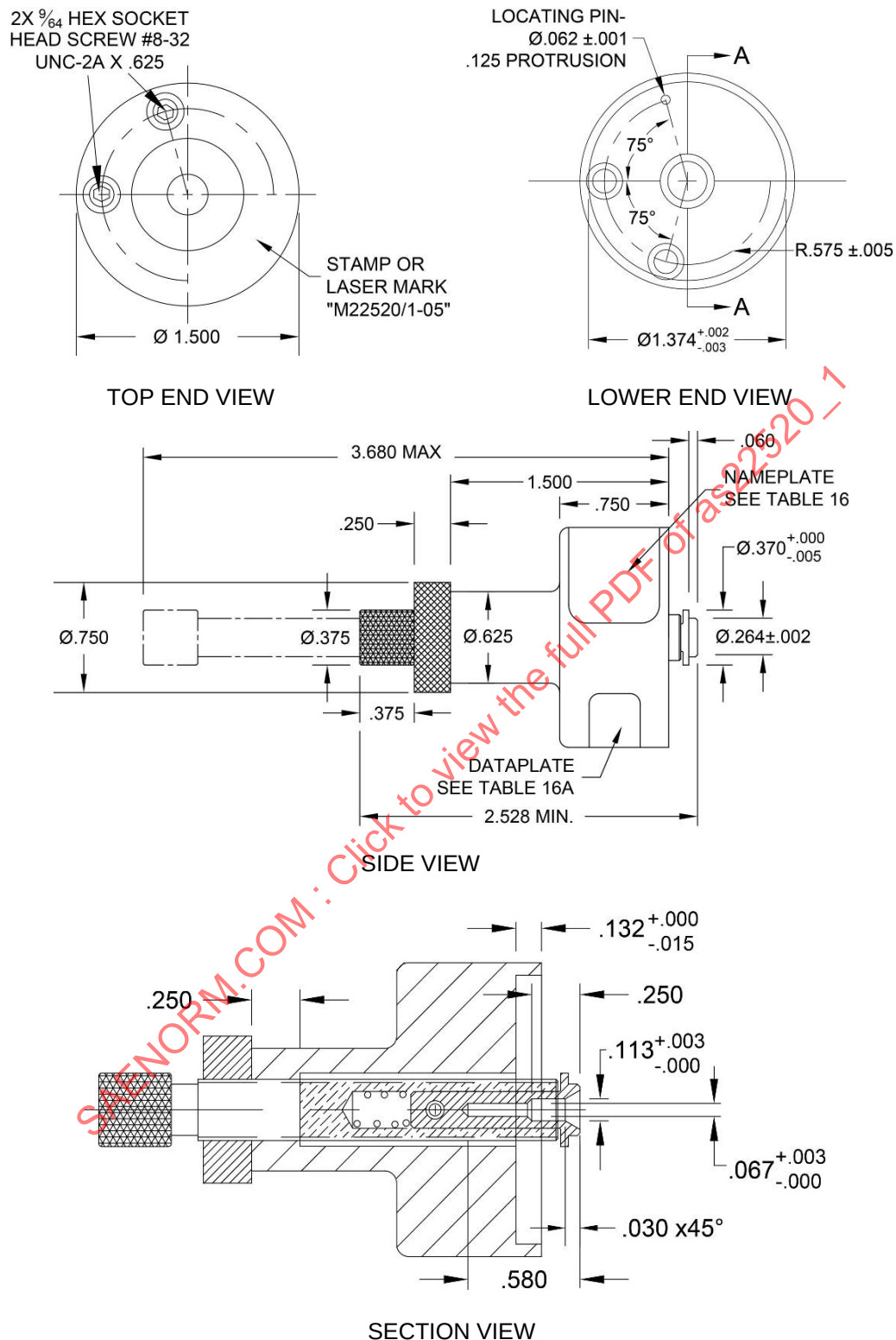


FIGURE 5 - M22520/1-05 UNIVERSAL POSITIONER FOR MISCELLANEOUS CONTACTS

	AEROSPACE STANDARD	AS22520/1 SHEET 13 OF 41	
	CRIMPING TOOLS, TYPE I, TERMINAL, HAND, WIRE TERMINATION FOR WIRE BARREL SIZES 12 THROUGH 22 AND COAXIAL INNER CONTACTS		

M22520/1-05 POSITIONER

M22520/1-05 UNIVERSAL POSITIONER MARKINGS

POSITIONER PART NUMBER	BODY COLOR	CONTACTS	NAMEPLATE MARKING
M22520/1-05	BLUE	OPTIONAL	BLACK LETTERS ON CONTRASTING BACKGROUND

NAMEPLATE MARKING (SEE FIGURE & REQUIREMENT 2)

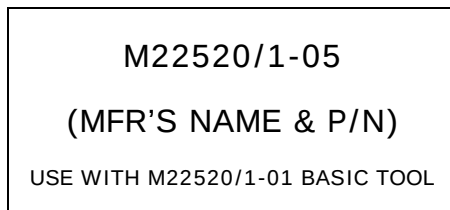


FIGURE 5 - M22520/1-05 UNIVERSAL POSITIONER FOR MISCELLANEOUS CONTACTS (CONTINUED)

APPLICATION:

1. UNIVERSAL POSITIONER IS DESIGNED FOR LAB WORK OR PRODUCTION PROTOTYPE DEVELOPMENT OF A CONTACT/WIRE CRIMP COMBINATION. WHEN THE CORRECT CRIMP COMBINATION IS ESTABLISHED, THE LOCK NUT SHALL BE USED TO MAINTAIN THE CONTACT POSITION FOR MULTIPLE CRIMPS.
2. THE TYPICAL SELECTOR SETTINGS FOR WIRE SIZES ARE SHOWN IN TABLE 9.

TABLE 9 - TYPICAL SELECTOR SETTING FOR WIRE SIZES

SELECTOR	1	2	3	4	5	6	7	8
WIRE SIZE	26	24	22	20	18	16	14	12

3. WHEN USING M22520/1-05 UNIVERSAL CRIMPING HEAD, ADJUST THREADED POSITIONER TO A LOCATION WHERE THE CRIMP IS CENTERED BETWEEN THE TOP OF THE WIRE BARREL, AND THE INSPECTION HOLE (OR NEXT FEATURE) ON THE CONTACT AND LOCK IN PLACE WITH THE LOCKING NUT PROVIDED. THE SELECTOR SETTINGS (CRIMP DEPTH) SPECIFIED ON THE DATAPLATE OF THE M22520/1-05 UNIVERSAL HEAD ARE FOR REFERENCE ONLY. IF THE CRIMP DEPTH IS SPECIFIED IN THE WORK PROCESS, A DRAWING, OR OTHER DOCUMENTATION, THE LATTER SHALL HAVE PRECEDENCE.
4. BECAUSE THE CRIMP ZONE CAN BE ADJUSTED, AS22520/1-05 POSITIONER IS NOT RECOMMENDED FOR PRODUCTION OR MAINTENANCE OPERATIONS.

