	Superfly Ochito Mating Durability Testing	Date	
		04/13/18	GT-18-060
		Rev. 2	

Qualification Test Report

Conducted by:	Denver Smith
Approved by:	Itzetl Frausto

1. Scope

The intention of this testing is to verify functionality of El Ochito Superfly connector after 2000 mating cycles. Resistance across each contact was measured to verify the functionality after every 250 cycles.

2. Summary of Results

The table below contains a chronological summary of all testing and their results:

QUALIFICATION TEST

Nature of the test	RESULT		
	Completed	WAIVE	FAIL
Visual Inspection: EIA-364-09C	X		
Contact Resistance: EIA-364-06C	X		

3. Description of Samples

- **Superfly Plug:** 887-441-02
- **Superfly Receptacle:** 887-442-02

Test Report: 18112R1DS0413V2

Glenair Test Report: GT-18-060
El Ochito Mating Durability
Version 2
April 13, 2018

Prepared By:	Denver Smith Test Engineer
Reviewed By:	Kelly Kimball Test Engineer
Approved By:	Preston Clover Laboratory Director

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VERTICAL LABORATORIES

TEST REPORT

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Table 1: Report Version History

Date	Version	Notes	Prepared By	Reviewed By	Approved By
4/11/2018	1	Initial Test Report	DS	KK	PC
4/13/2018	2	Part numbers corrected (-01 to -02)	DS	KK	PC

Table 2: Test Deviations

Test	Description
-	-

1.0 Summary of Testing

All testing in this report was conducted in accordance with EIA-364-06C "Contact Resistance Test Procedure for Electrical Connectors" and EIA-364-09C "Durability Test Procedure for Electrical Connectors and Contacts". The intent of this testing is to verify that the El Ochito Superfly Connector is able to function properly after enduring 2000 mating cycles. The functionality of the test samples was verified by measuring the resistance across each contact after every 250 cycles and comparing it to the initial measurement. After completion of 2000 cycles, no visual damage was observed on the test samples and the resistance across each contact remained the same.

2.0 General Information

2.1 References

- **EIA-364-06C:** "Contact Resistance Test Procedure for Electrical Connectors"
- **EIA-364-09C:** "Durability Test Procedure for Electrical Connectors and Contacts"

