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**PRIMARY QUALIFICATION TEST REPORT ABSTRACT  
FOR  
SWING-ARM BACKSHELL**

**REPORT NO. GT-06-08 ABSTRACT**



**90°, 45°, and Straight  
Swing-Arm Orientations**

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DATE: 02/15/2022

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DATE: 2/24/2023

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1.0 Product Description/Application

The Glenair Swing-Arm Backshell strain relief clamp and EMI shield termination with strain relief are circular connector strain relief accessories intended for application on aerospace equipment, tactical military equipment, and harsh environment commercial equipment. Swing-Arm products have an articulating arm that allows the Backshell to quickly adjust and lock into three positions—straight, 45°, and 90°. Made of injection-molded, high temperature thermoplastic composite Ultem (PEI) reinforced with fiber glass, the Swing-Arm is available as a strain relief clamp, or in two EMI shield sock options: nickel-plated copper braid or metalized composite thermoplastic braid.

1.1 Purpose

Testing was performed on Glenair Swing-Arm Backshell strain relief clamps and EMI shield terminations with strain relief to determine its conformance to specified performance requirements.

1.2 Scope

This report summarizes the electrical, mechanical, and environmental performance testing of Glenair Swing-Arm Backshell strain relief clamps and EMI shield terminations with strain relief. The information in this report was obtained from tests conducted by the providers listed below. The documents listed below are on file at Glenair and are available upon request.

Applicable Test Reports		
Test Report Number	Provider	Date Tested
576-4617	National Testing Systems (NTS)	November 11, 2005
LT-06-2613	Lightning Technologies	March 20, 2006
D022Z001-03 Rev NEW	Boeing Company	April 25, 2005
GT-06-08	Glenair Inc.	July 19 and 27, 2006
OC17901-1112713B OC18631-1013308 OC18461-0713174	Environment Associates	October 16 and November 17, 2006

1.3 Conclusion

Glenair Swing-Arm Backshell strain relief clamps and EMI shield terminations with strain relief has been shown to be capable of meeting specified performance requirements.



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1.4 Test Specimen

Test Specimen Descriptions	
Description	Part Number
38999 Series III, shell size 11, electroless nickel interface	319HxxxXO11
38999 Series III, shell size 17, electroless nickel interface	319HxxxXO17
38999 Series III, shell size 25, electroless nickel interface	319HxxxXO25
Shell size 10, interface I.A.W AS85049 Figure 4A, cadmium/electroless nickel selectively plated	319AxxxXN10
Shell size 16, interface I.A.W AS85049 Figure 4A, cadmium/electroless nickel selectively plated	319AxxxXN16
Shell size 124, interface I.A.W AS85049 Figure 4A, cadmium/electroless nickel selectively plated	319AxxxXN24
38999 Series III, shell size 11 strain relief clamp	627HxxxXO11
38999 Series III, shell size 17 strain relief clamp	627HxxxXO17
38999 Series III, shell size 25 strain relief clamp	627HxxxXO25

1.5 Inspection Procedure

All tests were performed with the test specimen at standard laboratory conditions and within procedural parameters as defined below.

1. Temperature between 15°C and 35°C
2. Relative humidity: Room ambient up to 90% maximum
3. Barometric pressure between 711 and 813 mm of mercury absolute



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2.0 Qualification Test Summary

Preparation of Specimens				
Group	Specimen	Connector	Cable Type	Solder Sleeve Pigtail
1	319H***XO**	NONE	NONE	N/A
2, 3	319H***XO**	Dummy Test Connector AT44H( )XM Composite / Nickel Finish	MS27500- 20SB2T23 OR Equivalent	TIN
2, 3	319H***XO**	Dummy Test Connector AT441H( )ZM Stainless Steel / Nickel Finish	MS27500- 20SB2T23 OR Equivalent	TIN
2, 3	319A***XN**	Dummy Test Connector AT439BA( )NF Aluminum / Cadmium Finish	MS27500- 20SB2T23 OR Equivalent	TIN
4	HYDROLYTIC STABILITY	627H***XO**	NONE	NONE
	FLUID RESISTANCE	319HXO**	D38999/2( )M or Equivalent Mil-DTL-38999 Series III Composite Connector	NONE
	FLAMMABILITY, SMOKE, AND TOXICITY	Coupons (Samples)	NONE	NONE
	INDIRECT LIGHTNING STRIKE	319H**XO***	Dummy Test Connector AT441H( )ZM Stainless Steel / Nickel Finish	MS27500- 20SB2T23 OR Equivalent