SUPERSESSION:

1. M22520/1-05 SUPERSEDES THE TOOLS AS INDICATED IN TABLE 10.

TABLE 10 - SUPERSESSION INFORMATION

PART NUMBER	SUPERSEDED PART NUMBER
M22520/1-05 <u>1</u>	MS27828-02

1 MAY BE USED IN PLACE OF MS3191-8T, BUT IS NOT DIRECTLY INTERCHANGEABLE.

M22520/1-06 POSITIONER

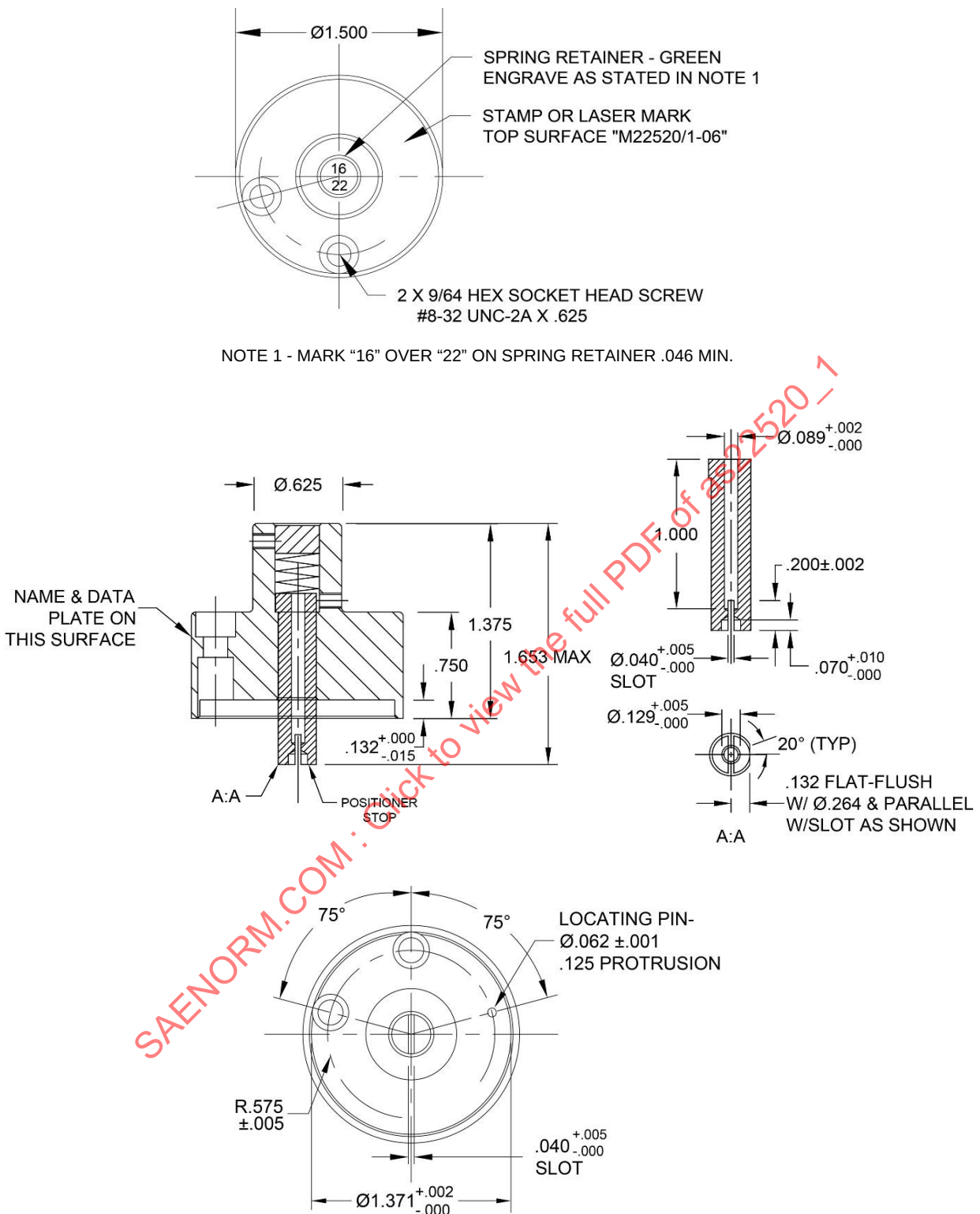


FIGURE 6 - M22520/1-06 POSITIONER FOR OS12814 (TYPE M) CONTACTS

	AEROSPACE STANDARD CRIMPING TOOLS, TYPE I, TERMINAL, HAND, WIRE TERMINATION FOR WIRE BARREL SIZES 12 THROUGH 22 AND COAXIAL INNER CONTACTS	AS22520/1 SHEET 15 OF 41	
---	---	--	--

M22520/1-06 POSITIONER

M22520/1-06 POSITIONER MARKINGS

POSITIONER PART NUMBER	BODY COLOR	NAMEPLATE MARKING
M22520/1-06	BLUE	BLACK LETTERS ON CONTRASTING BACKGROUND

NAMEPLATE MARKING (SEE FIGURE & REQUIREMENT 2)

M22520/1-06
(MFR'S NAME & P/N)
USE WITH M22520/1-01 BASIC TOOL

M22520/1-06 POSITIONER CONTACT DATAPLATE

ALTERNATE OS12814 TYPE M		26	24	22	20	18	16	WIRE SIZE
	-16				5	6	7	SELECTOR SETTING
	-22	5	6	6				

FIGURE 6 - M22520/1-06 POSITIONER FOR OS12814 (TYPE M) CONTACTS (CONTINUED)

SUPERSESSION:

- M22520/1-06 SUPERSEDES THE TOOLS AS INDICATED IN TABLE 11.

TABLE 11 - SUPERSESSION INFORMATION

PART NUMBER	SUPERSEDED PART NUMBER
M22520/1-06	1/

1/ MAY BE USED IN PLACE OF MS3191-8T, BUT IT IS NOT DIRECTLY INTERCHANGEABLE.

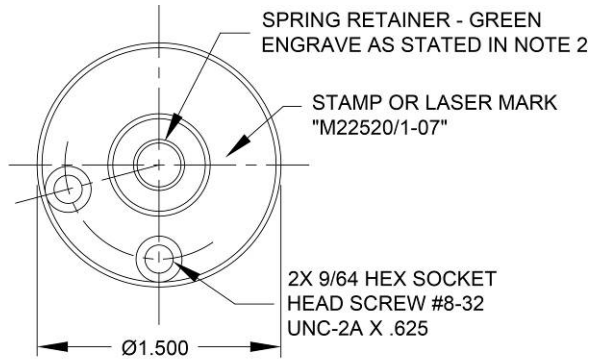


AEROSPACE STANDARD

CRIMPING TOOLS, TYPE I, TERMINAL, HAND, WIRE
TERMINATION FOR WIRE BARREL SIZES 12
THROUGH 22 AND COAXIAL INNER CONTACTS

AS22520/1
SHEET 16 OF 41

M22520/1-07 POSITIONER



NOTES:

1. Cable size marking not required on spring retainer
2. Stamp or laser mark .046 min. on top surface "M22520/1-07"

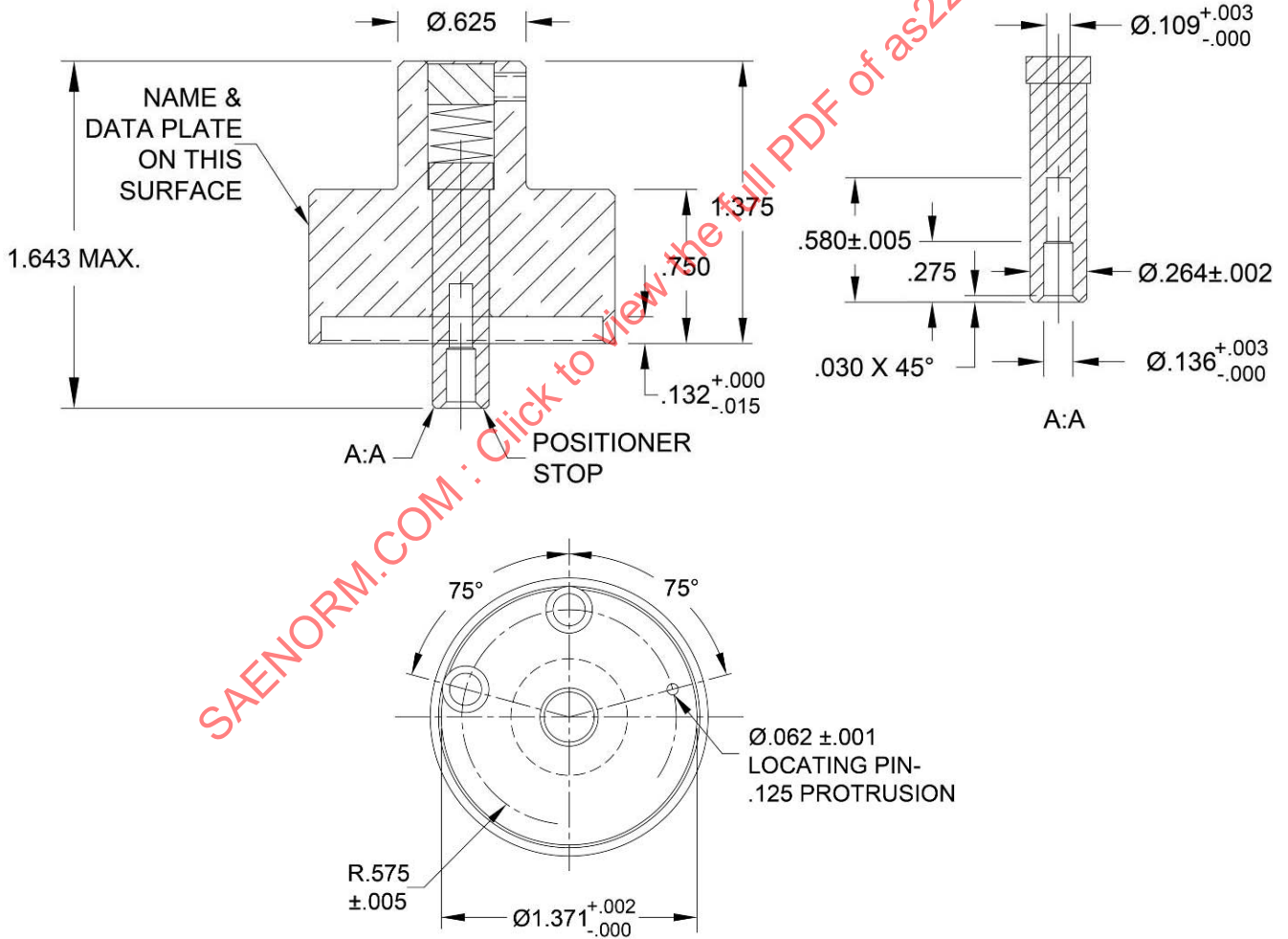


FIGURE 7 - M22520/1-07 POSITIONER FOR MS18232 AND MS18233 CONTACTS

M22520/1-07 POSITIONER

M22520/1-07 POSITIONER MARKINGS

POSITIONER PART NUMBER	BODY COLOR	NAMEPLATE MARKING
M22520/1-07	BLUE	BLACK LETTERS ON CONTRASTING BACKGROUND

NAMEPLATE MARKING (SEE FIGURE & REQUIREMENT 2)

M22520/1-07 (MFR'S NAME & P/N) USE WITH M22520/1-01 BASIC TOOL
--

M22520/1-07 POSITIONER CONTACT DATAPLATE

MS18232 & MS18233 OUTER PIN & SOCKET RG178/U & RG196/U CABLES CRIMP AT SELECTOR NO.7

FIGURE 7 - M22520/1-07 POSITIONER FOR MS18232 AND MS18233 CONTACTS (CONTINUED)

APPLICATION:

1. IN ADDITION TO THE STANDARD CONTACTS SPECIFIED ON THE DATAPLATE, THIS POSITIONER WILL ALSO CRIMP THE OBSOLETE CONTACTS SPECIFIED IN TABLE 12

TABLE 12 - OBSOLETE CONTACTS

CONTACTS ACCOMMODATED (REF.)
OUTER PIN & SOCKET
MS18232
MS18233

SUPERSESSION:

1. M22520/1-07 SUPERSEDES THE TOOLS AS INDICATED IN TABLE 13.

TABLE 13 - SUPERSESSION INFORMATION

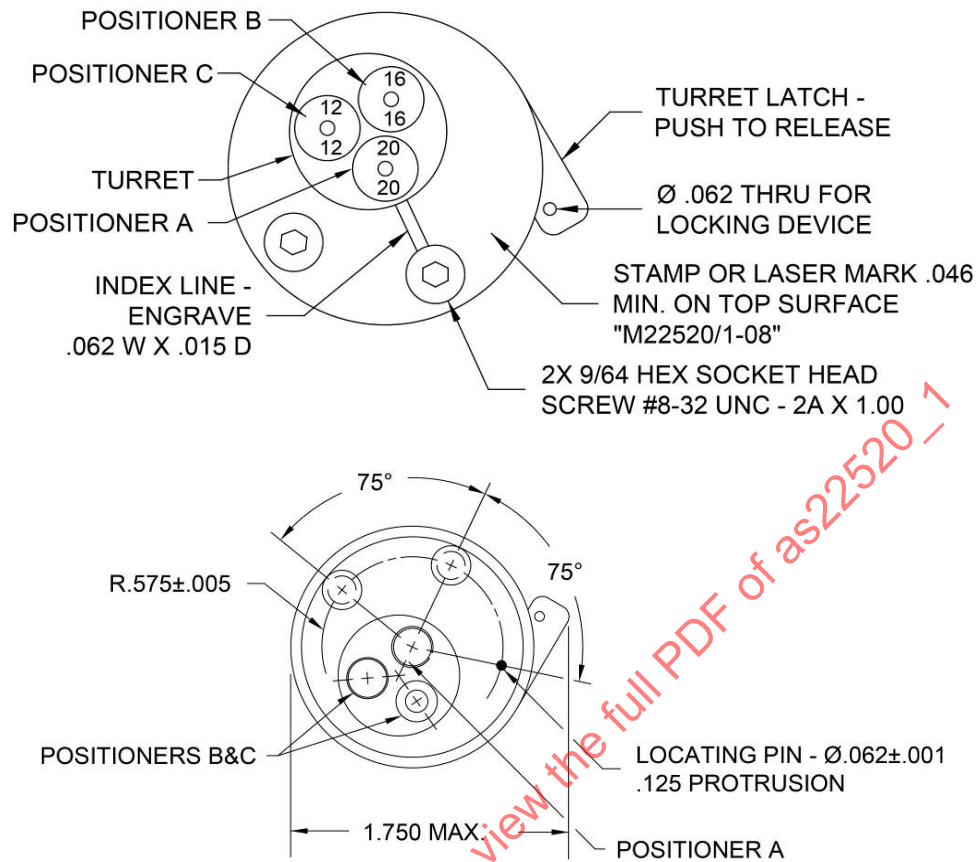
PART NUMBER	SUPERSEDED PART NUMBER
M22520/1-07	<u>1/</u>

1/ MAY BE USED IN PLACE OF MS3191-7T, BUT IT IS NOT DIRECTLY INTERCHANGEABLE.

	AEROSPACE STANDARD	AS22520/1 SHEET 18 OF 41	
	CRIMPING TOOLS, TYPE I, TERMINAL, HAND, WIRE TERMINATION FOR WIRE BARREL SIZES 12 THROUGH 22 AND COAXIAL INNER CONTACTS		

M22520/1-08 TURRET HEAD

MARK POSITIONERS AS SHOWN



NOTE: Positioners A, B, & C shall be polarized by a slot and a pin, or similar feature to align the positioner in correct alignment with tool indenters when installed on to the crimp tool, and latched into position.

