

Southco® Captive Fasteners

Miniature Series, Press-in Style

- Smaller footprint for limited space applications
- **NEW Features:**
- Heat treated steel screw for optimum strength
- Combination recesses for maximum tool options
- Increased float in unfastened position

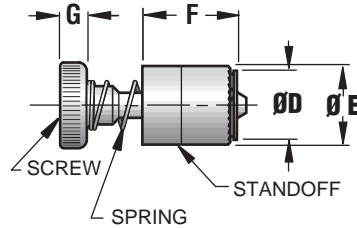
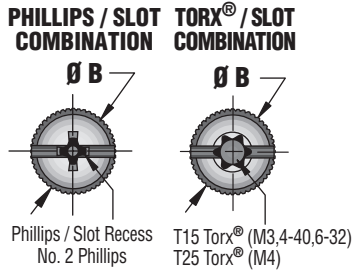
M4 Now Available



Material and Finish

SCREW: Hardened carbon steel, zinc plate, chromate plus sealer
 SPRING: 300 series stainless steel, passivated.
 STANDOFF: Carbon steel, zinc plate, chromate plus sealer

Torx® is a registered trademark of the Camcar Division of Textron Inc.



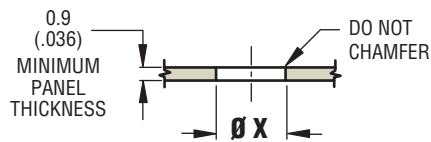
Note: subtract .25 (.01) from ØB for smooth head style.

For use in most aluminum or in low carbon steels that are 1/4 hard or softer.

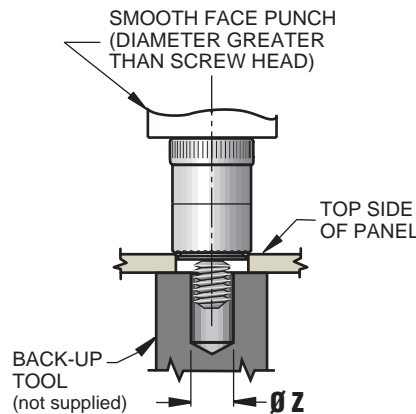
Installation

1. Prepare panel as shown. Outside edge of hole must be sharp.
2. Press the assembly into your panel, assuring parallel surfaces on the punch and back-up tool.

For installation and product strength guidelines contact Southco or visit our web site at www.southco.com



NOTE: Recommended minimum distance from edge of panel to centerline of hole is 1.5 x ØX for press-in version. Installation closer to panel edge is possible, contact Southco for guidelines.



Unfastened

(TOTAL FLOAT OF SCREW IN STANDOFF)

* Value represents float in unfastened position

Fastened

Note: P-1, P-2 measured from the top side of panel

Captive Fasteners
Captive Screws

THREAD SIZE	PART NUMBERS				A	ØB	C	ØD	ØE	F	G	H*	P-1	P-2	PANEL PREPARATION	
	KNURLED HEAD		SMOOTH HEAD												ØX	ØZ
	PHILLIPS / SLOTTED	TORX® / SLOTTED	PHILLIPS / SLOTTED	TORX® / SLOTTED												
4-40 UNC	52-19-51-4 •	52-17-51-4 •	52-1A-51-4 •	52-18-51-4 •	14	7	9.6	5.5	6.4	7.9	2.5	0.5	0.9 (.036)	5.3 (.21)	5.6 ^{+0.04} _{-.000}	3
	52-19-53-4 •	52-17-53-4 •	52-1A-53-4 •	52-18-53-4 •	(.55)	(.28)	(.38)	(.217)	(.25)	(.31)	(.1)	(.018)	2.5 (.1)	6.8 (.27)	(.219 ^{+0.03} _{-.000})	(.120)
6-32 UNC	52-29-51-4 •	52-27-51-4 •	52-2A-51-4 •	52-28-51-4 •	15.5	8	10.4	6.3	7	8.6	2.5	0.7	0.9 (.036)	6.1 (.24)	6.4 ^{+0.04} _{-.000}	3.7
	52-29-53-4 •	52-27-53-4 •	52-2A-53-4 •	52-28-53-4 •	(.61)	(.31)	(.41)	(.247)	(.28)	(.34)	(.1)	(.028)	2.5 (.1)	7.6 (.30)	(.250 ^{+0.03} _{-.000})	(.144)
M3 X 0.5	52-39-51-4 •	52-37-51-4 •	52-3A-51-4 •	52-38-51-4 •	14	7	9.6	5.5	6.4	7.9	2.5	0.6	0.9 (.036)	5.3 (.21)	5.6 ^{+0.04} _{-.000}	3.2
	52-39-53-4 •	52-37-53-4 •	52-3A-53-4 •	52-38-53-4 •	(.55)	(.28)	(.38)	(.217)	(.25)	(.31)	(.1)	(.023)	2.5 (.1)	6.8 (.27)	(.219 ^{+0.03} _{-.000})	(.126)
M4 X 0.7	52-49-51-4 •	52-47-51-4 •	52-4A-51-4 •	52-48-51-4 •	16	9.4	10.8	7.9	8.7	8.6	3	0.7	0.9 (.036)	6.1 (.24)	8 ^{+0.00} _{-.008}	4.4
	52-49-53-4 •	52-47-53-4 •	52-4A-53-4 •	52-48-53-4 •	(.63)	(.37)	(.43)	(.31)	(.34)	(.34)	(.12)	(.028)	2.5 (.1)	7.6 (.30)	(.315 ^{+0.00} _{-.003})	(.173)