Test Summary Groups								
Product	Swing-Arm Backshell EMI Shield Termination Strain Relief for Mil-DTL-38999 Series III & IV				Swing-Arm Backshell EMI Shield Termination Strain Relief for I.A.W. AS85049 Figure 4A			Swing-Arm Backshell Strain Relief for Series III and IV
	Group 1	Group 2	Group 3	Group 4	Group 1	Group 2	Group 4	Group 4
319HxxxXO11	2	4	2	1				
319HxxxXO17	2	4	2	1				
319HxxxXO25	2	4	1	1				
319AxxxXN10					1	1	1	
319AxxxXN16					1	1	1	
319AxxxXN24					1	2	1	
627HxxxXO11								1
627HxxxXO17								1
627HxxxXO25								1



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Test Sequence								
Product	Swing-Arm Backshell EMI Shield Termination Strain Relief for Mil-DTL-38999 Series III & IV				Swing-Arm Backshell EMI Shield Termination Strain Relief for I.A.W. AS85049 Figure 4A			Swing-Arm Backshell Strain Relief for Series III and IV
Test	Test Group				Test Group			Test Group
	1	2	3	4	1	2	3	4
	Test Sequence				Test Sequence			Test Sequence
Braid Retention	9				9			
Corrosion Resistance (salt spray)	6		4		6		4	
Coupling Thread Strength	5			2	5			2
External Bending Moment	8				8			
Flammability								6
Fluid Resistance								5
Hydrolytic Stability (composite only)				3				3
Indirect Lightning Strike								4
Life Cycling	4				4			
Magnetic Permeability	2				2			
Screw Hardware Durability		3, 10				3, 10		
Shell Conductivity	3, 7	2, 5, 9	2, 5, 7		3, 7	2, 5, 9	2, 5, 7	
Shock		7				7		7
Smoke							3	
Temperature Cycling		4	3			4		
Toxicity								8
Vibration		6				6		
Visual and mechanical examination	1, 10	1, 8	1, 6	1	1	1, 8	1, 6	1, 4

3.0 Qualification Testing Details

3.1 **Initial examination of product**

All specimens submitted for testing were representative of standard production lots. All specimens were accepted by Glenair Quality Assurance prior to submittal to testing. Testing agencies visually examined specimens for mechanical damage, workmanship, and markings.

3.2 **Braid Retention**

3.2.1 Test Method

Backshell shall be tested for braid retention to a tensile load of 50 pounds minimum for shell sizes 9-16 and 100 pounds minimum for shell sizes 17-28. Backshell shall be mounted to a suitable fixture and the load shall be applied for 15 seconds minimum.



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3.2.2 Requirement

When tested as specified, the braid shall not pull out nor shall slippage exceed 0.025 inch. Breakage of braid shall not be considered a failure.

3.2.3 Results

Braid did not pull out on any of the test samples and slippage did not exceed 0.025 inch.

3.2.4 Test Anomalies/Deviations

N/A

3.3 **Corrosion Resistance (Salt Spray)**

3.3.1 Test Method

Backshells shall be tested in accordance with EIA 364-026. The samples shall not be mounted but shall be suspended from the top of the chamber using waxed twine or strong, glass rods, or glass cord.

Salt Spray – Composite Backshells – Component Level

The duration for the test for unassembled backshells shall be 1000 hours.

Salt Spray – System Level

Backshells shall be assembled to connectors with shielded wire terminated to Shield Sock. Test sample sizes shall be configured as shown in Figure 1 in Section 3.5.2 below. The duration of the test shall be 500 hours.

3.3.2 Requirement

Salt Spray – Component Level

When tested, backshell shield sock and interface ring shall not exhibit excessive corrosion or exposure of base material detrimental to normal operation of the backshell. Backshells without connectors or wire shall be tested to the component level tests.

Salt Spray – System Level

When tested, cable shield connection points, backshell shield sock and interface ring shall not exhibit excessive corrosion exposure of base material detrimental to normal operation of the backshell. Backshells installed on specimens that terminate shields shall be tested to the system level tests.

3.3.3 Results

No excessive corrosion or exposure of base material detrimental to normal operation of the test samples.



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3.3.4 Test Anomalies/Deviations  
N/A

**3.4 Coupling Thread Strength**

3.4.1 Test Method

A counterpart connector or dummy connector shall be mounted in a suitable fixture. The backshell shall be threaded onto the fixture and a torque wrench used to apply the coupling thread strength torque as indicated in the table below at a rate of approximately 10 inch pounds per second. The required load shall be held for one minute minimum.

Coupling Thread Strength				
Shell Size	Coupling Installation Torque ± 5 Inch Pounds		Coupling Strength ± 5 Inch Pounds	
	Composite	Steel	Composite	Steele
8 thru 11	35	85	45	100
12 thru 19	40	120	50	150
20 thru 28	80	165	100	200

3.4.2 Requirement

When tested, backshell coupling threads shall withstand the torque specified without damage. The coupling threads shall be inspected with 3 times magnification for damage.

3.4.3 Results

Test samples were subjected to visual examination with 3X magnification. There was no visible evidence of physical damage noted.