2.2 Test Samples

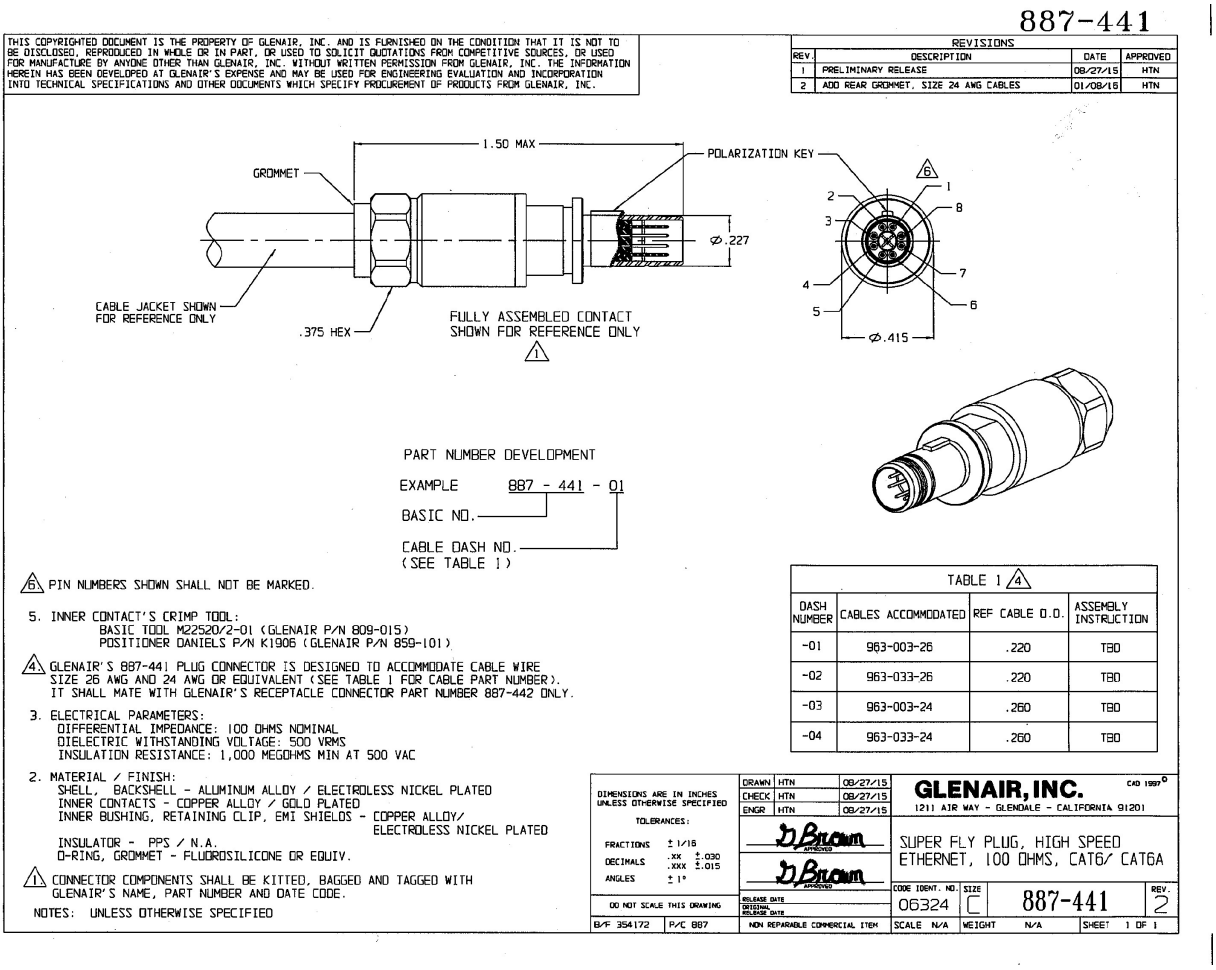

Figure 1: Glenair El Ochito Superfly conector drawing (Male)