For additional styles and sizes contact Southco for details.

millimeter (inch)
 millimeter (inch)
 Dimensions without tolerances are for reference only.



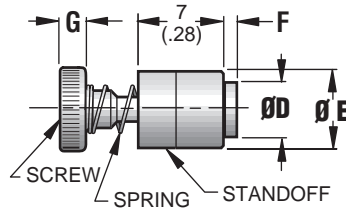
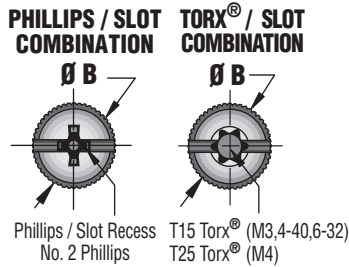
• Products identified with this symbol are stocked subject to prior sale in one or more of our global locations. If unavailable from our facility nearest you, allow for shipping time from another facility.

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Miniature Series, Flare-in Style

- Smaller footprint for limited space applications
- NEW Features:**
- Heat treated steel screw for optimum strength
- Combination recesses for maximum tool options

M4 Now Available



Material and Finish

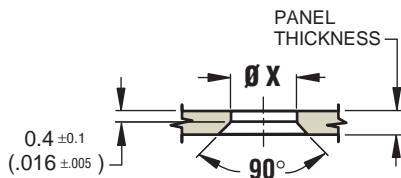
SCREW: Hardened carbon steel, zinc plate, chromate plus sealer
 SPRING: 300 series stainless steel, passivated.
 STANDOFF: Aluminum, natural
 Torx® is a registered trademark of the Camcar Division of Textron Inc.

Note: subtract 0.25 (.01) from ØB for smooth head style.

Installation

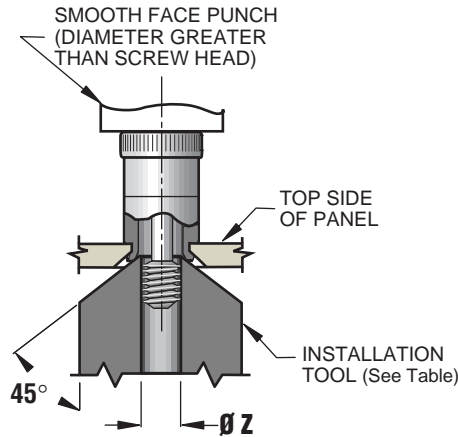
1. Prepare panel as shown.
2. Use **light pressure** to flare standoff, assuring parallel surfaces on the punch and installation tool.

For installation and product strength guidelines contact Southco or visit our web site at www.southco.com

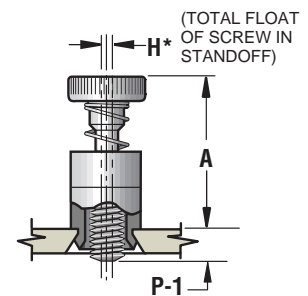


Installation Tool

1095 Steel, hardened, zinc plated plus bright chromate dip.

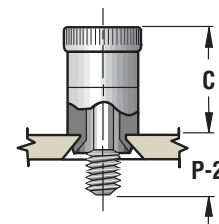


Unfastened



* Value represents float in unfastened position

Fastened



Note: P-1, P-2 measured from the top side of panel

millimeter (inch)
 millimeter (inch)

Dimensions without tolerances are for reference only.