3.4.4 Test Anomalies/Deviations  
N/A

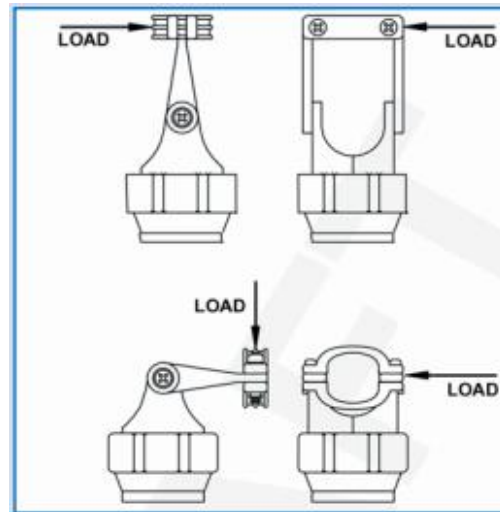
**3.5 External Bending Moment**

3.5.1 Test Method

The backshell shall be mounted to a receptacle or a plug as required. A dummy receptacle or fixture simulating a mated connector pair may be used to perform the test. The receptacle or fixture shall be mounted to a rigid surface to resist deflection. A load shall be applied to the backshell in two axes 90° apart as shown in Figure 1 below. The load shall be as indicated in the table below and shall be applied at a rate of approximately 10 pounds per second until the required load is achieved. The applied load shall be held for 1 minute.

External Bending Moment Load		
Shell Size	Load (pounds min)	
	Straight	90°
8 and 9	15	20
10 and 11	25	30
12 and 13	25	30
14 and 5	30	40
16 and 17	40	50
18 and 19	40	50
20 and 21	40	50
22 and 23	40	50
24 and 25	50	50
28	50	60

Figure 1 External Bending Moment



3.5.2 Requirement

When tested, the backshells shall show no evidence of damage detrimental to their normal operation

3.5.3 Results

No visible damage to the normal operation of the test samples noted.

3.5.4 Test Anomalies/Deviation

N/A





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**3.6 Flammability**

**3.6.1 Test Method**

Non-metallic materials considered for use in items covered by this specification shall be tested under the 12-second ignition vertical method.

**3.6.2 Requirement**

Materials used in items covered by this specification shall be materials that do not sustain combustion when tested as specified.

**3.6.3 Results**

Backshells passed test requirements as shown below.

Flammability Test Results						
Sample No.	Exiting Time (secs)		Burned Length (inches)		Drip Exiting Time (secs)	
	Max allowed	Actual	Max allowed	Actual	Max allowed	Actual
1	15	0	8	0.4	5	No drip
2	15	0	8	0.2	5	No drip
3	15	0	8	0.4	5	No drip
<b>Average</b>	<b>15</b>	<b>0</b>	<b>8</b>	<b>0.3</b>	<b>5</b>	<b>0</b>

**3.6.4 Test Anomalies/Deviations**  
N/A

**3.7 Fluid Resistance**

**3.7.1 Test Method**

The test shall be performed in accordance with EIA-364, Test Procedure 10, using the fluids defined in the table below.



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Fluid Resistance Results						
Test Fluid	Test Cycle (Times ± 10 percent)					Number of Cycles
	Test Fluid Temperature		Drainage Time	Oven Cure, Mated		
	Temp ±3°C	Time Minutes	Free Air Hours	Time Hours	Temp ±3°C	
BMS 3-11 Type IV, Class 1 Hydraulic Fluid, Fire Resistant	70	5	1	6	100	7
Isopropyl Alcohol	23	5	24	--	--	5
Methyl Propyl Ketone, BMS11-9, Grade 1	23	5	1	--	--	7
Anti-Icing Fluid	23	60	1	6	100	7
Lubricating Oil, MIL-PRF-23699	120	5	1	6	125	7
Alkaline Detergent, pH 10.0-10.5	23	5	1	6	100	7
Fuel Jet A, ASTM D 1655	23	5	1	6	55	7
Hydraulic Fluid, MIL-PRF-5606	70	5	1	6	100	7
Hydraulic Fluid, MIL-PRF-87257	70	5	1	6	100	7
Dow Frost 60 Heat Transfer Fluid	23	5	1	6	100	7
Potassium Formate Runway De-icer	23	5	1	6	55	7

**3.7.2 Requirement**

When tested, the test sample shall show no evidence of damage that will affect performance. Any evidence of cracking, loosening of parts, or missing parts shall be cause for rejection.

**3.7.3 Results**

Backshells meet the requirements of the fluid immersion qualification test for composite connectors and backshells, except as noted in 3.7.4 Test Anomalies/Deviations below.

**3.7.4 Test Anomalies/Deviations**

The backshells were visually examined per the final examination requirements in section 4.2, D022Z001-01 and section 7.0, Z43S0-WAB. 5X magnification maximum was allowed during the final examination.