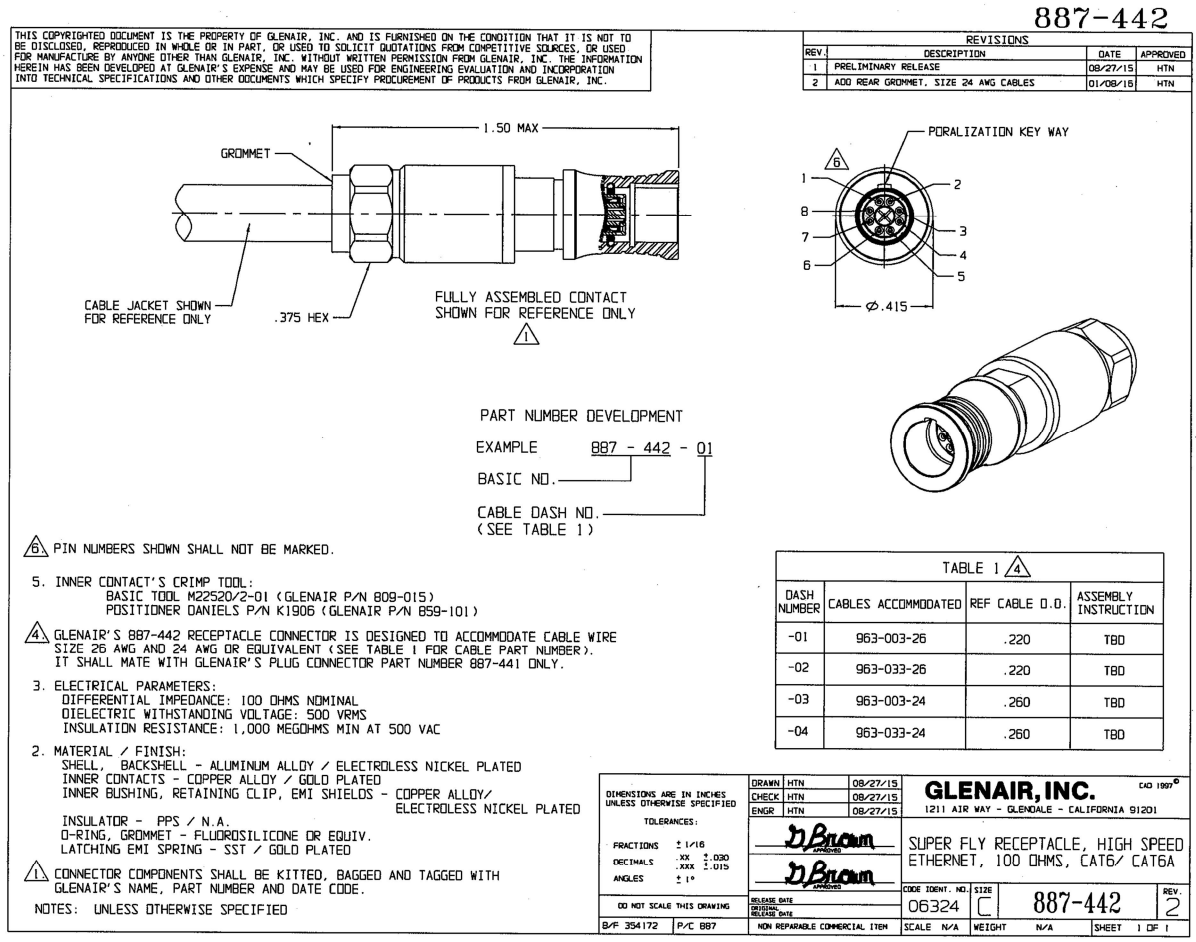

Figure 2: Glenair El Ochito Superfly connector drawing (Female)

3.0 Test Item Identification

Table 3: Test Item Identification

Test Type	Specification	Part Name	Part No.	Test Sample
Contact Resistance	EIA-364-06C	El Ochito Superfly Connector	887-441-02 (Male) / 887-442-02 (Female)	001 / 001
Mating Durability	EIA-364-09C			

4.0 Tests

4.1 Contact Resistance

4.1.1 References

- EIA-364-06C: "Contact Resistance Test Procedure for Electrical Connectors"

4.1.2 Test Equipment

Table 4: Contact Resistance Test Equipment List

ID No.	Equipment Name	Manufacturer	Model No.	Cal. Date	Cal. Due
-	DC Power Supply	Sorensen	XHR 40-25	-	-
EM00011	Digital Multimeter	Fluke	233	11/14/2017	11/30/2018
EM00003	Digital Multimeter	Fluke	287	11/14/2017	11/30/2018

4.1.3 Test Method and Setup

Contact resistance testing shall be performed on the test samples in accordance with EIA-364-06C using the test setup shown in Figures 3-4. The test shall be performed by connecting the test samples and measuring the voltage across each of the eight contacts when a 2 A test current is applied. See Table 5 for contact identification. The voltage measurements shall be recorded in both directions and averaged in order to calculate the resistance across each contact. The contact resistance shall be performed on the test samples before starting the mating durability test and again after every 250 cycles up to 2000 cycles.

Table 5: Contact Identification

Contact No.	Wire Color
1	Brown
2	Brown/White
3	Blue
4	Blue/White
5	Orange
6	Orange/White
7	Green
8	Green/White

4.1.4 Test Results

The contact resistance test was performed on the test samples in accordance with EIA-364-06C before beginning the mating durability test and after every 250 cycles for a total of 2000 cycles. See Tables 6-8 for test results. After performing the mating durability test for 2000 cycles there were no signs of visual damage on the test samples and the resistance measurement for each of the eight contacts remained the same.

