

**QUALITY ASSURANCE REQUIREMENTS FOR SELLERS OF PANSTOCK  
HARDWARE DELIVERED JUST IN TIME**

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## 1.0 SCOPE

These requirements pertain to inspection, test and process controls necessary to assure that Boeing-St. Louis is supplied with Just In Time (JIT) panstock of the highest quality. This report applies to all general aerospace hardware (nuts, bolts, pins, rivets, clamps, clips, etc.). These requirements are minimum and do not relieve the Seller from any requirements in the purchase contract. These requirements are subject to review and continuous improvement by Boeing-St. Louis and the Seller. Inspections and tests may be added, reduced or eliminated as needed.

## 2.0 Definitions

### 2.1 Just In Time (JIT) Panstock:

The process for acquiring panstock materials used in Boeing-St Louis manufacturing operations. The Seller delivers material directly to the designated delivery points when the material is needed.

### 2.2 Supplier Performance Improvement Board (SPIB):

A commodity-based review team convened for the purpose of addressing supplier performance issues and supplier improvement initiatives. The SPIB is comprised of Boeing-St. Louis representatives from various functional disciplines or areas of responsibility (e.g. Engineering, Supplier Management and Procurement, Quality).

### 2.3 Quality Assurance Test Policy (QATP):

A written procedure of tests and sample levels to be used for key characteristics verification by the JIT Seller.

## 3.0 Requirements

### 3.1 Certification:

The Seller shall maintain the Manufacturer's Quantitative Test reports, signed by a employee of that manufacturer who is authorized to validate and certify the test results.

### 3.2 Quality Systems:

The Seller shall maintain a Quality Management System that meets Boeing Document D6-82479 Appendix A. A copy of Boeing Document D6-82479 can be obtained at the following URL address:

<http://www.boeing.com/companyoffices/doingbiz/>

- 3.3 The Seller shall maintain full lot traceability to the original manufacturer. Commingling of lots shall be prohibited.
- 3.4 Additional Requirements:
- 3.4.1 The goods and services supplied shall be cleaned and packaged in accordance with Boeing-St. Louis Procurement Specification 27M100 when specified by a Boeing-St. Louis 30M Supplement, a 7M/ST7M/K7M part definition document, a 27M Procurement Specification, and/or a SPECO(Specification Outside Processing).
- 3.4.2 The goods and services supplied shall meet Age Control requirements of Boeing-St. Louis P.S. 23600 when specified by a Boeing-St. Louis 30M Supplement or applicable Product Definition document.
- 3.4.3 The goods and services supplied shall meet all requirements in accordance with the Product Definition document and Boeing-St. Louis 30M Supplement when applicable.
- 3.4.4 The goods and services supplied shall be from manufacturers listed in Boeing-St. Louis 30M Supplement or Product Definition document, when applicable.
- 3.5 Configuration Controls:
- The Seller shall deliver only the configuration of parts that have been approved by Boeing-St. Louis Standards Engineering. Changes shall be submitted to Boeing-St. Louis Standards Engineering for approval at least 3 months prior to stocking in Boeing-St. Louis inventory.
- 3.6 JIT Material Stock Purge:
- The Seller shall be responsible for notifying Boeing-St. Louis of any previously delivered materials as determined by either the Seller, manufacturer or independent test lab to be non-conforming. In addition, Boeing-St. Louis or its Customers may identify nonconforming material. In either case, the Seller shall be responsible for removing nonconforming material from its facilities, forward stocking locations and independent test labs. Boeing-St. Louis shall provide the nonconforming material to the Seller for removal or scrap the nonconforming material.
- 3.7 Supplier Performance Improvement Board (SPIB):
- The Boeing-St. Louis Purchase Parts SPIB shall convene to review any JIT Seller's performance whose quality falls below established thresholds or for cause as determined by the team.

- 3.8 Boeing–St. Louis may request root cause analysis and corrective action from seller for nonconforming material, noncompliance or other performance issues.

#### **4.0 Inspection and Test**

4.1 Responsibility for Inspection and Test:

The Seller assumes responsibility for inspections and tests required in Appendix A and B of this report. Boeing-St. Louis may choose to observe and/or repeat any of these tests. Results of these tests shall be documented by lot number and retained together with the manufacturer's test results.

- 4.2 The Seller shall allow the Boeing-St. Louis Supplier Quality (SQ) representative the right to randomly select sample parts for testing at the JIT Seller's facility or Boeing-St. Louis. Parts sampled shall be invoiced to Boeing-St. Louis for payment. The results of the random sampling tests shall be given to the Seller for comparison and retention with the manufacturer's test reports. The Seller shall provide the Boeing-St. Louis representative with a clean, well lighted inspection area with calibration dimensional inspection tools appropriate to the commodity to be measured.

4.3 Boeing-St. Louis Key Characteristics:

Appendices A & B of this report and Boeing-St. Louis Quality Assurance Test Policies (QATP) Attachments 1 through 7 and 9 through 15, identify key characteristics for JIT materials. These key characteristics must be controlled by the Seller using SPC or other process control techniques. Boeing-St. Louis reserves the right to modify or add key characteristics to Appendices A & B. Any modification shall be done in response to engineering or customer requirement changes or corrective action needs.

4.4 Boeing-St. Louis JIT Materials Families:

Quality Appendices A & B of this report includes material families and the Boeing-St. Louis key characteristics that are required. These characteristics have direct relationships to safety of flight and other critical Government and Boeing-St. Louis requirements.

4.5 Boeing-St. Louis Critical Fasteners:

Appendix A of this report lists families of Boeing-St. Louis critical application fasteners. The Seller or an independent test lab must test these fasteners. Unless provided for in paragraph 4.6 of this report, testing must include verification of the key characteristics from each lot to be delivered to Boeing-St. Louis. These test results shall be retained by lot number along with the manufacturer's certified test reports. Any out of specification differences between the JIT Seller's test results and the manufacturer's test results must be investigated and resolved prior to delivering the lot to Boeing-St. Louis inventory.

4.6 Testing:

The Seller may conduct testing or may choose to use an independent testing source. Any facilities used for testing shall be an accredited source recognized by either Nadcap, American Association for Laboratory Accreditation (A2LA) or National Institute of Standards and Technology (NIST). If the JIT Seller uses an independent testing source, Boeing-St. Louis shall retain rights to monitoring the source's test capabilities and performance to requirements.