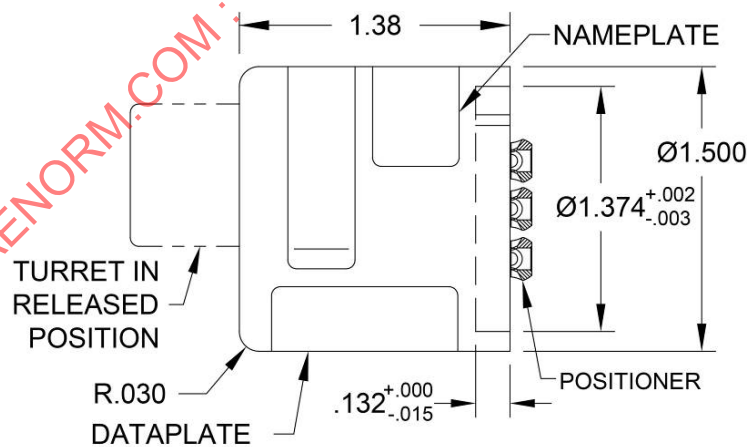
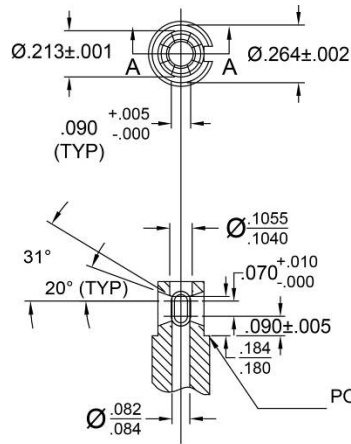
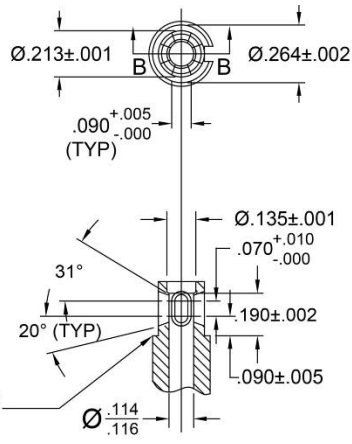


FIGURE 8 - M22520/1-08 TURET HEAD FOR M39029/33, /46, /47 CONTACTS

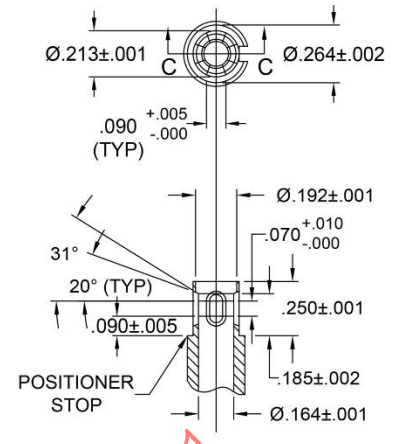
M22520/1-08 POSITIONER



SECTION A-A
(WINDOW TYPE)
POSITIONER
A (RED)



SECTION B-B
(WINDOW TYPE)
POSITIONER
B (BLUE)



SECTION C-C
(WINDOW TYPE)
POSITIONER
C (YELLOW)

NOTE: POLARIZING SLOT SHALL BE CENTERED WITH .090 DIM WITHIN $\pm .005$ T.I.R. (TYP)

M22520/1-08 TURRET HEAD ASSEMBLY MARKINGS

ASSEMBLY	POSITIONER			BODY	NAME PLATE
	A	B	C		
COLOR	RED	BLUE	YELLOW	BLUE	BLACK LETTERS ON CONTRASTING BACKGROUND
MARKINGS	20	16	12	SEE FIG.	

1/ CONTACT SIZE NUMBERS AS SHOWN ENGRAVED TWICE ON OPPOSITE SIDES ON EACH POSITIONER TOP SURFACE.

M22520/1-08 TURRET HEAD DATAPLATE

CONTACTS M39029/	POSITIONER AND MATING COLOR	26	24	22	20	18	16	14	12	WIRE SIZE
33-266 46-306 47-316	RED	1	2	3	4					SELECTOR NO.
33-268 46-308 47-337	BLUE				4	5	6			
33-270 46-310 47-339	YELLOW							7	8	



AEROSPACE STANDARD

CRIMPING TOOLS, TYPE I, TERMINAL, HAND, WIRE
TERMINATION FOR WIRE BARREL SIZES 12
THROUGH 22 AND COAXIAL INNER CONTACTS

AS22520/1
SHEET 20 OF 41

NAMEPLATE MARKING (SEE FIGURE & REQUIREMENT 2)

M22520/1-08 (MFR'S NAME & P/N) USE WITH M22520/1-01 BASIC TOOL

FIGURE 8 - M22520/1-08 TURRET HEAD FOR M39029/33, /46, /47 CONTACTS (CONTINUED)

M22520/1-08 POSITIONER

APPLICATION:

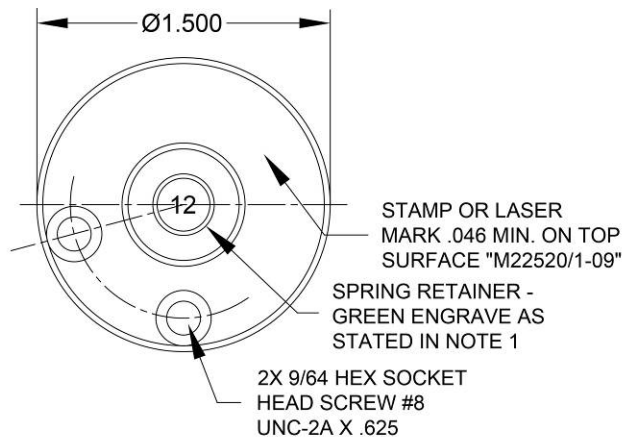
1. IN ADDITION TO THE STANDARD CONTACTS SPECIFIED ON THE DATAPLATE, THE POSITIONERS WILL ALSO CRIMP THE OBSOLETE CONTACTS SPECIFIED IN TABLE 14.

TABLE 14 - OBSOLETE CONTACTS

CONTACT BASIC PART NUMBER	OBSOLETE CONTACT DASH NUMBER ACCOMMODATION FOR EACH POSITION		
	A	B	C
MS3343	-20-20 (A & B)	-16-16 (A & B)	-12-12 (A & B)
MS90460			
MS90461			

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M22520/1-09 POSITIONER



NOTE 1 - MARK SPRING RETAINER WITH THE NUMBER "12"

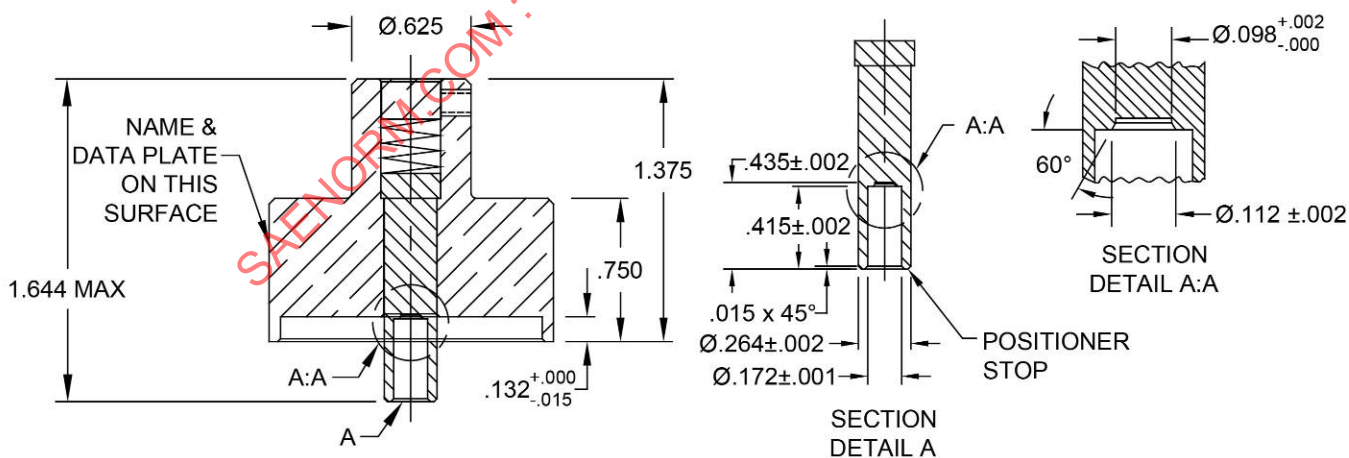
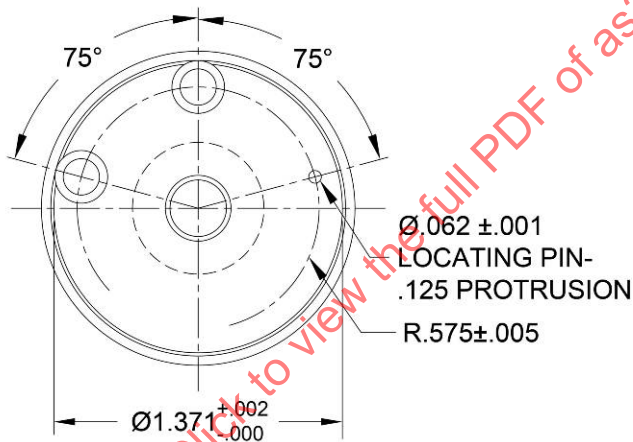