For assemblies to accommodate thicker panels, or additional styles and sizes contact Southco.

THREAD SIZE	PANEL THICKNESS		PART NUMBERS				A	Ø B	C	Ø D	Ø E	F	G	H*	P-1	P-2	PANEL PREPARATION		TOOL PART NUMBER
			KNURLED HEAD		SMOOTH HEAD												Ø X	Ø Z	
			PHILLIPS / SLOTTED	TORX® / SLOTTED	PHILLIPS / SLOTTED	TORX® / SLOTTED													
4-40 UNC	0.8 (.031)	2.4 (.094)	52-19-11-4•	52-17-11-4•	52-1A-11-4•	52-18-11-4•	14 (.55)	7 (.28)	9.6 (.38)	4.6 (.183)	6.4 (.25)	1 (.041)	2.5 (.1)	0.5 (.018)	0.8 (.031)	5.3 (.21)	4.8 ^{+0.09} _{-0.04} (.187 ^{+0.003} _{-0.000})	3 (.120)	47-104 •
6-32 UNC	1.5 (.058)	3.2 (.125)	52-29-21-4•	52-27-21-4•	52-2A-21-4•	52-28-21-4•	15 (.59)	8 (.31)	9.6 (.38)	5.3 (.209)	7 (.28)	1.8 (.07)	2.5 (.1)	0.7 (.028)	1.8 (.07)	6.8 (.27)	5.4 ^{+0.09} _{-0.04} (.213 ^{+0.003} _{-0.000})	3.6 (.141)	47-106 •
M3 X 0.5	0.8 (.031)	2.4 (.094)	52-39-11-4•	52-37-11-4•	52-3A-11-4•	52-38-11-4•	14 (.55)	7 (.28)	9.6 (.38)	4.6 (.183)	6.4 (.25)	1 (.041)	2.5 (.1)	0.6 (.023)	0.8 (.031)	5.3 (.21)	4.8 ^{+0.09} _{-0.04} (.187 ^{+0.003} _{-0.000})	3 (.120)	47-104 •
M4 X 0.7	1.5 (.058)	3.2 (.125)	52-49-21-4•	52-47-21-4•	52-4A-21-4•	52-48-21-4•	15.2 (.60)	9.4 (.37)	10.1 (.40)	6.7 (.26)	8.6 (.34)	1.8 (.07)	3 (.12)	0.7 (.028)	1.8 (.07)	6.8 (.27)	6.8 ^{+0.08} _{-0.04} (.266 ^{+0.005} _{-0.000})	4.2 (.166)	47-108 •

• Products identified with this symbol are stocked subject to prior sale in one or more of our global locations. If unavailable from our facility nearest you, allow for shipping time from another facility.


Captive Fasteners
Captive Screws

REV	DATE	DRAWN/CHKD	DESCRIPTION
A	07NOV2002	AJH/CHW	PRN: P2002-0864
B	27JAN2003	DLH/VNI	PRN: P2003-0077

PART NUMBER	PANEL THICKNESS		SCREW PROJECTION		T
	MIN	MAX	P-1	P-2	
52-4X-51-Y			0.9	6.1	17
52-4X-52-Y	0.9	---	1.7	6.9	17.7
52-4X-53-Y			2.5	7.6	18.6

MILLIMETERS

ALL DIMENSIONS WITHOUT TOLERANCES ARE FOR REFERENCE ONLY.



A3 PAPER SIZE

NOTES:

A - MATERIAL AND FINISH

SCREW: STEEL, HARDENED, ZINC PLATE, CHROMATE PLUS SEALER
 SPRING: 302 STAINLESS STEEL, PASSIVATED
 STANDOFF: STEEL, ZINC PLATE, CHROMATE PLUS SEALER

B - INSTALLATION INSTRUCTIONS:

1. PREPARE HOLE IN PANEL AS SHOWN. OUTSIDE EDGE MUST BE SHARP; DO NOT CHAMFER.
2. PUNCH SURFACE AND BACK-UP TOOL SURFACE MUST REMAIN PARALLEL DURING INSTALLATION. A HARDENED STEEL BACK-UP TOOL WITH A CLEARANCE HOLE AS SHOWN, IS RECOMMENDED.
3. PRESS THE ASSEMBLY INTO THE PANEL UNTIL ONLY THE TOP OF THE KNURL ON THE STANDOFF IS VISIBLE. RECOMMENDED LOAD OF 10,000N FOR STEEL, $R_a < 60$ MAX. RECOMMENDED LOAD OF 5,500N FOR 5052-H32 ALUMINUM.