If a part fails test at an accredited test lab, the lot shall then be considered rejected. Under no circumstances should a rejected lot be sent to another independent test lab for "referee testing" unless prior written authorization has been granted by the SQ JIT Focal.

4.7 Sampling:

Sampling of 100% of the lots to be delivered shall be in accordance with ASQ Z1.4 modified to accept on zero, reject on one for key characteristics. Sample size for the key characteristics shall be in accordance with ASQ Z1.4 and the QATP policy for that material family and Appendix A of this report.

4.8 Manufacturer's Certified Test Reports:

The Seller's proof of purchase, the manufacturer's certified test reports and the Seller's test records shall be maintained by the Seller. The quality records shall be on file and available to Boeing-St. Louis for a period of five (5) years from date of last delivery to Boeing. At any time during the retention period, at Boeing-St. Louis request, the Seller shall deliver said records or any part thereof, to Boeing-St. Louis at no additional cost to Boeing-St. Louis. All records shall be traceable to the original manufacturer's lot control number.

**APPENDIX A**

**Boeing Key  
 Characteristics Control  
 Chart**

		L A B E L S	T R A C E A B I L I T Y	P A C K A G I N G	C L E A N L I N E S S	C E R T I F I C A T E D R E V I E W	D I M E N S I O N A L	H A R D N E S S	M I C R O S T R U C T U R E	T O R Q U E O F	R U N N I N G T O R Q U E	B R E A K A W A Y T O R Q U E	I N S T A L L A T I O N	T E N S I L E	D O U B L E S H E A R	S P I N D L E R E T E N T I O N	H E A D D U C T I L I T Y	P L A T I N G T H I C K N E S S	I N S E R T I O N	R E U S A B L I T Y	L O C K I N G T O R Q U E	S A L T S P R A Y		
	PART FAMILY																							
A	CRES. STEEL FASTENERS (13-8) QATP 1005	Key Char.	I	I	I	I	I	I	X					X	X								X	
		Sample Size	A	A	A	A	A	A	A					A	A									A
		Notes		B																				
B	TITANIUM FASTENERS QATP 1006	Key Char.	I	I	I	I	I	I		X														
		Sample Size	A	A	A	A	A	A	A															
		Notes		B																				
C	SELF RETAINING BOLTS QATP 1011	Key Char.	I	I	I	I	I	I	X											X				
		Sample Size	A	A	A	A	A	A	A											A				
		Notes		B																				
D	BLIND RIVETS QATP 1017	Key Char.	I	I	I	I	I	I					X			X								
		Sample Size	A	A	A	A	A	A					A			A								
		Notes		B																				
E	JO-BOLTS & BLIND BOLTS QATP 1007	Key Char.	I	I	I	I	I	I		X			X											
		Sample Size	A	A	A	A	A	A	A				A											
		Notes		B																				
F	HIGH-STRENGTH NUTS -- 160 KSI UP QATP 1016	Key Char.	I	I	I	I	I	I			X	X		X										
		Sample Size	A	A	A	A	A	A			A	A		A										
		Notes		B																				
G	ALLOY STEEL FAST. 180 KSI FTU QATP 1009	Key Char.	I	I	I	I	I	I	X										X					
		Sample Size	A	A	A	A	A	A	A										A					
		Notes		B																				
H	ALLOY STEEL CAP SCREWS QATP 1010	Key Char.	I	I	I	I	I	I	X															
		Sample Size	A	A	A	A	A	A	A															
		Notes		B																				
I	ALL OTHER ALLOY STEEL  NO QATP	Key Char.	I	I	I	I	I																	
		Sample Size	A	A	A	A	A																	
		Notes		B																				
J	FLUID FITTINGS  NO QATP	Key Char.	I	I	I	I																		
		Sample Size	A	A	A	A																		
		Notes		B																				
K	ELECTRICAL HARDWARE  NO QATP	Key Char.	I	I	I	I																		
		Sample Size	A	A	A	A																		
		Notes		B																				

**APPENDIX A**

**Boeing Key  
 Characteristics Control  
 Chart**

			L A B E L S	T R A C E A B I L I T Y	P A C K A G I N G	C L E A N L I N E S S	C E R T I F I C A T E D R E V I E W	D I M E N S I O N A L	H A R D N E S S	M I C R O S T R U C T U R E	T O R Q U E O F	R U N N I N G T O R Q U E	B R E A K A W A Y T O R Q U E	I N S T A L L A T I O N	T E N S I L E	D O U B L E S H E A R	S P I N D L E R E T E N T I O N	H E A D D U C T I L I T Y	P L A T I N G T H I C K N E S S	I N S E R T I O N	R E U S A B L I T Y	L O C K I N G T O R Q U E	S A L T S P R A Y		
L	HI-LOK COLLARS  QATP 1020	Key Char.	I	I	I	I	I	I			X	X											X		
		Sample Size	A	A	A	A	A	A			A	A												A	
		Notes		B																					
M	HIGH-REUSE NUTS GANG CHANNEL QATP 1021	Key Char.	I	I	I	I	I	I					X										X	X	
		Sample Size	A	A	A	A	A	A					A										A	A	
		Notes		B																					
N	INCONEL 718 FASTENERS QATP 1018	Key Char.	I	I	I	I	I	I										X							
		Sample Size	A	A	A	A	A	A										A							
		Notes		B																					
O	MS20392 SHEAR PINS QATP 1008	Key Char.	I	I	I	I	I	I									X			X					
		Sample Size	A	A	A	A	A	A									A			A					
		Notes		B																					
P	SELF-LOCKING CLAMPS  QATP 1013	Key Char.	I	I	I	I	I							X											
		Sample Size	A	A	A	A	A							A											
		Notes		B																					
Q	O-RINGS  NO QATP	Key Char.	I	I	I	I																			
		Sample Size	A	A	A	A																			
		Notes		B																					
R	MISCELLANEOUS HARDWARE NO QATP	Key Char.	I	I	I	I																			
		Sample Size	A	A	A	A																			
		Notes		B																					
S	BROTJE INSTALLED FASTENERS QATP 1022	Key Char.	I	I	I	I	I	I																	
		Sample Size	A	A	A	A	A	A																	
		Notes		B																					

I = Inspection Required

X = Independent laboratory testing required.