Table 6: Contact Resistance Measurements (Post 0, 250, and 500 cycles)

No. of Mating Cycles	Contact No.	Current	ΔV+ [mv]	ΔV- [mv]	Resistance [mΩ]
0	1	2.00	58.5	58.5	29.3
	2	2.00	58.7	58.2	29.2
	3	2.00	58.5	58.3	29.2
	4	2.00	59.4	58.9	29.6
	5	2.00	59.2	58.3	29.4
	6	2.00	59.3	58.9	29.6
	7	2.00	59.4	58.8	29.6
	8	2.00	58.4	59.4	29.5
250	1	2.00	58.4	58.6	29.3
	2	2.00	58.9	57.8	29.2
	3	2.00	59.0	58.9	29.5
	4	2.00	59.1	59.4	29.6
	5	2.00	59.8	59.3	29.8
	6	2.00	59.6	59.4	29.8
	7	2.00	59.4	59.3	29.7
	8	2.00	59.5	59.0	29.6
500	1	2.00	29.9	59.6	22.4
	2	2.00	60.0	59.7	29.9
	3	2.00	60.2	59.9	30.0
	4	2.00	60.3	60.0	30.1
	5	2.00	60.5	60.1	30.2
	6	2.00	60.6	60.3	30.2
	7	2.00	60.8	60.4	30.3
	8	2.00	61.0	60.6	30.4

Table 7: Contact Resistance Measurements (Post 750, 1000, and 1250 cycles)

No. of Mating Cycles	Contact No.	Current	ΔV+ [mv]	ΔV- [mv]	Resistance [mΩ]
750	1	2.00	59.6	59.6	29.8
	2	2.00	59.2	59.2	29.6
	3	2.00	58.9	58.8	29.4
	4	2.00	59.2	59.5	29.7
	5	2.00	59.4	59.2	29.7
	6	2.00	59.0	59.7	29.7
	7	2.00	59.2	59.3	29.6
	8	2.00	60.4	60.0	30.1
1000	1	2.00	59.2	59.5	29.7
	2	2.00	58.5	58.3	29.2
	3	2.00	59.8	59.1	29.7
	4	2.00	59.9	59.5	29.9
	5	2.00	59.9	60.0	30.0
	6	2.00	60.0	59.7	29.9
	7	2.00	59.1	58.8	29.5
	8	2.00	59.5	59.6	29.8
1250	1	2.00	58.5	58.4	29.2
	2	2.00	57.7	57.7	28.9
	3	2.00	58.7	58.8	29.4
	4	2.00	59.2	58.8	29.5
	5	2.00	59.4	58.9	29.6
	6	2.00	59.9	59.8	29.9
	7	2.00	59.4	59.4	29.7
	8	2.00	59.4	58.5	29.5

Table 8: Contact Resistance Measurements (Post 1500, 1750, and 2000 cycles)

No. of Mating Cycles	Contact No.	Current	ΔV+ [mv]	ΔV- [mv]	Resistance [mΩ]
1500	1	2.00	58.40	58.0	29.1
	2	2.00	58.70	58.6	29.3
	3	2.00	59.30	59.5	29.7
	4	2.00	59.40	59.3	29.7
	5	2.00	59.30	59.3	29.7
	6	2.00	60.30	59.8	30.0
	7	2.00	59.10	58.8	29.5
	8	2.00	59.90	59.3	29.8
1750	1	2.00	59.40	59.0	29.6
	2	2.00	59.20	59.2	29.6
	3	2.00	59.20	59.1	29.6
	4	2.00	59.60	59.3	29.7
	5	2.00	60.30	60.2	30.1
	6	2.00	59.50	59.0	29.6
	7	2.00	59.40	59.6	29.8
	8	2.00	59.90	60.3	30.1
2000	1	2.00	58.70	58.5	29.3
	2	2.00	58.60	58.2	29.2
	3	2.00	59.10	58.9	29.5
	4	2.00	60.60	59.8	30.1
	5	2.00	60.20	59.4	29.9
	6	2.00	59.40	59.3	29.7
	7	2.00	59.30	58.8	29.5
	8	2.00	59.80	59.7	29.9

4.1.5 Deviation of Test

No test deviations were present during contact resistance test.