FIGURE 9 - M22520/1-09 POSITIONER FOR M39029/16 AND /18 CONTACTS

M22520/1-09 POSITIONER

M22520/1-09 POSITIONER MARKINGS

POSITIONER PART NUMBER	BODY COLOR	NAMEPLATE MARKING
M22520/1-09	BLUE	BLACK LETTERS ON CONTRASTING BACKGROUND

NAMEPLATE MARKING (SEE FIGURE & REQUIREMENT 2)

M22520/1-09
(MFR'S NAME & P/N)
USE WITH M22520/1-01 BASIC TOOL

M22520/1-09 POSITIONER DATAPLATE

CONTACTS M39029/ 16-170 17-175 18-180	12	14	WIRE SIZE SELECTOR NO.
	7	6	

FIGURE 9 - M22520/1-09 POSITIONER FOR M39029/16 AND 18 CONTACTS (CONTINUED)

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M22520/1-10 POSITIONER

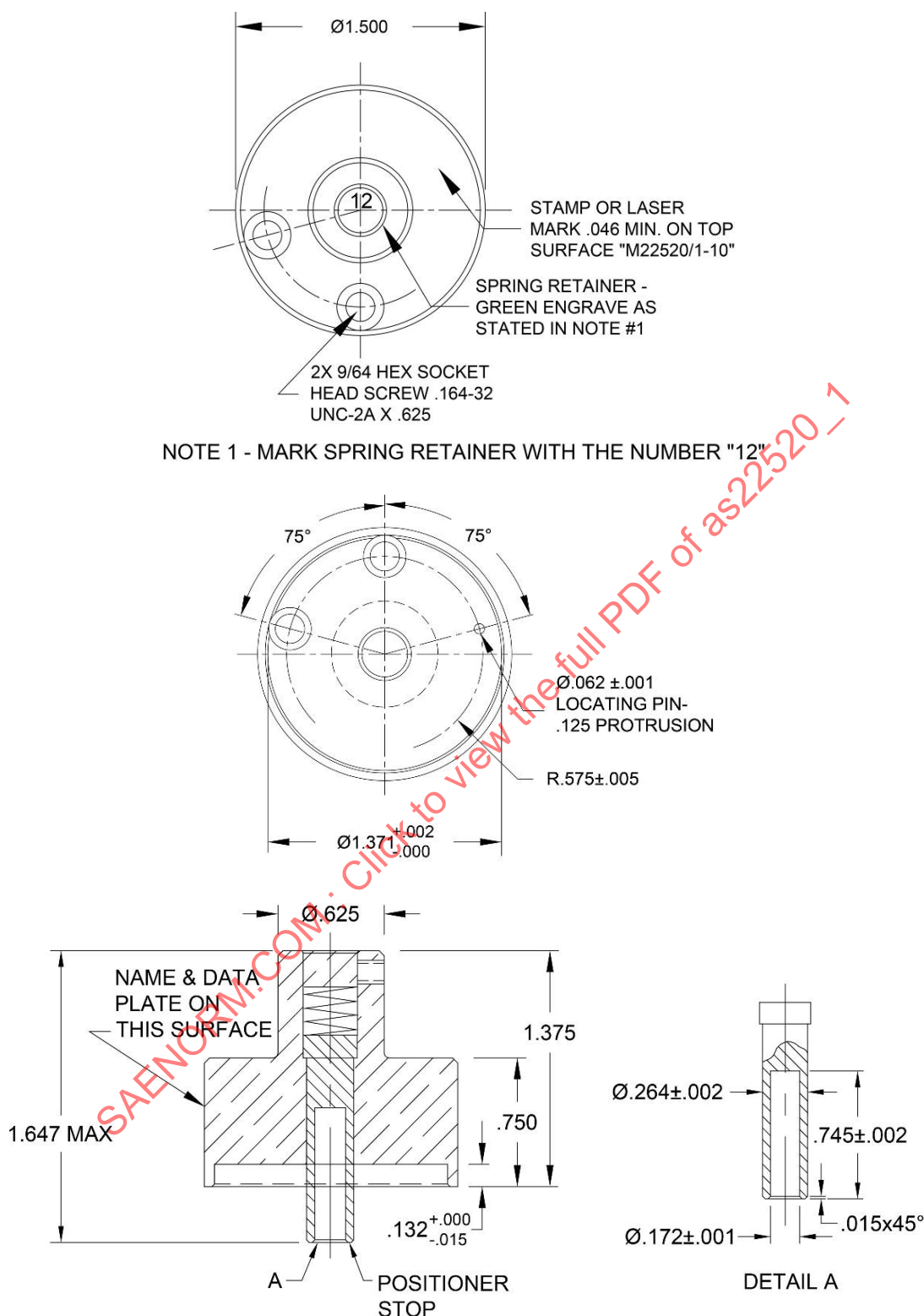


FIGURE 10 - M22520/1-10 POSITIONER FOR M39029/17 CONTACTS

	AEROSPACE STANDARD	AS22520/1 SHEET 24 OF 41
	CRIMPING TOOLS, TYPE I, TERMINAL, HAND, WIRE TERMINATION FOR WIRE BARREL SIZES 12 THROUGH 22 AND COAXIAL INNER CONTACTS	

M22520/1-10 POSITIONER

M22520/1-10 POSITIONER MARKINGS

POSITIONER	BODY COLOR	NAMEPLATE MARKING
M22520/1-10	BLUE	BLACK LETTERS ON CONTRASTING BACKGROUND

NAMEPLATE MARKING (SEE FIGURE & REQUIREMENT 2)

M22520/1-10
(MFR'S NAME & P/N)
USE WITH M22520/1-01 BASIC TOOL

M22520/1-10 DATAPLATE

M39029/17-175	12	14	WIRE SIZE
	7	6	SELECTOR NO.