A = Sample size per applicable QATP, or  
 ASQ Z1.4, Table IIA, Level S3, AQL 4.0 (modified to accept on zero, reject on one)

B = Each newly designed part shall pass a First Article Inspection.

## **APPENDIX B KEY CHARACTERISTICS**

1. Labels: Each minimum unit package as defined in the purchase order will have an easy to read label, using permanent ink, containing part number, and manufacturer's name. Barcodes shall be readable and contain correct data.
2. Traceability: Each minimum unit package as defined in the purchase order will have an easy to read label, containing the original manufacturer's lot control number.
3. Packaging: Each minimum unit package as defined in the purchase order will contain the exact and correct number of pieces on the label. Unit packaging will be per the purchase order and consistent with the protection of the contents from physical damage or deterioration. Electro Static Discharge (ESD) sensitive parts shall be packaged in the conductive materials that provide both ESD and physical protection. Plastic bag thickness will be appropriate with the weight and size of the contents. Plain paper bags and loose dunnage (e.g. plastic peanuts) are prohibited.
4. Cleanliness: Each minimum unit package as defined in the purchase order shall contain no foreign objects or debris, such as chips, incomplete pieces, dirt, oxidation or excess oils.
5. Certification Review: Each lot of parts shall be accompanied by quantitative certified test reports (chemical and physical test data). Each lot of submitted data shall be reviewed and verified for accuracy.
6. Dimensional: Each part shall be capable of meeting all drawing dimensional tolerances. Key dimensions when specified in the QATP attachments to this report will be controlled to +/- 3 Sigma.
7. Hardness: Each part shall meet the required Rockwell or other hardness values as specified in the procurement specification.
8. Microstructure: Each part shall meet the microstructure requirements as shown in the procurement specification.
9. Torque Off: Each part shall meet the torque off values as specified in the procurement specification.



## **APPENDIX B KEY CHARACTERISTICS**

10. Running Torque: Each part shall be within the running torque value range as specified in the procurement specification.
11. Breakaway Torque: Each part shall meet the breakaway torque per the requirements in the procurement specification.
12. Installation: Each part shall be capable of being installed per the requirements in the procurement specification.
13. Tensile: Each part shall meet the minimum physical values specified in the procurement specification.
14. Double-Shear: Each part shall exceed the minimum double-shear strength values as specified in the procurement specification.
15. Spindle Retention: Each part shall be capable of meeting the minimum installed and uninstalled spindle retention loads specified in the procurement specification.
16. Head Ductility: Each part shall meet the strength requirements per the procurement specification.
17. Plating Thickness: Each part shall meet the drawing requirement for plating thickness.
18. Insertion: Each part shall meet the insertion load requirements per the procurement specification.
19. Reusability: Each part shall meet the reuse cycle requirements in the procurement specification.
20. Locking Torque: Each part shall meet the locking torque value specified in the procurement specification.
21. Salt Spray: Each part shall be capable of passing a salt spray test per the procurement specification.

## QUALITY ASSURANCE TEST POLICY # 1005

Organization: Boeing Certified Suppliers

Subject: Acceptance PH13-8MO Corrosion Resistant Steel  
Threaded Fasteners

- A.** This document establishes key characteristics policy for PH13-8MO Corrosion Resistant Steel Threaded Fasteners procured for use by Boeing Preferred Suppliers. This document is applicable to Boeing Standard, Military Standard and Supplier Drawings.
- B.** Applicable to: Fasteners supplied directly to Boeing-St. Louis Panstock line stations.
- C.** Inspection and Test Requirements: As a minimum, each lot of PH13-8MO fasteners shall have the following inspections and test performed.

1. Shear Test - Perform double shear on fasteners up to and including .500 (1/2) inch in diameter. If the fastener is too short for double shear test, then default to the tension test.

Sample size: **1 piece**

**Accept on Zero(0), reject on One(1)**

2. Tension Test - Tension test shall be performed in lieu of shear test when the following conditions exist:
  - Fasteners larger than .500 (1/2) inch in diameter
  - Oversize fasteners
  - Tapered fasteners
  - Fasteners with sealant slots
  - Fasteners too short to shear test

Sample size: **1 piece**

**Accept on Zero(0), reject on One(1)**

3. Hardness test - Hardness testing shall be performed in lieu of shear/ tension test when the following conditions exist.

- The fastener is too short for shear or tension test
- No shear or tension values have been established
- Fastener configuration prohibits shear/tension tests.
- Shear or tension is not applicable per drawing or procurement specification.

Sample size: **1 piece**

**Accept on Zero(0), reject on One(1)**

4. Salt Spray Test - All bare PH13-8MO Corrosion Resistant Steel Fasteners.

Sample size: **1 piece**

**Accept on Zero(0), reject on One(1)**

5. Dimensional Inspection - Inspect to verify conformance to drawing requirements.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**

**Modified to accept on Zero(0), reject on One(1)**

6. Lot traceability and manufacturer's certified test data - Review manufacturer's lot control and submitted certified test data for accuracy.

Sample size: **ALL**

7. Labels - Inspect prior to stocking labels for correct part number, correct lot number and manufacturer's name . Also inspect for legibility and permeability of labels.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**

**Modified to accept on Zero(0), reject on One(1)**

8. Cleanliness - Inspect inside unit package, prior to stocking , for chips, dirt, incomplete pieces, excessive oils and obvious corrosions.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

9. Packaging - Inspect unit packaging for correct quantity and packaging to the Purchase Order requirements.  
(Note: Absolutely no loose plastic peanuts or other dunnage is allowed)

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

- D. Rational: The criticality of the processing of the material in these fasteners and the fastener application in the aircraft warrants shear test testing as the primary indicator of conformance. This test validates both the maximum and minimum strength limits and minimizes risk of delayed failures. Since shear/tension and salt spray test sample results have consistently fallen within a narrow range within a lot, samples greater than 1 piece are not required.