4.1.6 Photographs

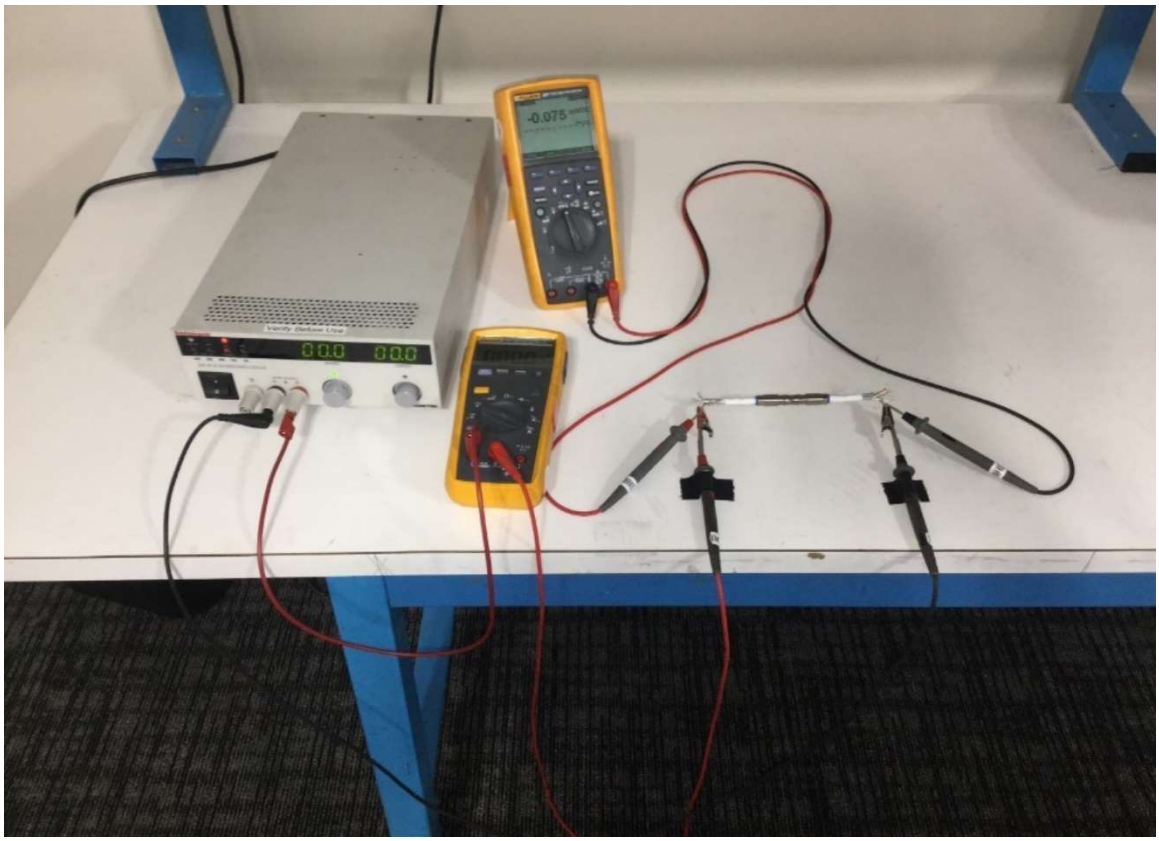

Figure 3: Contact Resistance Test Setup

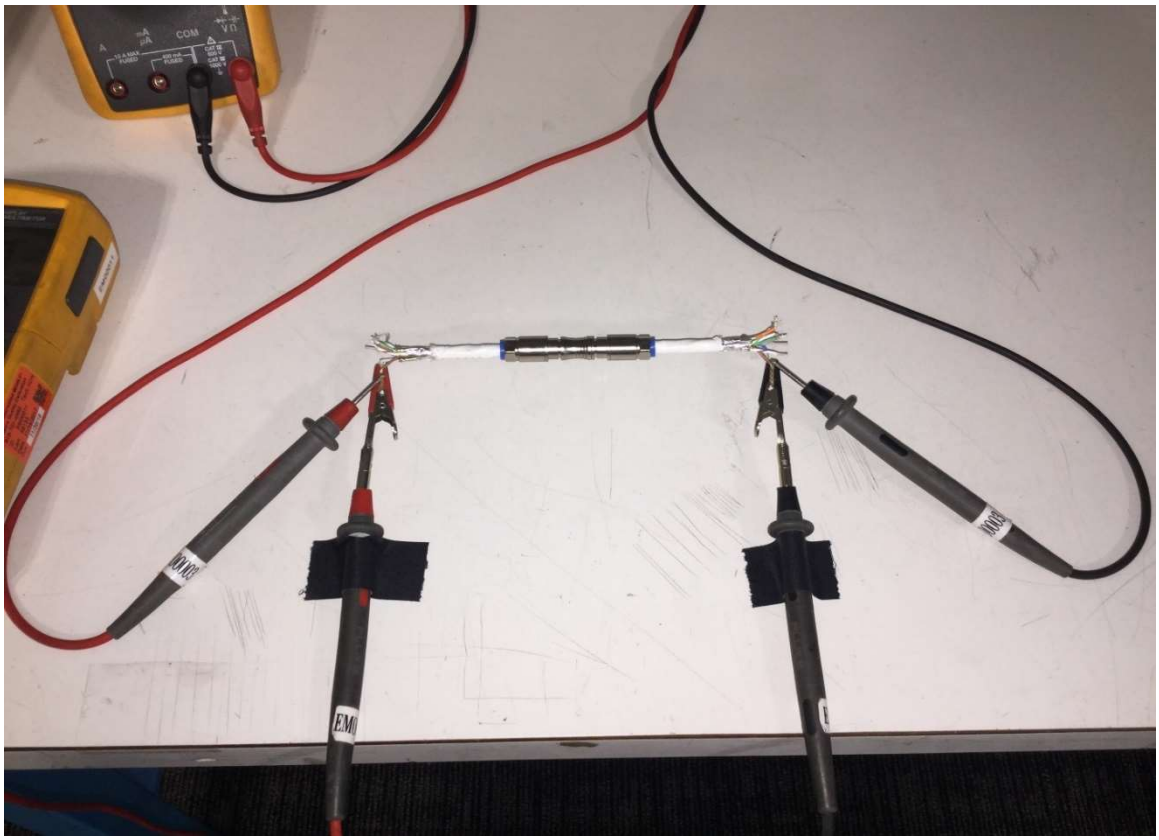

Figure 4: Contact Resistance Test Setup (Detailed View)

4.2 Mating Durability

4.2.1 References

- EIA-364-09C: "Durability Test Procedure for Electrical Connectors and Contacts"

4.2.2 Test Equipment

Table 9: Mating Durability Test Equipment List

ID No.	Equipment Name	Manufacturer	Model No.	Cal. Date	Cal. Due
CP00011	Digital Force Gauge	Chatillon	DFIS 200	12/19/2017	12/31/2018
CE00025	Tensile Tester	Chatillon	TCD 200	12/12/2017	1/31/2021

4.2.3 Test Method and Setup

Mating durability testing shall be performed on the test samples in accordance with EIA-364-09C for a total duration of 2000 cycles. The test shall be performed at a rate of 250 cycles per hour and a contact resistance test shall be performed before starting the test and after every 250 cycles. The test setup shall be configured such that each test sample is held securely in place and the bottom half of the system shall be able to free float in order to allow for proper alignment. See Figures 6-7 for test setup.