C - TORX® IS A REGISTERED TRADEMARK OF THE CAMCAR DIVISION OF TEXTRON INC.

D - RECOMMENDED MAXIMUM TORQUE OF 220 N-cm.

E - COSMETIC APPEARANCE PER SOUTHCO CAPTIVE SCREW SPECIFICATION S-115.

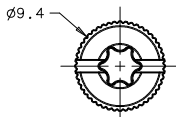
"X" SCREW RECESS

- 7 - TORX®/SLOT, KNURLED
- 9 - PHILLIPS/SLOT, KNURLED
- 8 - TORX®/SLOT, SMOOTH
- A - PHILLIPS/SLOT, SMOOTH

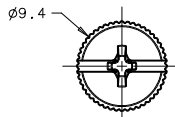
"Y" FINISH

- 4 - BRIGHT
- 5 - BLACK

KNURLED

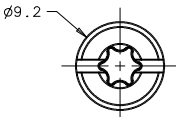


T25 TORX®/SLOT RECESS

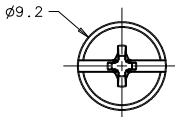


No. 2 PHILLIPS/SLOT RECESS

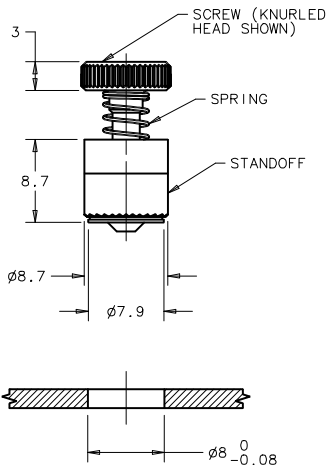
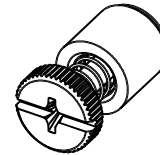
SMOOTH



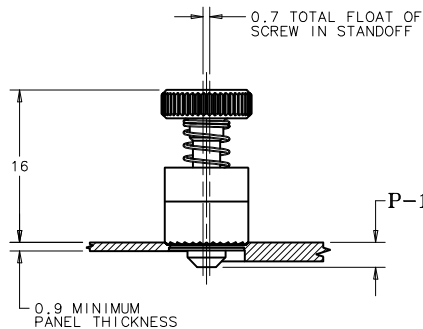
T25 TORX®/SLOT RECESS



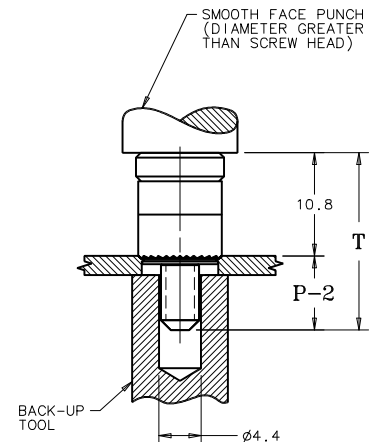
No. 2 PHILLIPS/SLOT RECESS



PANEL PREPARATION



UNFASTENED



FASTENED

REV	DATE	DRAWN/CHKD	DESCRIPTION	PART NUMBER	PANEL THICKNESS		"L"	"Y"	SCREW PROJECTION		"T"	MILLIMETERS
A	07NOV2002	AJH/CHW	PRN: P2002-0864	52-4X-21-Y	*A* MIN	*A* MIN			"P-1"	"P-2"		
B	27JAN2003	DLH/VNI	PRN: P2003-0077	52-4X-23-Y	1.5	3.2	1.8	0.4	1.8	6.8	1.7	
				52-4X-43-Y	1.5	3.2	1.8	0.4	3.6	8.6	18.6	
					3.2	4.8	3.4	1.6	3.6	8.6	18.6	

ALL DIMENSIONS WITHOUT TOLERANCES ARE FOR REFERENCE ONLY.