## QUALITY ASSURANCE TEST POLICY # 1006

Organization: Boeing Certified Suppliers

Subject: Acceptance Titanium Alloy  
Threaded and Grooved Fasteners

- A.** This document establishes key characteristics policy for Titanium alloy threaded and grooved fasteners procured for use by Boeing Preferred Suppliers. This document is applicable to Boeing Standard, Military Standard and Supplier Drawings.
- B.** Applicable to: Fasteners supplied directly to Boeing-St. Louis Panstock line stations.
- C.** Inspection and Test Requirements: As a minimum, each lot of Titanium alloy fasteners shall have the following inspections and test performed.

**1.** Microstructure examination

Sample size: **1 piece, Accept on Zero(0), reject on One(1)**

**2.** Dimensional Inspection - Inspect to verify conformance to drawing requirements.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0  
Modified to accept on Zero(0), reject on One(1)**

**3.** Lot traceability and manufacturer's certified test data - Review manufacturer's lot control and submitted certified test data for accuracy.

Sample size: **ALL**

**4.** Labels - Inspect labels prior to stocking for correct part number, correct lot number and manufacturer's name . Also inspect for legibility and permeability of labels.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0  
Modified to accept on Zero(0), reject on One(1)**

5. Cleanliness - Inspect inside unit package, prior to stocking , for chips, dirt, incomplete pieces, excessive oils and obvious corrosions.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**

**Modified to accept on Zero(0), reject on One(1)**

6. Packaging - Inspect unit packaging for correct quantity and packaging to the Purchase Order requirements.  
(Note: Absolutely no loose plastic peanuts or other dunnage is allowed)

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**

**Modified to accept on Zero(0), reject on One(1)**

- D. Rational: The criticality of the processing of the material in these fasteners and the fastener application in the aircraft warrants microstructure examination as the primary indicator of conformance. Microstructure examination will detect the critical types of discrepancies usually encountered.

## QUALITY ASSURANCE TEST POLICY # 1007

Organization: Boeing Certified Suppliers

Subject: Acceptance of Blind Bolts

- A.** This document establishes key characteristics policy for Blind bolts procured for use by Boeing Preferred Suppliers. This document is applicable to Boeing Standard, Military Standard and Supplier Drawings.
- B.** Applicable to: Fasteners supplied directly to Boeing - St. Louis Panstock line stations.
- C.** Inspection and Test Requirements: As a minimum, each lot of Blind Bolts shall have the following inspections and tests performed.

## 1. Installation Test

Sample size: 5 pieces minimum grip and 5 pieces maximum grip  
**Accept on Zero(0)**

**If any failures are found, perform an expanded sample based on one of the following tables. For Blind Bolts procured to other specifications, use the sampling criteria shown in the quality conformance section. If the total number of failures equals or exceeds the allowable reject number for the lot size, the lot is unacceptable.**

**Blind Bolts procured to 23M128 or 23M129.**

<b>Production Lot Size</b>	<b>Additional number of samples to be tested</b>	<b>*Accept on</b>	<b>*Reject on</b>
<b>0 - 500</b>	<b>0</b>	<b>0</b>	<b>1</b>
<b>501-35000</b>	<b>15 minimum grip</b>	<b>1</b>	<b>2</b>
	<b>15 maximum grip</b>	<b>1</b>	<b>2</b>
<b>35001 - 500000</b>	<b>27 minimum grip</b>	<b>2</b>	<b>3</b>
	<b>27 maximum grip</b>	<b>2</b>	<b>3</b>

**\* Number indicates total number of failures including original sample.**

**Blind Bolts procured to 23D0011.**

<b>Production Lot Size</b>	<b>Additional number of samples to be tested</b>	<b>*Accept on</b>	<b>*Reject on</b>
<b>0 – 500</b>	<b>0</b>	<b>0</b>	<b>1</b>
<b>501-3200</b>	<b>8 minimum grip 8 maximum grip</b>	<b>1 1</b>	<b>2 2</b>
<b>3201-35000</b>	<b>15 minimum grip 15 maximum grip</b>	<b>1 1</b>	<b>2 2</b>
<b>35001 - 500000</b>	<b>27 minimum grip 27 maximum grip</b>	<b>2 2</b>	<b>3 3</b>

**\* Number indicates total number of failures including original sample.**

2. Microstructure: (Applies to titanium components only)

Sample size: **1 piece**

**Accept on Zero(0), reject on One(1)**

3. Dimensional Inspection - Inspect to verify conformance to drawing requirements.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**

**Modified to accept on Zero(0), reject on One(1)**

4. Lot traceability and manufacturer's certified test data - Review manufacturer's lot control and submitted certified test data for accuracy.

Sample size: **ALL**

5. Labels - Inspect labels prior to stocking for correct part number, and manufacturer's name . Also inspect for legibility and permeability of labels.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**

**Modified to accept on Zero(0), reject on One(1)**

6. Cleanliness - Inspect inside unit package, prior to stocking , for chips, dirt, incomplete pieces, excessive oils and obvious corrosions.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**

**Modified to accept on Zero(0), reject on One(1)**



7. Packaging - Inspect unit package for correct quantity and packaging to the Purchase Order requirements. (Note: Absolutely no loose plastic peanuts or other loose dunnage is allowed)

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

- D. Rational: The criticality in the processing of the material in these fasteners and the fastener application in the aircraft warrants installation testing as the primary indicator of conformance. Microstructure examination test will detect the critical types of discrepancies usually encountered in Titanium .

## QUALITY ASSURANCE TEST POLICY # 1008

Organization: Boeing Certified Suppliers

Subject: Acceptance of MS20392 Clevis Pins

- A.** This document establishes key characteristic's policy for acceptance of MS20392 Clevis Pins procured for use by Boeing preferred suppliers. This document is applicable to Boeing standards, Military standards, Industry standards, and manufacturer drawings.
- B.** Applicable to: MS20392 Clevis Pins supplied directly to Boeing-St. Louis panstock line stations.
- C.** Inspection and Test Requirements: As a minimum each lot of MS20392 Clevis Pins shall have the following inspections and tests performed and recorded in the key characteristics control planning. This does not replace manufacturers testing per drawing and procurement specification requirements.

- 1.** Double-Shear - Perform double-shear test per procurement spec requirements for material and finish combination 'R' and 'P'.