4.2.4 Test Results

The mating durability test was performed on the test samples in accordance with EIA-364-09C for a total of 2000 cycles. Upon completion of testing there were no signs of physical damage observed on the test units and each contact maintained the same resistance measurement throughout the course of testing. See Figure 5 for mating durability test plot.

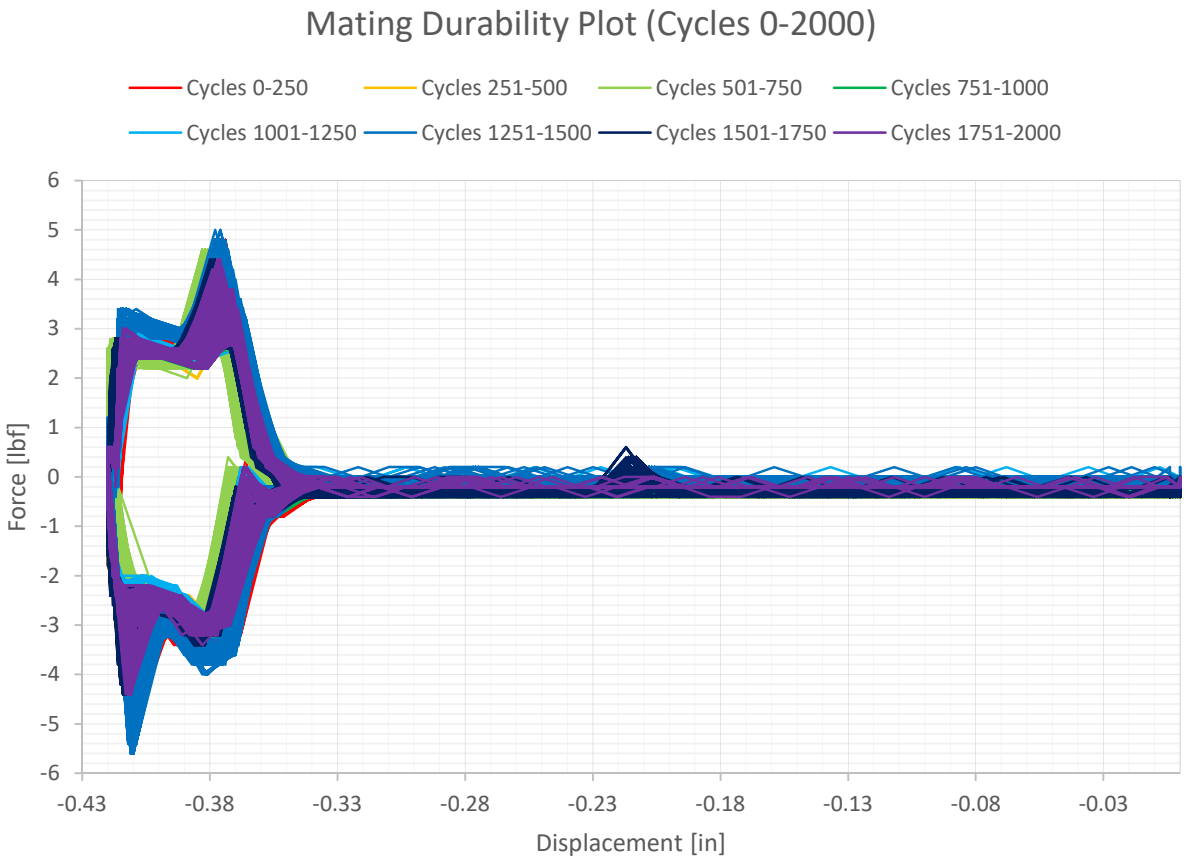

Figure 5: Mating Durability Test Plot (2000 Cycles)

4.2.5 Deviation of Test

No test deviations were present during mating durability test.