The following visual observations were noted: Test article #01, which was soaked in BMS 3-11, type IV, class 1 hydraulic fluid, fire resistant, was missing the part number and date code that was stamped on each of the backshells.

On test article #04, which was soaked in heat transfer fluid, Dow Frost 60, the backshell from the receptacle connector side appears to have a crack around the tightening portion. It was determined that the backshell had cracked before testing. Therefore, a new backshell was used to retest the Dow Frost 60 fluid. The retest passed all requirements.



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**3.8 Hydrolytic Stability**

3.8.1 Test Method

Composite backshells shall be tested for water absorption in accordance with ASTM D 570, paragraph 7.4, long term immersion.

3.8.2 Requirement

When tested, there shall be no increase in weight greater than 5%. Backshells shall meet the coupling thread strength requirements.

3.8.3 Results

All samples met coupling strength requirements. The average two-week weight gain for all samples was less than 1%.

3.8.4 Test Anomalies/Deviations

N/A

**3.9 Indirect Lightning Strike**

3.9.1 Test Method

The backshell shall be tested as specified per EIA-364-75, Waveform 5B for the ability to conduct lightning currents except as follows:

Time T1 shall be 50  $\mu$ sec +20 percent

Time T2 shall be 500  $\mu$ sec +20 percent

Test level shall be 6,000 Amps. Ten positive polarity transients shall be applied followed by ten negative polarity transients. The time between individual transients is not critical. All transients shall be applied at the applicable peak amplitude level.

3.9.2 Requirement

The objective of this test is to ensure that the composite backshell does not show any evidence of damage that would prevent proper functioning of the connector assembly. Backshells shall be tested for the ability to conduct indirect lightning currents through the metallic finish without damaging the base materials or causing the metallic finish to blister or char. The parts should be visually inspected for any damage to the metallic plating. There shall be no evidence of blistering or charring. The backshell shall also be inspected to ensure that the thermoplastic material was not damaged by the thermal energy developed during testing.

3.9.3 Results

No sign of physical damage to the connector was observed after the completion of the lightning tests. Bonding resistance decreased after transients had been applied to the connector.



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3.9.4 Test Anomalies/Deviation  
N/A

**3.10 Life Cycling**

3.10.1 Test Methods

Backshells shall be coupled and uncoupled from their connectors 10 cycles at a coupling thread strength torque followed by 10 cycles at coupling installation torque as shown in the table below.

3.10.2 Requirement

After being subjected to the test specified, backshells shall pass succeeding tests. The backshells shall show no evidence of damage detrimental to normal operation.

3.10.3 Results

All samples passed test requirements as indicated in the table below.

Life Cycling Results			
Part Number	Coupling Thread Strength $\pm 5$ inch pound	Coupling Installation Torque $\pm 5$ inch pound	Result
319HxxxXO11	45	35	PASSED
319HxxxXO11	45	35	PASSED
319HxxxXO17	50	45	PASSED
319HxxxXO17	50	45	PASSED
319HxxxXO25	100	80	PASSED
319HxxxXO25	100	80	PASSED
319AxxxXN10	45	35	PASSED
319AxxxXN16	50	45	PASSED
319AxxxXN24	100	80	PASSED

3.10.4 Test Anomalies/Deviations  
N/A

**3.11 Magnetic Permeability**

3.11.1 Test Methods

The relative permeability shall be tested in accordance with EIA-364-54

3.11.2 Requirement

When tested as specified, the relative permeability of the backshell shall be less than 2.0Mu for the composite and less than 5.0Mu for stainless steel.

3.11.3 Results

All samples met the test requirements.

3.11.4 Test Anomalies/Deviations  
N/A



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**3.12 Screw Hardware Durability**

**3.12.1 Test Method**

The saddle clamp screws, and the swing arm pivot screws shall be installed into and removed from their respective nut 15 times. Parts were retested following six additional test procedures.

**3.12.2 Requirement**

The locking capability values recorded of the saddle nuts and swing arm pivot nuts shall not be greater than the maximum locking torque nor less than the minimum breakaway torque specified in the table below. The backshells shall show no evidence of damage detrimental to normal operation.

Self Locking Nut Torque		
Screw Size	Maximum Locking Torque (inch pounds)	Minimum Breakaway Torque (inch pounds)
4	5	0.5
6	10	1.0
8	15	1.5
10	18	2.0

**3.12.3 Results**

Samples were visually examined following the initial and subsequent tests. There was no visible evidence of damage detrimental to normal operation of the test samples.