Sample size: **One piece.**

**Accept on Zero(0), reject on One(1).**

- 2.** Plating thickness - Inspect chrome plate per procurement specification requirements for material and finish combination 'R'.

Sample size: **One piece.**

**Accept on Zero(0), reject on One(1).**

- 3.** Dimensional - Inspect to verify conformance to drawing requirements.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**

**Modified to accept on Zero(0), reject on One(1)**

- 4.** Lot traceability and manufacturers certified test reports - Review manufacturer's lot control and testing data for accuracy.

Sample size: **All**

5. Labels - Inspect prior to stocking for correct part number, lot number, and manufacturer's name. Also inspect for legibility and permeability of labels.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

6. Cleanliness - Inspect inside unit package, prior to stocking, for foreign material, incomplete pieces, excessive oils, or obvious corrosions.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

7. Packaging - Inspect unit packaging for correct quantity and packaging to the Purchase Order requirements. (Note: Absolutely no loose plastic peanuts or other dunnage is allowed.)

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

- D. Rational: The criticality of the processing of the material in these fasteners and the fastener application in the aircraft warrants shear testing as the primary indicator of conformance. This test validates both the maximum and minimum strength limits and minimizes risk of delayed failures. Since shear testing results have consistently fallen within a narrow range within a lot, samples greater than one piece are not required.

## QUALITY ASSURANCE TEST POLICY # 1009

Organization: Boeing Certified Suppliers

Subject: Acceptance of Alloy Steel, 180 KSI Minimum  
Fasteners

A. This document establishes key characteristics policy for Alloy Steel, 180 KSI Minimum Fasteners procured for use by Boeing Certified Suppliers. This document is applicable to Boeing Standard, Military Standard and Supplier Drawings.

B. Applicable to:

Fasteners supplied directly to Boeing-St. Louis Panstock line stations.

C. Inspection and Test Requirements: As a minimum, each lot of Alloy Steel, 180 KSI minimum fasteners shall have the following inspections and test performed.

1. Hardness Test - Hardness test a sample from each manufacturing lot.

Sample size: **One piece- Accept on Zero(0), reject on One(1).**

2. I.V.D. Coating - Perform dimensional inspection on the shank diameter. This requirement is applicable when standard drawing has a note requiring coating thickness control of shank diameter.

Sample size: **One piece- Accept on Zero(0), reject on One(1).**

3. Dimensional Inspection - Inspect to verify conformance to drawing requirements.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0  
Modified to accept on Zero(0), reject on One(1)**

4. Lot traceability and manufacturer's certified test data - Review manufacturer's lot control and submitted certified test data for accuracy.

Sample size: **ALL**

5. Labels - Inspect labels prior to stocking for correct part number, correct lot number and manufacturer's name . Also inspect for legibility and permeability of labels.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

6. Cleanliness - Inspect inside unit package, prior to stocking , for chips, dirt, incomplete pieces, excessive oils and obvious corrosions.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

7. Packaging - Inspect unit packaging for correct quantity and packaging to the Purchase Order requirements. (Note: Absolutely no loose plastic peanuts or other dunnage is allowed)

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

- D. Rational: The criticality in the processing of the material in these fasteners and the fastener application in the aircraft warrants hardness as the primary indicator of conformance. This test validates the temper of the fasteners.

## QUALITY ASSURANCE TEST POLICY # 1010

Organization: Boeing Certified Suppliers

Subject: Acceptance of Alloy Steel Cap Screws Controlled by  
Federal Specification FF-S-86 Fasteners

- A. This document establishes key characteristics policy for Alloy Steel Cap Screws Controlled by Federal Specification FF-S-86 Fasteners procured for use by Boeing Preferred Suppliers. This document is applicable to Boeing Standard, Military Standard and Supplier Drawings.
- B. Applicable to: Fasteners supplied directly to Boeing-St. Louis Panstock line stations.
- C. Inspection and Test Requirements: As a minimum, each lot of fasteners shall have the following inspections and test performed.

1. Hardness test - Rockwell hardness testing shall be performed to verify specified heat treat values

Sample size: **One piece- Accept on Zero(0), reject on One(1).**

2. Dimensional Inspection - Inspect to verify conformance to drawing requirements.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0  
Modified to accept on Zero(0), reject on One(1)**

3. Lot traceability and manufacturer's certified test data - Review manufacturer's lot control and submitted certified test data for accuracy.

Sample size: **ALL**

4. Labels - Inspect prior to stocking labels for correct part number, correct lot number and manufacturer's name . Also inspect for legibility and permeability of labels.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0  
Modified to accept on Zero(0), reject on One(1)**

5. Cleanliness - Inspect inside unit package, prior to stocking , for chips, dirt, incomplete pieces, excessive oils and obvious corrosions.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

6. Packaging - Inspect unit packaging for correct quantity and packaging to the Purchase Order requirements.  
(Note: Absolutely no loose plastic peanuts or other dunnage is allowed)

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

- D. Rational: The criticality of the processing of the material in these fasteners and the fastener application in the aircraft warrants hardness testing as the primary indicator of conformance.

## QUALITY ASSURANCE TEST POLICY # 1011

Organization: Boeing Certified Suppliers

Subject: Acceptance of Self Retaining, Impedance type  
Fasteners Controlled by Military Specification  
Mil-B-83050

A. This document establishes key characteristics policy for Self Retaining, Impedance type Fasteners Controlled by Military Specification Mil-B-83050 procured for use by Boeing Preferred Suppliers. This document is applicable to Boeing Standard, Military Standard and Supplier Drawings.

B. Applicable to: Fasteners supplied directly to Boeing-St. Louis Panstock line stations.

C. Inspection and Test Requirements: As a minimum, each lot of fasteners shall have the following inspections and test performed.

1. Hardness test - Rockwell hardness testing shall be performed to verify specified heat treat values.

Sample size: **One piece- Accept on Zero(0), reject on One(1).**

2. Insertion and removal test per specification requirements. This test should not be considered destructive unless part is damaged during testing.