FIGURE 10 - M22520/1-10 POSITIONER FOR M39029/17 CONTACTS (CONTINUED)

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M22520/1-11 POSITIONER

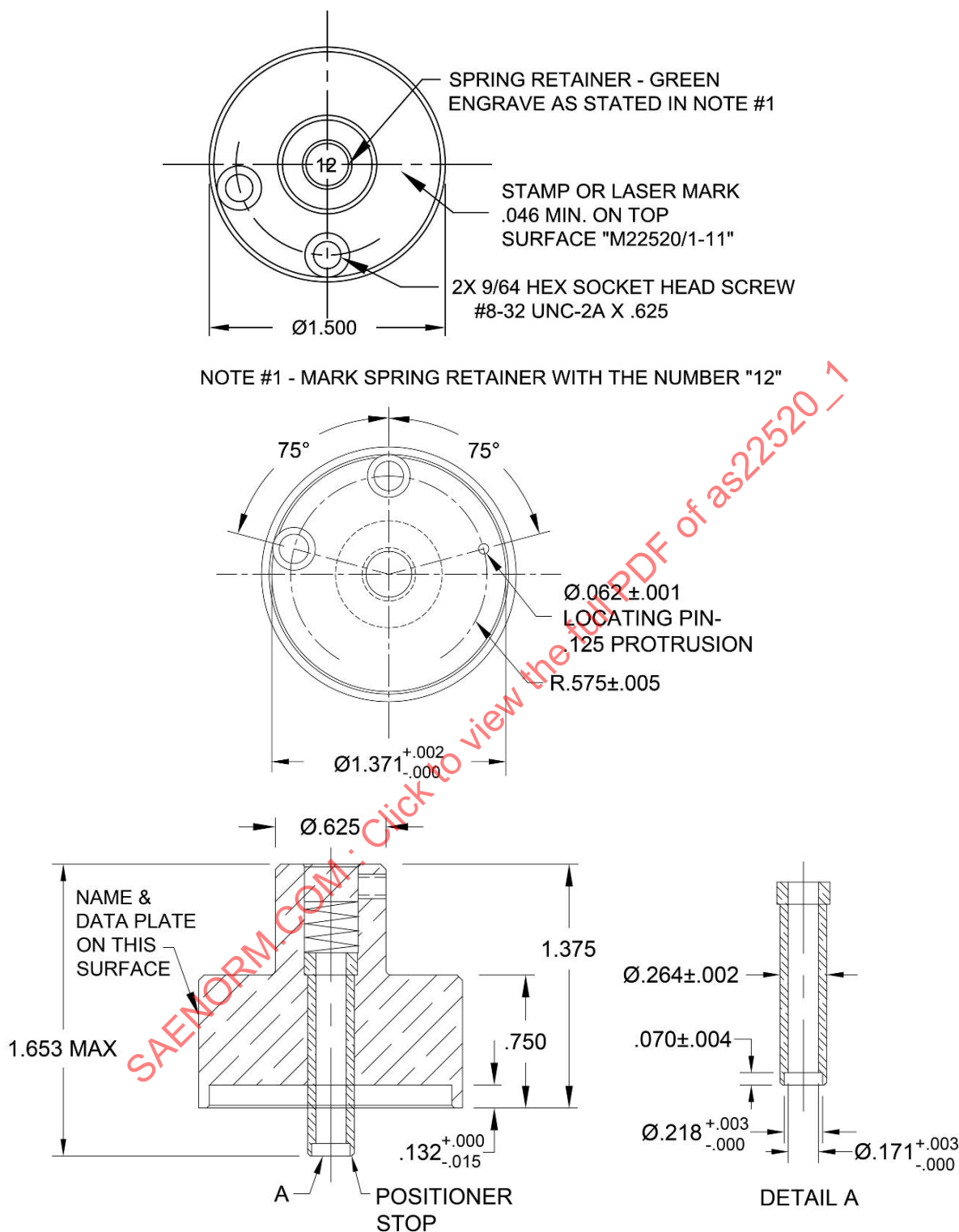


FIGURE 11 - M22520/1-11 POSITIONER FOR M39029/11 AND /12 CONTACTS

	AEROSPACE STANDARD	AS22520/1 SHEET 26 OF 41	
	CRIMPING TOOLS, TYPE I, TERMINAL, HAND, WIRE TERMINATION FOR WIRE BARREL SIZES 12 THROUGH 22 AND COAXIAL INNER CONTACTS		

M22520/1-11 POSITIONER

M22520/1-11 POSITIONER MARKINGS

POSITIONER	BODY COLOR	NAMEPLATE MARKING
M22520/1-11	BLUE	BLACK LETTERS ON CONTRASTING BACKGROUND

NAMEPLATE MARKING (SEE FIGURE & REQUIREMENT 2)

M22520/1-11
(MFR'S NAME & P/N)
USE WITH M22520/1-01 BASIC TOOL

M22520/1-11 POSITIONER DATAPLATE

CONTACTS M39029/ 11-147 12-151	12 8	14 7	WIRE SIZE SELECTOR NO.
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FIGURE 11 - M22520/1-11 POSITIONER FOR M39029/11 AND /12 CONTACTS (CONTINUED)

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M22520/1-12 TURRET HEAD

MARK POSITIONERS AS SHOWN

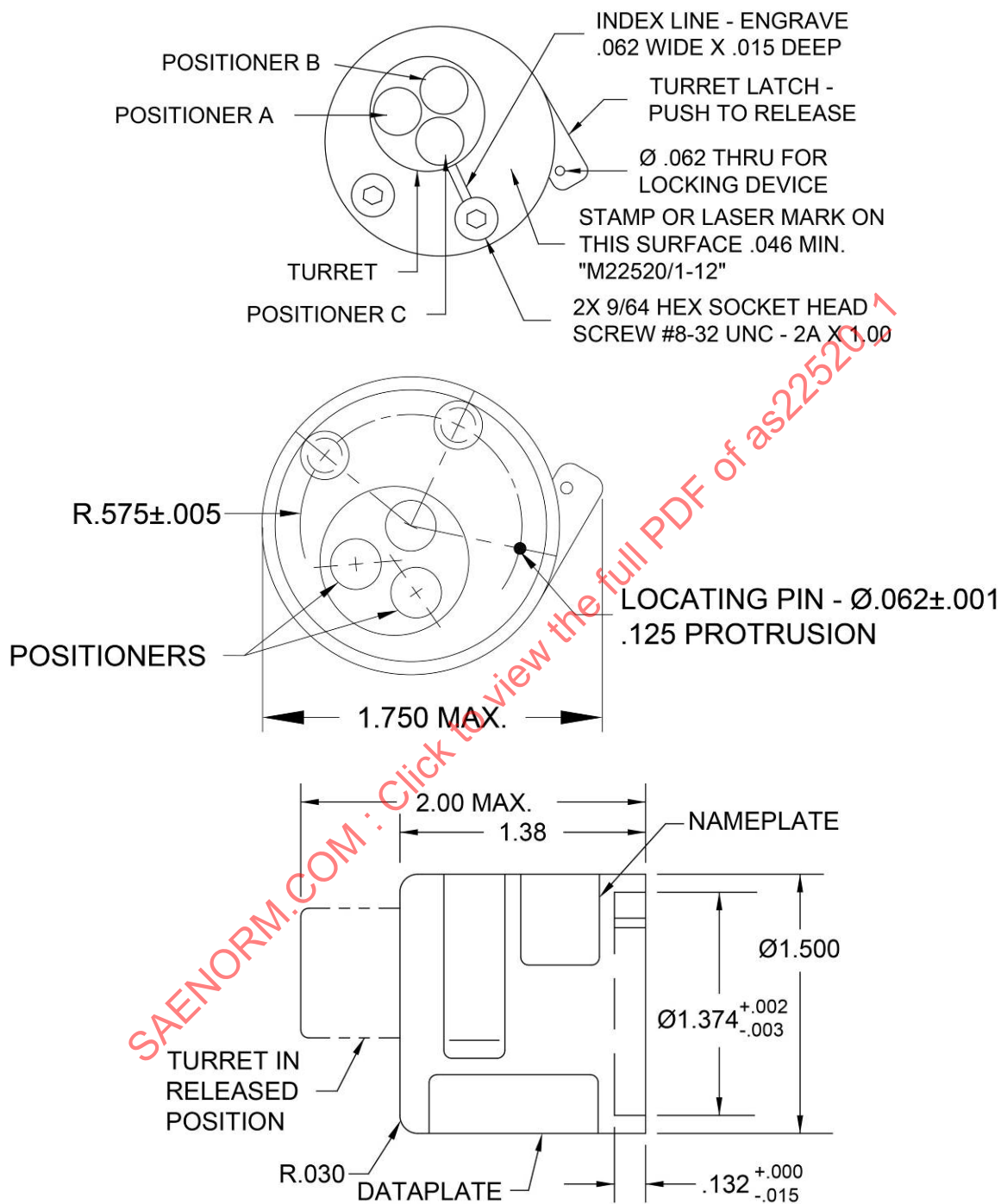
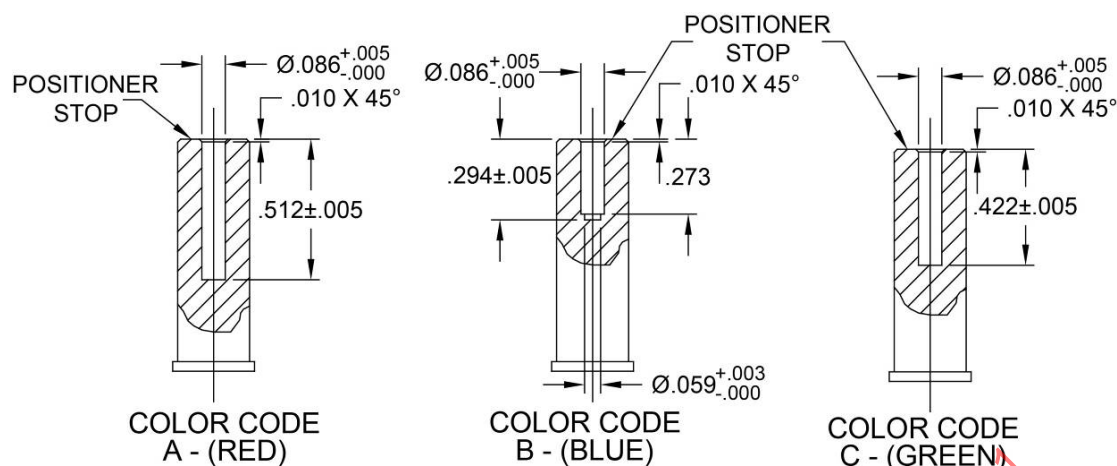