**3.12.4 Test Anomalies/Deviations**

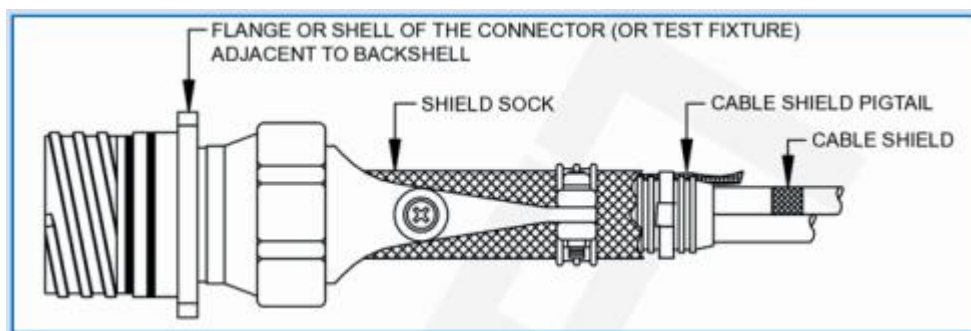
N/A

**3.13 Shell Conductivity**

**3.13.1 Test Method**

Shell conductivity shall be measured with an applied potential of 1.5 volts maximum. A resistance shall be in series with the test circuit to limit the current to .100 ampere  $\pm$ .010. Measurement locations are shown in Figure 2 below. For the component level test, measurements shall be made from the shield sock to the connector shell. For the system level test, measurements shall be made from the cable shield or cable shield pigtail to the connector shell as shown in Figure 2 below. Samples are tested twice or three times within the test sequence of each group 1, 2, and 3.

Figure 2 Test Measurement Points



### 3.13.2 Requirement

#### Shell Conductivity – Component Level

When tested as specified, the resistance between the backshell shield sock and the connector shall not exceed 2.5 milliohm for composite backshells and 5.0 milliohm for stainless steel backshells.

#### Shell Conductivity – System Level

When tested as specified, the resistance between the cable shield and the connector shall be measured, recorded, and submitted in the qualification test report.

### 3.13.3 Results

Shell conductivity was less than 2.5 mΩ on all test samples.

### 3.13.4 Test Anomalies/Deviations

On the third retest of Group 2, two backshells failed as a result of a technician repositioning the swing arms without loosening clamp saddle screws. Glenair added a notation to the relevant assembly procedures to caution that saddle clamp screws must be loosened prior to repositioning.

## 3.14 **Shock**

### 3.14.1 Test Method

A counterpart receptacle connector, mounted on a suitable fixture, shall be attached to the shock machine. The wired mating plug connector and backshell shall be engaged to the receptacle connector by normal locking means. The cable shall be clamped to a fixed point at least 8 inches from the rear of the backshell. The assembly shall be subjected to the shock test requirements of EIA 364-27, Condition C, calling for 3 shocks in the positive direction, 3 shocks in the negative direction, repeated in each of three axes for a total of 18 shocks per specimen. Monitoring for discontinuity is not required.

### 3.14.2 Requirement

When tested as specified, backshells shall not be damaged, nor should there be any loosening of parts.



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3.14.3 Results

Samples passed the requirements of EIA 364-27, Condition C with no anomalies noted.

3.14.4 Test Anomalies/Deviations

N/A

3.15 **Smoke**

3.15.1 Test Method

ASTM F814-83

3.15.2 Requirement

Materials used in items covered by this specification, when tested in accordance with ASTM F814-83, shall not emit smoke having Specific Optical Density (DS) of 200 or more, as specified.

3.15.3 Results

Average results below show no emissions of smoke density at or above Specific Optical Density (DS) of 200.

Specific Optical Density (DS)								
Specimen No.	----- Minutes -----						Max in 1 <sup>st</sup> 4 min	Time of Maximum
	1:00	1:50	2:00	3:00	4:00	5:00		
1	0.10	0.74	1.72	6.62	15.38	32.74	15.38	4.00
2	0.73	0.92	1.63	3.07	5.45	8.75	5.45	4.00
3	0.24	0.73	1.25	2.98	5.97	12	5.97	4.00
AVG:	0.36	0.80	1.53	4.22	8.93	17.67	8.93	4.00
Sid Dev	0.33	0.11	0.25	2.07	5.59	13.12	5.59	

3.15.4 Test Anomalies/Deviations

N/A

3.16 **Temperature Cycling (composite only)**

3.16.1 Test Method

Composite backshells shall be tested in accordance with EIA 364-32, Condition I, 5 cycles, except that steps 2 and 4 shall be of 2 minutes maximum duration. The temperature of step 1 shall be -65 +0, -5°C and the temperature of step 3 shall be 200 +5, -0°C.

3.16.2 Requirement

When tested as specified, there shall be no blistering, peeling, or separation of plating, or other damage detrimental to the normal operation of the backshell.

3.16.3 Results

Samples were visually examined following tests. There was no visible evidence of damage detrimental to normal operation of the test samples.