Sample size: **3 Pieces**

**Accept on Zero(0), reject on One(1)**

3. Dimensional Inspection - Inspect to verify conformance to drawing requirements.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**

**Modified to accept on Zero(0), reject on One(1))**

4. Lot traceability and manufacturer's certified test data - Review manufacturer's lot control and submitted certified test data for accuracy.

Sample size: **ALL**



5. Labels - Inspect prior to stocking labels for correct part number, correct lot number and manufacturer's name . Also inspect for legibility and permeability of labels.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

6. Cleanliness - Inspect inside unit package, prior to stocking, for chips, dirt, incomplete pieces, excessive oils and obvious corrosions.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

7. Packaging - Inspect unit packaging for correct quantity and packaging to the Purchase Order requirements.  
(Note: Absolutely no loose plastic peanuts or other dunnage is allowed)

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

**D. Rational:**

The criticality of the processing of the material in these fasteners and the fastener application in the aircraft warrants hardness testing as the primary indicator of conformance.

## QUALITY ASSURANCE TEST POLICY # 1013

Organization: Boeing Certified Suppliers

Subject: Acceptance of Self - Locking, Loop Clamps

- A. This document establishes key characteristics policy for Self-Locking, Loop Clamps for use by Boeing Preferred Suppliers. This document is applicable to Boeing Standard, Military Standard and Supplier Drawings.
- B. Applicable to: Clamps supplied directly to Boeing - St. Louis Panstock line stations.
- C. Inspection and Test Requirements: As a minimum, each lot of clamps shall have the following inspections and test performed.

- 1. Free State Closure - Clamps shall be closed and locked using tool TD484J3 or equivalent. Mounting holes shall align such that a No. 10 fastener will be accepted through both holes. Foot and tail shall be positively locked and disengage only when front of clamp is depressed to allow tongue to clear bridge.

Sample size: **Five pieces - Accept on Zero(0), reject on One(1)**

- 2. Closure over mandrel - Clamp shall be installed over a mandrel of 'D' diameter plus or minus 0.001 inches and closed and locked using tool TD484J3 or equivalent. For sizes which conform to a tube diameter the use of tubing as a mandrel is acceptable. This test is not considered destructive unless the part is damaged during testing.

Sample size: **Five pieces - Accept on Zero(0), reject on One(1)**

- 3. Lot traceability and manufacturer's certified test data - Review manufacturer's lot control and submitted certified test data for accuracy.

Sample size: **ALL**

- 4. Labels - Inspect prior to stocking labels for correct part number, correct lot number and manufacturer's name . Also inspect for legibility and permeability of labels.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0  
Modified to accept on Zero(0), reject on One(1)**

5. Cleanliness - Inspect inside unit package, prior to stocking, for chips, dirt, incomplete pieces, excessive oils and obvious corrosions.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

6. Packaging - Inspect unit packaging for correct quantity and packaging to the Purchase Order requirements.  
(Note: Absolutely no loose plastic peanuts or other dunnage is allowed)

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

- D. Rational: The criticality of the processing of the material in these clamps and the application in the aircraft warrants free-state and closure over mandrel testing as the primary indicator of conformance.

QUALITY ASSURANCE TEST POLICY # 1016

Organization: Boeing Certified Suppliers

Subject: Acceptance of High Strength (160 KSI) or  
Greater Nuts

- A.** This document establishes key characteristics policy for High Strength (160 KSI) or greater nuts procured for use by Boeing Preferred Suppliers. This document is applicable to Boeing Standard, Military Standard and Supplier Drawings.
- B.** Applicable to: Fasteners supplied directly to Boeing-St. Louis Panstock line stations.
- C.** Inspection and Test Requirements: As a minimum, each lot of Nuts shall have the following inspections and test performed.
- 1.** Tensile Strength - Each Lot of nuts shall have tensile strength verified per specification requirements.  
  
Sample size: **1 Piece-Accept on Zero(0), reject on One(1)**
  - 2.** Running Torque - Each lot of nuts shall have running torque values verified per specification requirements. Measure locking torque and breakaway torque for 15 cycles.  
  
Sample size: **1 Piece-Accept on Zero(0), reject on One(1)**
  - 3.** Dimensional Inspection - Inspect to verify conformance to drawing requirements.  
  
Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0  
Modified to accept on Zero(0), reject on One(1)**
  - 4.** Lot traceability and manufacturer's certified test data - Review manufacturer's lot control and submitted certified test data for accuracy.

Sample size: **ALL**

5. Labels - Inspect prior to stocking labels for correct part number, correct lot number and manufacturer's name . Also inspect for legibility and permeability of labels.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

6. Cleanliness - Inspect inside unit package, prior to stocking , for chips, dirt, incomplete pieces, excessive oils and obvious corrosions.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

7. Packaging - Inspect unit packaging for correct quantity and packaging to the Purchase Order requirements. (Note: Absolutely no loose plastic peanuts or other dunnage is allowed)

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

- D. Rational: The criticality of the processing of the material in these nuts and the nut application in the aircraft warrants tensile testing as the primary indicator of conformance. Tensile test will confirm minimum strength requirements. Running torque test will detect any over crimping or poor lubricity of the coatings.

## QUALITY ASSURANCE TEST POLICY # 1017

Organization: Boeing Certified Suppliers

Subject: Acceptance of Blind Rivets

- A.** This document establishes key characteristics policy for Blind Rivets procured for use by Boeing Preferred Suppliers. This document is applicable to Boeing Standard, Military Standard and Supplier Drawings.
- B.** Applicable to: Fasteners supplied directly to Boeing-St. Louis Panstock line stations.
- C.** Inspection and Test Requirements: As a minimum, each lot of blind rivets shall have the following inspections and test performed.

1. Visual inspection- (Applies only to 3M1235 and 3M1236). Inspect per 23M141, para. 4.4.1. Check for proper spindle length

**Sample Size: 1 Piece- Accept on Zero(0), reject on One(1).**

2. Uninstalled Spindle Retention- NAS 1768 and NAS 1769 - Spindle of the uninstalled blind rivet shall be capable of withstanding axial pushout load as specified in NAS 1740, Table 1, Column B. The test device shall be similar to NAS 1740, Figure 5.

- (a) 3M1235 and 3M1236 perform uninstalled pushout test per 23M141, para 3.3.2.2, Table II, column C, Fig. 5.