THIRD ANGLE PROJECTION
A3 PAPER SIZE

NOTES:
A - MATERIAL AND FINISH:

SCREW: STEEL, HARDENED, ZINC PLATE PLUS SEALER
SPRING: 302 STAINLESS STEEL, PASSIVATED
STANDOFF: 6000 SERIES ALUMINUM, NATURAL

B - INSTALLATION INSTRUCTIONS:

1. PREPARE THE HOLE IN THE PANEL, COUNTERSINK UNDERSIDE OF THE PANEL AS SHOWN.
2. PUNCH SURFACE AND INSTALLATION TOOL MUST REMAIN PARALLEL DURING FLARING OF STANDOFF. ONLY USE LIGHT PRESSURE TO FLARE STANDOFF. RECOMMENDED LOAD OF 3,000N.
3. USE SOUTHCO INSTALLATION TOOL, PART NUMBER 47-108, TO FLARE THIS ASSEMBLY.

C - TORX® IS A REGISTERED TRADEMARK OF THE CAMCAR DIVISION OF TEXTRON INC.

D - RECOMMENDED MAXIMUM TORQUE OF 220 N-cm.

E - COSMETIC APPEARANCE PER SOUTHCO CAPTIVE SCREW SPECIFICATION S-115.

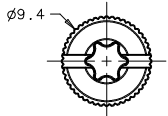
"X" SCREW RECESS

- 7 - TORX®/SLOT, KNURLED
- 9 - PHILLIPS/SLOT, KNURLED
- 8 - TORX®/SLOT, SMOOTH
- A - PHILLIPS/SLOT, SMOOTH

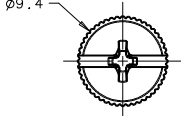
"Y" FINISH

- 4 - BRIGHT

KNURLED

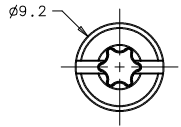


T25 TORX®/SLOT RECESS

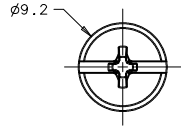


No. 2 PHILLIPS/SLOT RECESS

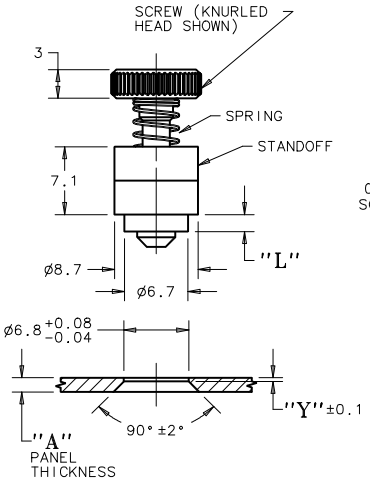
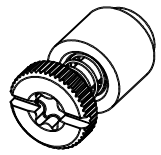
SMOOTH