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3.16.4 Test Anomalies/Deviations

N/A

3.17 **Toxicity**

3.17.1 Test Method

Ion chromatography as specified.

3.17.2 Requirement

Materials used in backshells, or other parts covered by this specification shall liberate only non-toxic fumes when tested as specified. The average value of toxic gas emissions in parts per million (PPM) after four minutes shall not exceed the values indicated in the table below.

3.17.3 Results

Toxicity Results		
Component	Maximum Allowed (PPM)	Actual (PPM)
HCN	150	2.0
HF	200	1.0
HCL	500	1.0
SO <sub>2</sub>	100	-
NO <sub>x</sub>	100	-

3.17.4 Test Anomalies/Deviations

N/A

3.18 **Vibration**

3.18.1 Test Method

The backshell shall be tested in accordance with EIA 364-28, Condition VI, test condition letter I (AS85049 Medium Duty). The duration of the test shall be 8 hours in the longitudinal direction and 8 hours in the perpendicular direction. Parts were tested at maximum installed torque and recommended torque values.

3.18.2 Requirements

When tested as specified, the test sample shall show no evidence of damage that will affect performance. Any evidence of cracking, loosening of parts, or missing parts shall be cause for rejection. Monitoring for electrical continuity shall not be used for pass/fail criteria.

3.18.3 Results

Samples met the requirements of EIA 364-28, Condition VI, at maximum intalled torque and recommended values, with no anomalies noted.





**PRIMARY QUALIFICATION  
TEST REPORT ABSTRACT**

Glenair Swing-Arm Backshell strain relief clamps  
and EMI shield terminations with strain relief

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Life Cycling Results				
Part Number	Sample Number	Minimum (recommended) Torque Value	Maximum Torque Value	Result
319HxxxXO11	001		35	PASSED
319HxxxXO11	002		35	PASSED
319HxxxXO11	13A	25		PASSED
319HxxxXO11	14A	25		PASSED
319HxxxXO17	006		45	PASSED
319HxxxXO17	007		45	PASSED
319HxxxXO17	15A	30		PASSED
319HxxxXO17	16A	30		PASSED
319HxxxXO25	008		80	PASSED
319HxxxXO25	009		80	PASSED
319HxxxXO25	17A	35		PASSED
319HxxxXO25	18A	35		PASSED
319AxxxXN10	022		35	PASSED
319AxxxXN16	021		45	PASSED
319AxxxXN24	020		80	PASSED
319AxxxXN24	023		80	PASSED

3.18.4 Test Anomalies/Deviation

N/A

3.19 **Visual and Mechanical Examination**

3.19.1 Test Methods

Backshells shall be examined to ensure conformance with all requirements of this specification and the applicable detail documents. Examination shall be performed to ensure compliance with dimensions, materials, and identification markings.

3.19.2 Requirement

Backshells shall be examined as specified

3.19.3 Results

Observations are shown in the table below. Markings on all test samples were legible. Note that group 3 samples were subjected to 500 hours salt spray prior to visual examination



**PRIMARY QUALIFICATION  
TEST REPORT ABSTRACT**

Glenair Swing-Arm Backshell strain relief clamps  
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**Visual and Mechanical Examination Results**

Part Number	Group	Sample Number	Observations
319HxxxXO11	1	011	None
319HxxxXO11	1	012	Minor stains (after salt spray)
319HxxxXO17	1	013	None
319HxxxXO17	1	014	Minor stains (after salt spray)
319HxxxXO25	1	015	Traces of stains (after salt spray)
319HxxxXO25	1	016	Minor stains (after salt spray)
319AxxxXN10	1	017	Traces of stains—white deposit on mating receptacle (after salt spray)
319AxxxXN16	1	018	Minor stains (after salt spray)
319AxxxXN24	1	019	Minor stains—some exposure of base metal on mating receptacle (after salt spray)
319HxxxXO11	2	001	None
319HxxxXO11	2	002	None
319HxxxXO17	2	006	None
319HxxxXO17	2	007	Swing-Arm screw loose due to ultra-sonic insert fastening to the arm. Testing anomaly.
319HxxxXO25	2	008	None
319HxxxXO25	2	009	None
319AxxxXN24	2	020	Shield sock separated from coupling ring due to test technician repositioning Swing-Arm without loosening saddle screw.
319AxxxXN16	2	021	None
319AxxxXN10	2	022	None
319AxxxXN24	2	023	Swing-Arm screw insert loose. Partial separation of shield sock from coupling ring. Both due to ultra-sonic insert fastening to the arm. Testing anomaly.
319HxxxXO25	3	01A	Minor corrosion of pivot arm and clamp screws.
319AxxxXN16	3	02A	Minor corrosion of pivot arm and clamp screws.
319AxxxXN10	3	03A	Minor corrosion of pivot arm and clamp screws.
319HxxxXO11	3	003	Minor discoloration of Swing-Arm screws. Shield sock and mating shell show minor stains.
319HxxxXO17	3	005	Minor discoloration of Swing-Arm screws and saddle clamp screws. Shell discolored.
319AxxxXN24	3	010	Stains on Sing-Arm and saddle clamp screws.
319HxxxXO11	3	028	Minor discoloration of saddle clamp screws. Shield sock stained, minor stains on mating shell.
319HxxxXO17	3	029	Stain on Swing-Arm screws. Mating shell discolored. Minor discoloration on shield sock.
319HxxxXO25	3	030	Swing-Arm screws and saddle clamp screws discolored. Some local deposit (evidence of leaching) near coupling nut. Mating shell discolored.