**Sample Size: 5 Pieces- Accept on Zero(0), reject on One(1).**

3. Installation Test

- (a) All rivets shall be installed with PR1750 sealant (MMS332 A4 OR B4) in accordance with Boeing Process Specification P.S. 11217, and 23M141 Paragraph 4.4.7 Note 5. Rivets shall be installed in 2024T3 or 7075T6 aluminum and shall be checked for loose or missing spindle or collar, cracked head, failure of collar to install, splits and cracked sleeve.

- (b) NAS1768 and NAS 1769 blind rivets only-Spindle and collar flushness shall be per NAS 1740, Figure 1.

- (c) 3M1235 and 3M1236 blind rivets only - Spindle and collar flushness shall be per 23M141 Fig. 1.

**NAS1768 AND NAS1769 - INSTALL 10 PCS. MINIMUM  
GRIP AND 10 PCS MAXIMUM GRIP.  
ACCEPT ON 0, REJECT ON 1.**

**INSTALLATION TEST SAMPLING  
FOR 3M1235 & 3M1236**

<b>INSTALLATION</b>	<b>Sample Level</b>	<b>SAMPLE SIZE</b>	<b>ACC#</b>	<b>REJ #</b>
Splits, Cracks	S-4 AQL 1.0	25 Min 25 Max	1	2
Loose or missing locking collar, missing spindle, and spindle or collar protrusion outside the limits of 23M141 Fig. 1.	S-4 AQL 1.5	*16 Min *16 Max	1	2
		25 Min 25 Max	2	3

\* For lots under 10,000 pcs, install 16 pcs. in minimum grip and 16 pcs in maximum grip. Examine for loose or missing locking collars, spindles and spindle / collar flushness. Accept on 1, reject on 2. Proceed to install remaining 9 pcs. in minimum and maximum grips and examine full sample for cracked heads and split sleeves. Accept on 1, reject on 2.

NOTE: IF LOT IS ACCEPTABLE, BUT EXHIBITED A SPLIT SLEEVE DURING INSTALLATION TEST, PERFORM INTERGRANNULAR CORROSION TEST PER PARAGRAPH 4.4.3.2 OF 23M141.

4. Installed spindle retention test (applies to only the 3M1235 and 3M1236)  
**Note: Diameter .094" are excluded.**
  - (a) Shave .004" +/- .001 from the top surface of the flush head rivets.  
**Note: Diameter .094" are excluded.**
  - (b) Protruding head rivets are not to be shaved.

- (c) NAS1768 and NAS1769 test per NAS1740, Table I, column A, and Fig. 5. 3M1235 and 3M1236 test per 23M141, Table II, Column B, and Fig. 5.
- (d) Load must be applied directly in line with the axis of the rivet spindle.
- (e) Push out 5 of the rivets installed in minimum grip as follows:  
Note: All 5 rivets should be in the installed locked condition.  
*Note: Diameter .094" are excluded.*

Rivet Dia.	Push Out	Push Out pin Dia.
.125	Min Grip/Max Hole	.085"/.083"
.156	Min Grip/ Max Hole	.107"/.105"
.190	Min Grip/ Max Hole	.129"/.127"
.250	Min Grip/ Max Hole	.175"/.173"

Sample size: **5 pieces - Accept on Zero(0), reject on One(1)**

5. Dimensional Inspection - Inspect to verify conformance to drawing requirements.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

6. Lot traceability and manufacturer's certified test data - Review manufacturer's lot control and submitted certified test data for accuracy.

Sample size: **ALL**

7. Labels - Inspect prior to stocking labels for correct part number, correct lot number and manufacturer's name . Also inspect for legibility and permeability of labels.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**



8. Cleanliness - Inspect inside unit package, prior to stocking , for chips, dirt, incomplete pieces, excessive oils and obvious corrossions.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

9. Packaging - Inspect unit packaging for correct quantity and packaging to the Purchase Order requirements. (Note:Absolutely no loose plastic peanuts or other dunnage is allowed)

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

- D. Rational: The criticality of the processing of the material in these blind rivets and the rivet application in the aircraft warrants installation testing as the primary indicator of conformance.

## QUALITY ASSURANCE TEST POLICY # 1018

Organization: Boeing Certified Suppliers

Subject: Acceptance of Inconel 718 Threaded Fasteners

- A.** This document establishes key characteristics policy for acceptance of Inconel 718 threaded fasteners procured for use by Boeing preferred suppliers. This document is applicable to Boeing standards, Military standards, Industry standards, and supplier drawings.
- B.** Applicable to: Fasteners supplied directly to Boeing-St. Louis panstock line stations.
- C.** Inspection and Test Requirements: As a minimum each lot of Inconel 718 threaded fasteners shall have the following inspections and tests performed and recorded in the key characteristics control planning. This does not replace manufacturers testing per drawing and procurement specification requirements.

1. Head Ductility Test - Perform by either wedge tensile or head punch method.

**Note: Perform head ductility or tensile test per applicable procurement spec.**

Sample size: **One piece. Accept on Zero(0), reject on One(1).**

2. Dimensional Test - Inspect to verify conformance to drawing requirements.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0  
Modified to accept on Zero(0), reject on One(1)**

3. Lot tracability and manufacturers certified test reports - Review manufacturer's lot control and testing data for accuracy.

Sample size: **All**

4. Labels - Inspect prior to stocking for correct part number, lot number, and manufacturer's name. Also inspect for legibility and permeability of labels.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0  
Modified to accept on Zero(0), reject on One(1)**

5. Cleanliness - Inspect inside unit package, prior to stocking, for foreign material, incomplete pieces, excessive oils, or obvious corrosions.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

6. Packaging - Inspect unit packaging for correct quantity and packaging to the Purchase Order requirements. Note: Absolutely NO loose plastic peanuts or other dunnage is permissible.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

- D. Rational: The criticality in the processing of the material in these fasteners and their application in the aircraft warrants tension test to failure as an indicator of conformance. This test validates correct forming of the fastener head and alleviates the concern of cold-working and risk of delayed fatigue failures.

