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**QUALIFICATION TEST REPORT ABSTRACT FOR
GLENAIR
SPEEDMASTER VIBRATION AT TEMPERATURE
REPORT NO. GT-22-147 ABSTRACT**



SpeedMaster

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DATE: 08/15/2022

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QUALIFICATION TEST REPORT
Glenair SpeedMaster Vibration at
Temperature

No.: GT-22-147 Abstract
Date: August 15, 2022
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1.0 Product Description/Application

SpeedMaster 10G is purpose-designed to meet the performance requirements and installation and use preferences for the aerospace industry. Optimized for Cat 6A Ethernet performance, the SpeedMaster 10G system offers industry-leading NEXT, return loss and insertion loss performance due to its highly engineered isolation and separation architecture. Easy to assemble, terminate, install and repair, the SpeedMaster 10G utilizes size #22D contacts, tools, and cable, and meets the broad range of aerospace industry requirements for vibration, temperature cycling, durability, and safe, reliable performance.

1.1 Purpose

Testing was performed on 858-100, 858-101 SpeedMaster contacts to determine their ability to pass the vibration at non-ambient temperatures per MIL-DTL-38999.

1.2 Scope

This report summarizes mechanical and electrical qualification testing and results thereof in accordance with QTP-1172. The information in this report was obtained from tests conducted by Vertical Laboratories LLC and Glenair Inc. The documents listed below are on file at Glenair and available upon request.

Applicable Test Reports		
Test Report Number	Provider	Date Tested
22112R1ASV1	Vertical Labs	08/02/2022
GT-22-147	Glenair Inc.	08/10/2022

1.3 Conclusion

Glenair SpeedMaster has been shown to survive vibration at non-ambient temperatures.

1.4 Test Specimen

Test Sample Description	
Description	Part Number
SpeedMaster Module, Socket, Size #22D, MIL-DTL-38999, Series III Type	858-100-3
SpeedMaster Module, Pin, Size #22D, MIL-DTL-38999, Series III Type	858-101-3

1.4.1 Test Specimen Preparation

Mated pairs consisted of an 858-100-3 SpeedMaster pin contact and 858-101-3 SpeedMaster Socket contact. These were installed in a mated pair of SuperNine connectors for testing. Each contact was terminated to one end of a 60-inch Ethernet cable with an RJ45 on the other end per 8575-0001.

Each cable assembly was secured to their connector with a 620HS090ME11-1215 strain relief backshell.



1.5 Inspection Procedure

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

1. Ambient room temperature: 25°C ± 10°C (77°F ± 18°F)
2. Relative humidity: Room ambient up to 90% relative
3. Barometric pressure: Prevailing room conditions

2.0 Qualification Test Summary

Qualification Test Summary		
Test Description	Abstract Reference	Results
Examination of product	3.1	Pass
Sine Vibration, 60g, -55°C, +175°C	3.2	Pass
Random Vibration, 1g ² – 43.92g rms, +175°C	3.3	Pass
Electrical Performance (after each test) 10GBASE-T	3.4	Pass

3.0 Qualification Testing Details

3.1 **Visual and mechanical examination**

Specimen submitted for testing was representative of standard production lots. Specimen was assembled at Glenair and accepted by Glenair Quality Assurance prior to submittal for testing.

3.2 **Sine Vibration, 60g**

3.2.1 Test Method

One sample of each configuration shall be subjected to a simple harmonic motion from 10 to 2,000 Hz in each of three mutually perpendicular axes. The level of vibration shall be a velocity of 254 mm/sec from 10-50 Hz; 1.5 mm double amplitude from 50-140 Hz, and 60 G from 140- 2,000 Hz. The entire frequency range from 10-2,000 Hz and back shall be traversed in 20 minutes. The vibration shall be applied for a duration of 4 hours in each of the three mutually perpendicular axes for a total of 12 hours.

A test current of 100 milliamperes maximum shall be applied and the mated pair continuously monitored for microsecond discontinuities.

Vibration shall be conducted at -55°C, and +175°C.

3.2.2 Requirement

No disengagement of the mated connectors, backing off, the coupling mechanism, evidence of cracking, breaking, or loosening of parts.

3.2.3 Results

PASS. Assemblies SN 002 and 003 did not exhibit physical degradation.

3.2.4 Test Anomalies/Deviations

N/A



3.3 Random Vibration, $1g^2 - 43.92g$ rms

3.3.1 Test Method

EIA-364-28, Condition VI, Letter J.

Vibration shall be conducted at +175°C

3.3.2 Requirement

No disengagement of the mated connectors, backing off, the coupling mechanism, evidence of cracking, breaking, or loosening of parts.

3.3.3 Results

PASS. Cable assembly SN 001 did not exhibit physical degradation.

3.3.4 Test Anomalies/Deviations

N/A

3.4 Electrical Performance (After Each Test)

3.4.1 Test Method

After each test, mated pairs shall be tested using a Fluke Networks Cable Analyzer

3.4.2 Requirement

Samples shall pass 10GBASE-T

3.4.3 Results

PASS. All assemblies maintained their performance.

3.4.4 Test Anomalies/Deviations

N/A