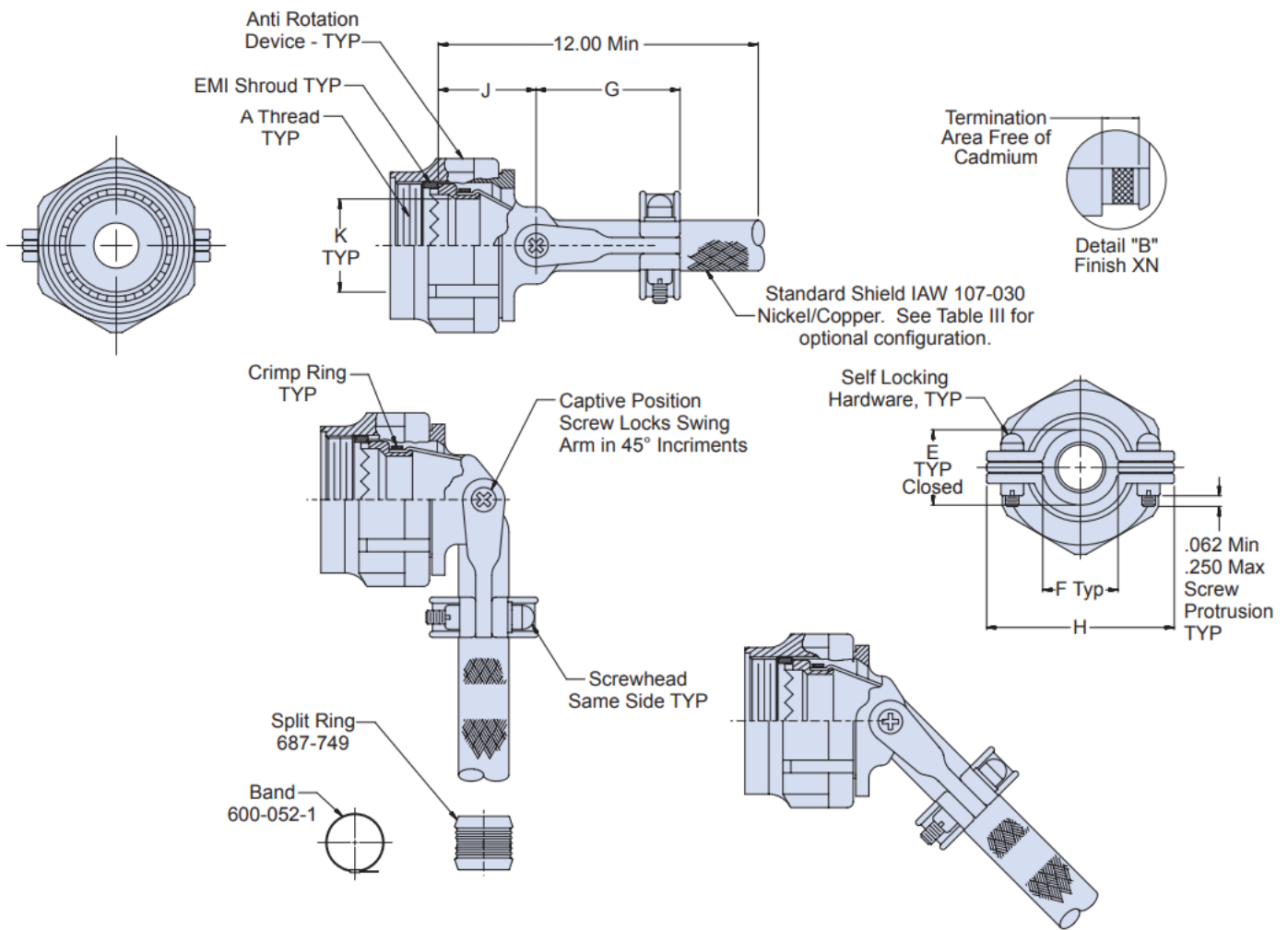
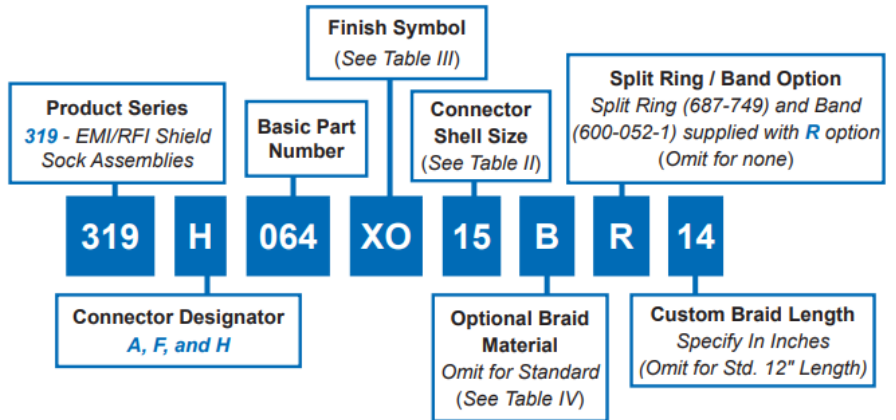
3.19.4 Test Anomalies/Deviations  
N/A