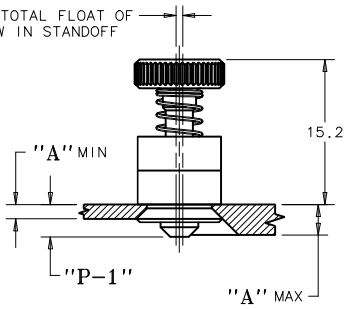
T25 TORX®/SLOT RECESS



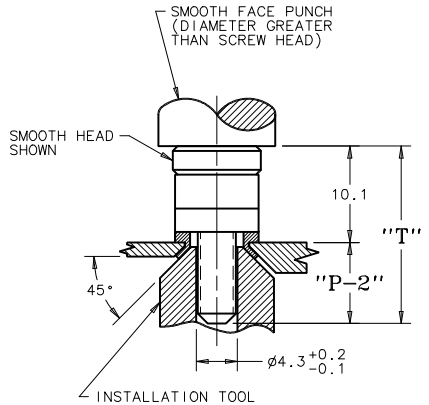
No. 2 PHILLIPS/SLOT RECESS



PANEL PREPARATION

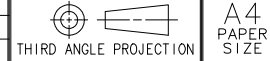


UNFASTENED



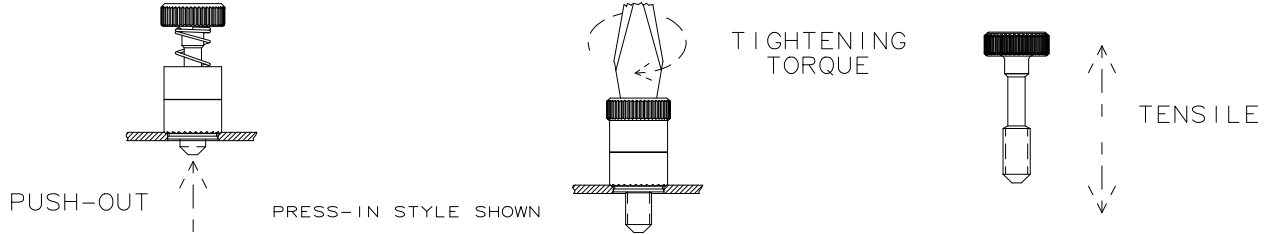
FASTENED

REV	DATE	DRAWN/CHKD	DESCRIPTION										
A	31JAN03	GDM	ADDED M4 SIZE										



SOUTHCO PERFORMANCE GUIDELINES

THE PERFORMANCE GUIDELINES SHOWN ON THIS PAGE ARE SUPPLIED AS A GENERAL GUIDE ONLY, AS CONDITIONS VARY WITH EACH APPLICATION AND METHOD OF INSTALLATION. STRENGTH DATA GIVEN IS FOR FAILURE OF THE PRODUCT OR FOR SUFFICIENT DEFORMATION TO MAKE THE PRODUCT INOPERABLE. NO SAFETY FACTOR HAS BEEN APPLIED. IT IS RECOMMENDED THAT THE USER REQUEST A PRODUCT SAMPLE FOR TESTING TO DETERMINE THE SUITABILITY OF THE PRODUCT FOR THE PURPOSE INTENDED AND USER'S PARTICULAR APPLICATION.



*X" = 7: KNURLED, TORX/SLOT
 8: SMOOTH, TORX/SLOT
 9: KNURLED, PHILLIPS/SLOT
 A: SMOOTH, PHILLIPS/SLOT

ASSEMBLY PART NUMBER	SCREW SIZE	RECOMMENDED INSTALLATION FORCE N (lbf)	AVERAGE PUSH-OUT FORCE N (lbf) ③	RECOMMENDED TIGHTENING TORQUE N _{cm} (lbf _{in}) ④	AVERAGE ULTIMATE TIGHTENING TORQUE N _{cm} (lbf _{in})	AVERAGE ULTIMATE TENSILE FORCE N (lbf) ⑤
52-1X-11-4 FLARE-IN	4-40	3000 (674)	600 (135)	60(5.2)	171 (15)	3500 (787)
52-1X-5 ¹ / ₃ -4 PRESS-IN		10000 (2248)	1000 (225)			
52-2X-21-4 FLARE-IN	6-32	3000 (674)	1160 (261)	110 (9.6)	281 (25)	5160 (1160)
52-2X-5 ¹ / ₃ -4 PRESS-IN		10000 (2248)	1190 (268)			
52-3X-11-4 FLARE-IN	M3	3000 (674)	600 (135)	60(5.2)	163 (14)	3500 (787)
52-3X-5 ¹ / ₃ -4 PRESS-IN		10000 (2248)	1000 (225)			
52-4X-21-4 FLARE-IN	M4	3000 (674)	1000 (225)	224 (19.8)	800 (70)	9900 (2226)
52-4X-51-4 PRESS-IN		10000 (2248)	1680 (378)			

1. PRESS-IN ASSEMBLIES WERE INSTALLED AND TESTED IN 0.9mm (.036in) THICK COLD ROLLED STEEL PANELS (MAXIMUM Rb55).
2. FLARE-IN M3/4-40 ASSEMBLIES WERE INSTALLED AND TESTED IN 0.8mm (.031in) THICK COLD ROLLED STEEL PANELS (MAXIMUM Rb55).
 FLARE-IN M4/6-32 ASSEMBLIES WERE INSTALLED AND TESTED IN 1.5mm (.060in) THICK COLD ROLLED STEEL PANELS (MAXIMUM Rb55).
3. FAILURE OCCURED IN THE SCREW PUSHING OUT OF THE ASSEMBLY OR THE FERRULE PUSHING OUT OF THE PANEL.
4. REFERENCE - ASSEMBLY ENGINEERING MASTERS CATALOG; VOL. 10, 1971(C) HITCHCOCK PUBLISHING CO.
5. FAILURE OCCURED IN THE BREAKING OF THE SCREW SHANK.

SAMPLES TESTED TO ASTM B117 SALT FOG TEST PROCEDURE LASTED A MINIMUM OF 144 HOURS BEFORE OCCURANCE OF RED RUST.