FIGURE 12 - M22520/1-12 TURRET HEAD FOR M39012/16-/20, /26-/30 INNER CONTACTS

	AEROSPACE STANDARD	AS22520/1 SHEET 28 OF 41	
	CRIMPING TOOLS, TYPE I, TERMINAL, HAND, WIRE TERMINATION FOR WIRE BARREL SIZES 12 THROUGH 22 AND COAXIAL INNER CONTACTS		

M22520/1-12 TURRET HEAD



M22520/1-12 TURRET HEAD ASSEMBLY MARKINGS

ASSEMBLY	POSITIONER			BODY	NAME PLATE
	A	B	C		
COLOR	RED	BLUE	GREEN	BLUE	BLACK LETTERS ON CONTRASTING BACKGROUND

M39012/	POSITIONER COLOR	RG 122/U	RG 142/U	RG 180/U	RG 195/U	RG 400/U	CABLE
16-0503, 26-0503	BLUE		5		3	5	SELECTOR SETTINGS
16-0502, 26-0502				3	3		
16-0501, 26-0501		6					
17-0503, 27-0503			5			5	
17-0502, 27-0502				3	3		
17-0501, 27-0501		6					
18-0503, 29-0503	GREEN		5			5	
18-0502, 29-0502				3	3		
18-0501, 29-0501		6					
20-0503, 30-0503			5			5	
20-0502, 30-0502				3	3		
20-0501, 30-0501		6					
19-0503, 28-0503	RED		5			5	
19-0502, 28-0502				3	3		
19-0501, 28-0501		6					

M22520/1-12 DATAPLATE

M22520/1-12
(MFR'S NAME & P/N)
USE WITH M22520/1-01 BASIC TOOL

NAMEPLATE MARKING (SEE FIGURE & REQUIREMENT 2)

FIGURE 12 - M22520/1-12 TURRET HEAD FOR M39012/16-/20, /26-/30 INNER CONTACTS (CONTINUED)

	AEROSPACE STANDARD	AS22520/1 SHEET 29 OF 41	
	CRIMPING TOOLS, TYPE I, TERMINAL, HAND, WIRE TERMINATION FOR WIRE BARREL SIZES 12 THROUGH 22 AND COAXIAL INNER CONTACTS		

M22520/1-13 TURRET HEAD

MARK POSITIONERS AS SHOWN

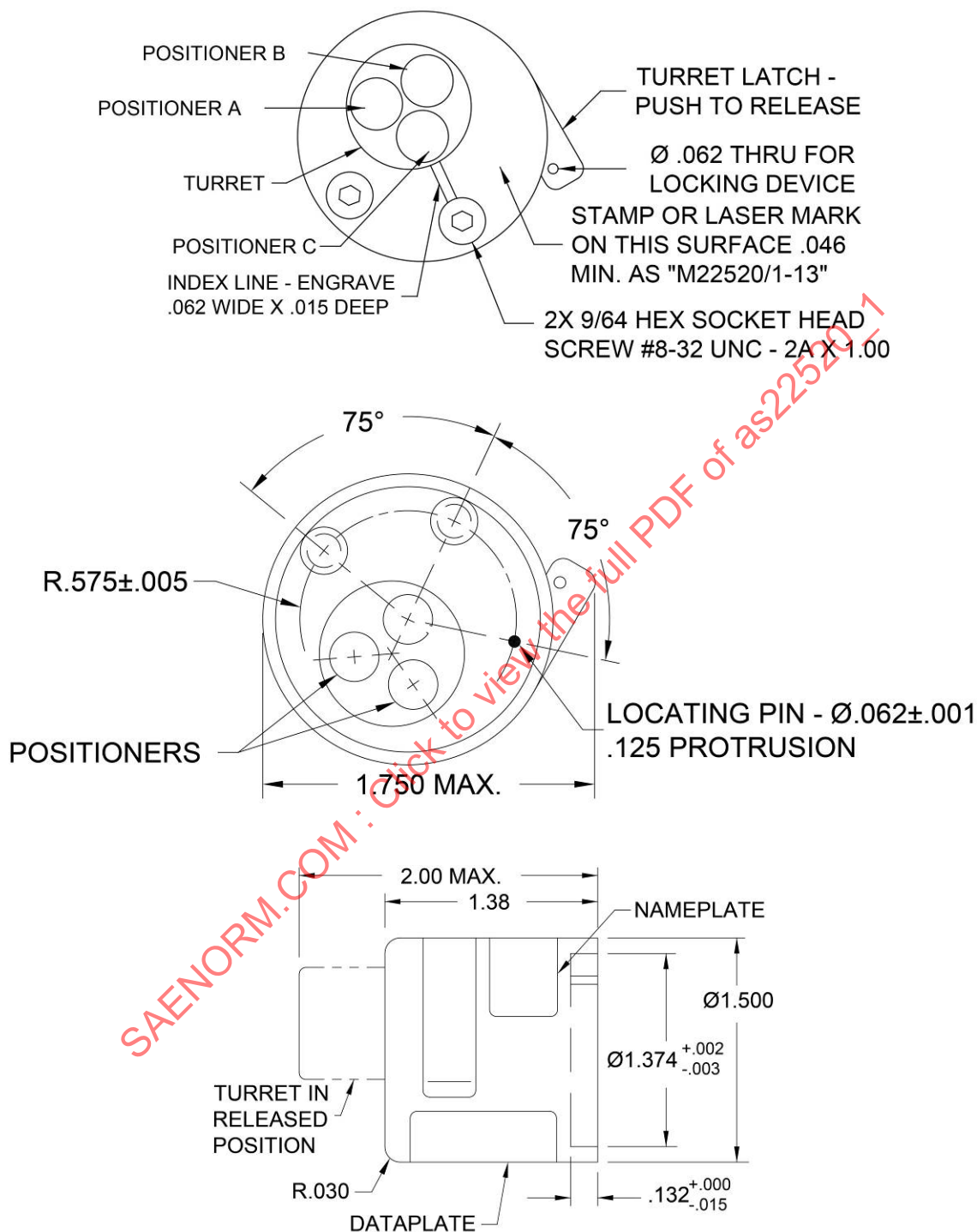
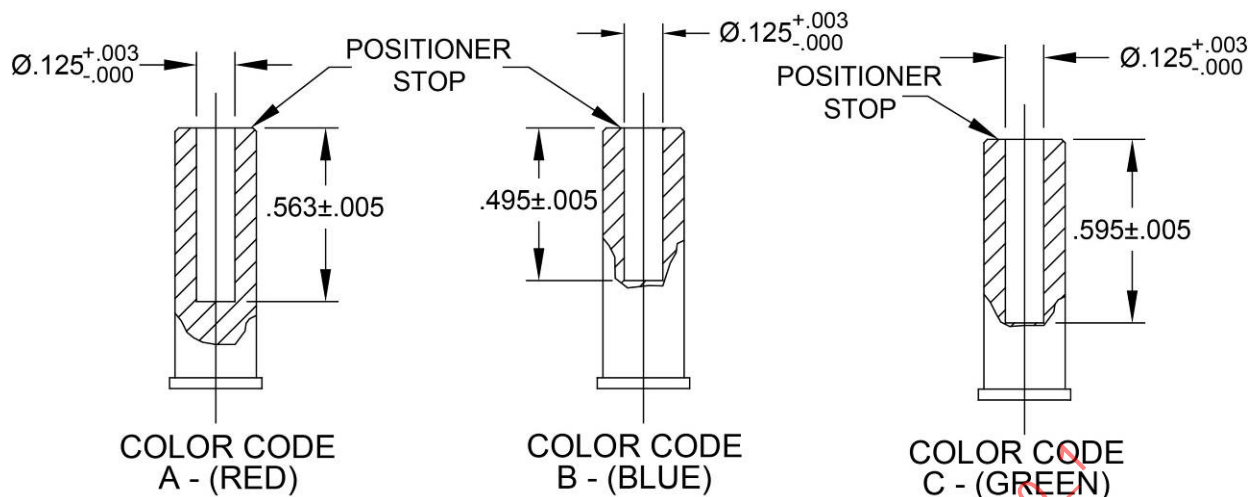