## QUALITY ASSURANCE TEST POLICY # 1020

Organization: Boeing Certified Suppliers

Subject: Acceptance of Self-Locking (Hi-Lok) Collars

- A. This document establishes the key characteristics policy for Self-Locking (Hi-Lok) Collars procured for use by Boeing preferred suppliers. This document is applicable to Boeing Standard, Military Standard and Supplier drawings.
- B. Applicable to: Self Locking (Hi-Lok) Collars supplied directly to Boeing-St. Louis panstock line station.
- C. Inspection and test requirements: As a minimum, each lot of Self Locking (Hi-Lok) Collars shall have the following inspections and tests performed and recorded in the key characteristics control planning. This does not replace manufacturers testing per drawing and procurement specification requirements.

- 1. Locking and Breakaway Torque - All lots of collars shall be tested for max. prevailing, min. breakaway, and breakoff torques per procurement spec. 23M117. Acceptance criteria for these tests shall be as specified in procurement spec.

Sample Size: **10 pieces per lot.**

**Accept on Zero(0), reject on One(1)**

- 2. Dimensional Inspection - Inspect to verify conformance to drawing requirements. Verify that thread form, dimensions, forming method, and thread runout complies to drawing requirements.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**

**Modified to accept on Zero(0), reject on One(1)**

- 3. Lot traceability and manufacturers certified test reports - Review manufacturers lot control and submitted certified test reports for accuracy and completeness.

Sample size: **All**

4. Labels - Inspect labels prior to stocking for correct part number, and manufacturers name. Also inspect for legibility and permeability of labels.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

5. Cleanliness - Inspect inside unit packages, prior to stocking, for chips, dirt, incomplete pieces, excessive oils and and obvious corrossions.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

6. Packaging - Inspect unit package for correct quantity and packaging to the Purchase Order requirements. (Note: Absolutely no loose plastic peanuts or other loose dunnage is allowed.)

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

- D. Rational: The criticality of the processing of the material in these fasteners and the fastener application in the aircraft warrants prevailing and twistoff torque as the primary indicator of conformance.

## QUALITY ASSURANCE TEST POLICY # 1021

Organization: Boeing Certified Suppliers

Subject: Acceptance of Extended Reusability Corrosion Resistant Steel Self Locking Nuts and Nut Assemblies

- A. This document establishes the key characteristics policy for Extended Reusability Corrosion Resistant Steel, Self Locking Nuts and Nut Assemblies procured for use by Boeing preferred suppliers. This document is applicable to Boeing-St. Louis Standard, Military Standard and Supplier drawings.
- B. Applicable to: Extended Reusability Corrosion Resistant Steel, Self Locking Nuts and Nut Assemblies supplied directly to Boeing-St. Louis panstock line station.
- C. Inspection and test requirements: As a minimum, each lot of Extended Reusability Corrosion Resistant Steel, Self Locking Nuts and Nut Assemblies shall have the following inspections and tests performed and recorded in the key characteristics control planning. This does not replace manufacturers testing per drawing and procurement specification requirements.

- 1. Locking Torque and Reusability - All nut lots shall be tested per Boeing procurement specification 23M119 para. 4.5.3.2 except, observe 'max locking torque' and 'min breakaway torque' on the 1st, 10th, 30th, and 50th cycle. Acceptance conditions shall be per 23M119, para. 3.4.2.1.

Sample Size: **3 pieces per lot.**

**Accept on Zero(0), reject on One(1)**

- 2. Dimensional Inspection - Inspect to verify conformance to drawing requirements. Verify that thread form, dimensions, forming method, and thread runout complies to drawing requirements.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**

**Modified to accept on Zero(0), reject on One(1)**

- 3. Lot traceability and manufacturers certified test reports - Review manufacturers lot control and submitted certified test reports for accuracy and completeness.

Sample size: **All**

4. Labels - Inspect labels prior to stocking for correct part number, and manufacturers name. Also inspect for legibility and permeability of labels.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

5. Cleanliness - Inspect inside unit packages, prior to stocking, for chips, dirt, incomplete pieces, excessive oils and and obvious corrossions.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

6. Packaging - Inspect unit package for correct quantity and packaging to the Purchase Order requirements. (Note: Absolutely no loose plastic peanuts or other loose dunnage is allowed.)

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

- D. Rational: The criticality of the processing of the material in these fasteners and the fastener application in the aircraft warrants locking torque and reusability testing as the primary indicator of conformance

## QUALITY ASSURANCE TEST POLICY # 1022

Organization: Boeing Certified Suppliers

Subject: Acceptance of Fasteners Installed by Brotje

- A. This document establishes the key characteristics policy for Brotje Installed fasteners procured by Boeing preferred suppliers. This document is applicable to Boeing Standard, Military Standard, Industry Standard and Supplier drawings.
- B. Applicable to: Brotje fasteners (except those used to make the test coupons) supplied to Boeing-St. Louis panstock line station 192B-BRO.
- C. Inspection and test requirements: As a minimum, each lot of Brotje fasteners shall have the following inspections and tests performed and recorded in the key characteristics control planning. This does not replace manufacturers testing per drawing and procurement specification requirements.

- 1. Dimensional Inspection - Inspect to verify conformance to drawing requirements.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

- 2. Sort - Brotje fasteners (except those used to make the test coupons) supplied to Boeing-St. Louis panstock line station 192B-BRO shall be sorted 100% for mixed parts at final packaging or receiving inspection by the JIT Supplier.

Sample size : **All**

- 3. Lot traceability and manufacturers certified test reports - Review manufacturers' lot control and submitted certified test reports for accuracy and completeness.

Sample size: **All**



4. Labels - Inspect labels prior to stocking for correct part number, and manufacturers' name. Also inspect for legibility and permeability of labels.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

5. Cleanliness - Inspect inside unit packages, prior to stocking, for chips, dirt, incomplete pieces, excessive oils and and obvious corrosions.

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

6. Packaging - Inspect unit package for correct quantity and packaging to the Purchase Order requirements. (Note: Absolutely no loose plastic peanuts or other loose dunnage is allowed.)

Sample size: **ASQ Z1.4, Table IIA, Level S3, AQL 4.0**  
**Modified to accept on Zero(0), reject on One(1)**

- E. Rational: The criticality of the processing of the material in these fasteners and the fastener application in the aircraft warrants 100% configuration inspection as the primary indicator of conformance