319-064

Composite Swing-Arm Backshell  
with Shield Sock and Self-Locking Rotatable Coupling

CONNECTOR DESIGNATOR	
A	MIL-DTL-5015, -26482 Series II, and -83723 Series I and III
F	MIL-DTL-38999 Series I, for Series II See Note 3
H	MIL-DTL-38999 Series III and IV
<b>SELF-LOCKING ROTATABLE COUPLING</b>	



U.S. PATENT NO. 6419519



**319-064**

**Composite Swing-Arm Backshell  
with Shield Sock and Self-Locking Rotatable Coupling**

SHELL SIZE									
Shell Size		E	F	G	H	J	K	K	K
A, F	H	± .031	Min.	Max.	Max.	± .06	(H Code)	(A Code)	(F Code)
08	09	.265 (6.7)	.22 (5.6)	1.06 (26.9)	.98 (24.9)	.94 (23.9)	.264 (6.7)	.265 (6.7)	.275 (7.0)
10	11	.310 (7.9)	.27 (6.9)	1.09 (27.7)	1.05 (26.7)	.97 (24.6)	.390 (9.9)	.370 (9.4)	.412 (10.5)
12	13	.390 (9.9)	.35 (8.9)	1.18 (30.0)	1.20 (30.5)	1.03 (26.2)	.504 (12.8)	.506 (12.9)	.526 (13.4)
14	15	.506 (12.9)	.47 (11.9)	1.24 (31.5)	1.30 (33.0)	1.09 (27.7)	.630 (16.0)	.580 (14.7)	.657 (16.7)
16	17	.591 (15.0)	.55 (14.0)	1.32 (33.5)	1.44 (36.6)	1.12 (28.4)	.756 (19.2)	.705 (17.9)	.776 (19.7)
18	19	.661 (16.8)	.62 (15.7)	1.39 (35.3)	1.56 (39.6)	1.15 (29.2)	.843 (21.4)	.784 (19.9)	.872 (22.1)
20	21	.744 (18.9)	.70 (17.8)	1.49 (37.8)	1.69 (42.9)	1.18 (30.0)	.969 (24.6)	.909 (23.1)	1.007 (25.6)
22	23	.826 (21.0)	.78 (19.8)	1.55 (39.4)	1.77 (45.0)	1.25 (31.8)	1.091 (27.7)	1.034 (26.3)	1.132 (28.8)
24	25	.896 (22.8)	.85 (21.6)	1.61 (40.9)	1.28 (48.0)	1.28 (32.5)	1.217 (30.9)	1.149 (29.2)	1.257 (31.9)

FINISH	
Symbol	Finish
<b>XB</b>	Composite Material--No-Plating, Color Black, Brass Interface Shroud and Adapter-Nickel Plated.
<b>XMT</b>	2000 Hour Corrosion Resistant Ni-PTFE, Nickel-Fluorocarbon Polymer. <i>1000 Hour Grey™</i>
<b>XN</b>	Composite Material--No Plating, Color Black and Brown, Brass Interface Shroud and Adapter--Selectively Cadmium Plated (See Detail B)
<b>XO</b>	Composite Material--No-Plating, Color Black and Brown, Brass Interface Shroud and Adapter--Nickel Plated

CONNECTOR DESIGNATOR	
Symbol	Braid Type
A	100% AmberStrand®
B	75%/25% AmberStrand® Blend
L	100% ArmorLite™
<i>Standard</i>	Nickel/Copper 34awg
T	Tin/Copper 34awg

**Notes**

1. Contact Glenair for front-end dimensional details
2. See composite thermoplastic shield sock assembly procedure for detailed installation instructions
3. Add mod code -475 to end of part number for use with Series II connectors. Backshell to be supplied less shroud.
4. Coupling nut supplied unplated.