FIGURE 13 - M22520/1-13 TURRET HEAD FOR M39012/01, /02, /05, /39 INNER CONTACTS

M22520/1- TURRET HEAD



M22520/1-13 TURRET HEAD ASSEMBLY MARKINGS

ASSEMBLY	POSITIONER			BODY	NAME PLATE
	A	B	C		
COLOR	RED	BLUE	GREEN	BLUE	BLACK LETTERS ON WHITE BACKGROUND

M22520/1-13 DATAPLATE

M39012/	POSITIONER COLOR	RG 142/U	RG 213/U	RG 214/U	RG 225/U	RG 393/U	RG 400/U	CABLE
01-0501, 01-0502	GREEN		8	8	8	8		SELECTOR SETTINGS
01-0503		7					7	
05-0501, 05-0502	BLUE		8	8	8	8		
39-0501				8	8	8		
05-0503, 39-0503		7					7	
02-0501, 02-0502, 02-0511, 02-0512	RED		8	8	8	8		
02-0503, 02-0513		7					7	

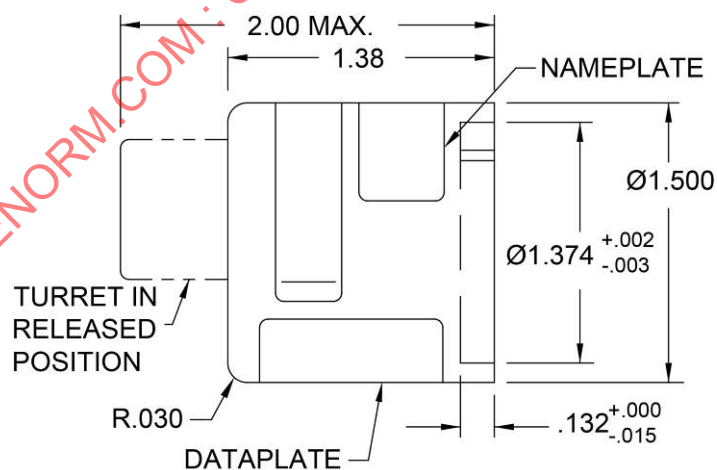
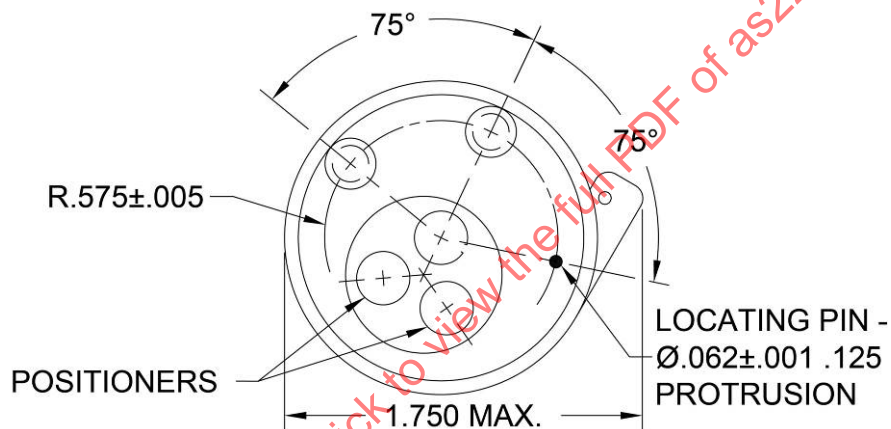
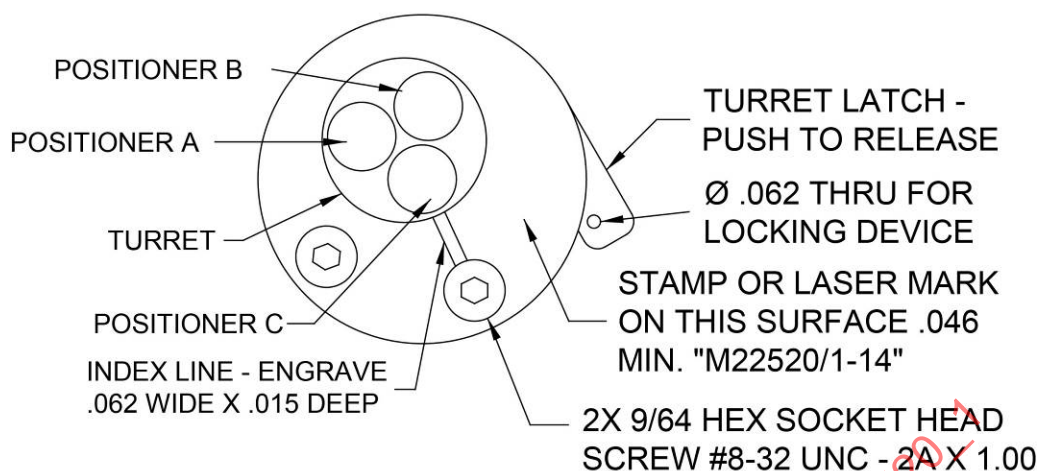
NAMEPLATE MARKING (SEE FIGURE & REQUIREMENT 2)

M22520/1-13
(MFR'S NAME & P/N)
USE WITH M22520/1-01 BASIC TOOL

FIGURE 13 - M22520/1-13 TURRET HEAD FOR M39012/01, /02, /05, /39 INNER CONTACTS (CONTINUED)

M22520/1-14 TURRET HEAD

MARK POSITIONERS AS SHOWN



FIGURES 14 - M22520/1-14 TURRET HEAD FOR M39012/03, /35, /36, /38, /40 INNER CONTACTS