4.2.6 Photographs

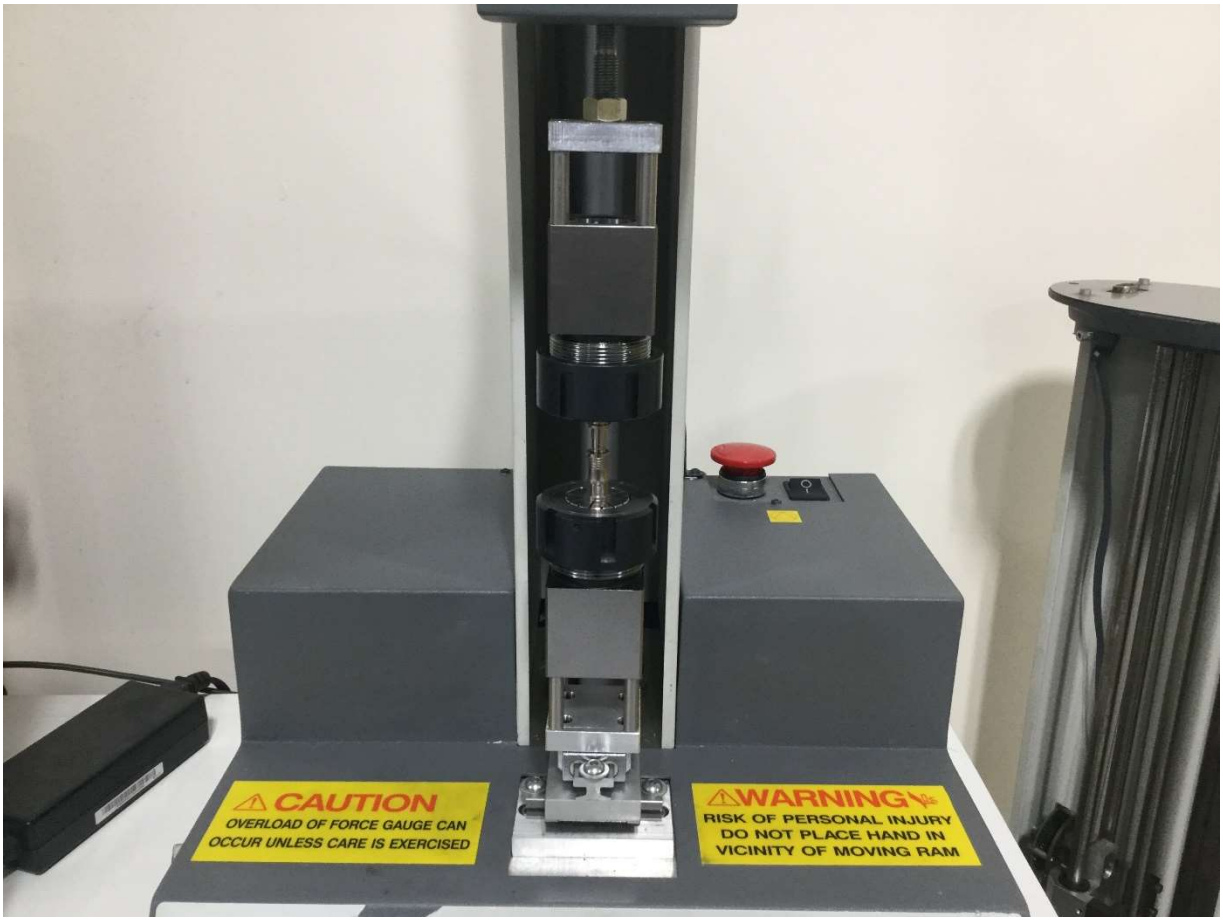

Figure 6: Mating Durability Test Setup

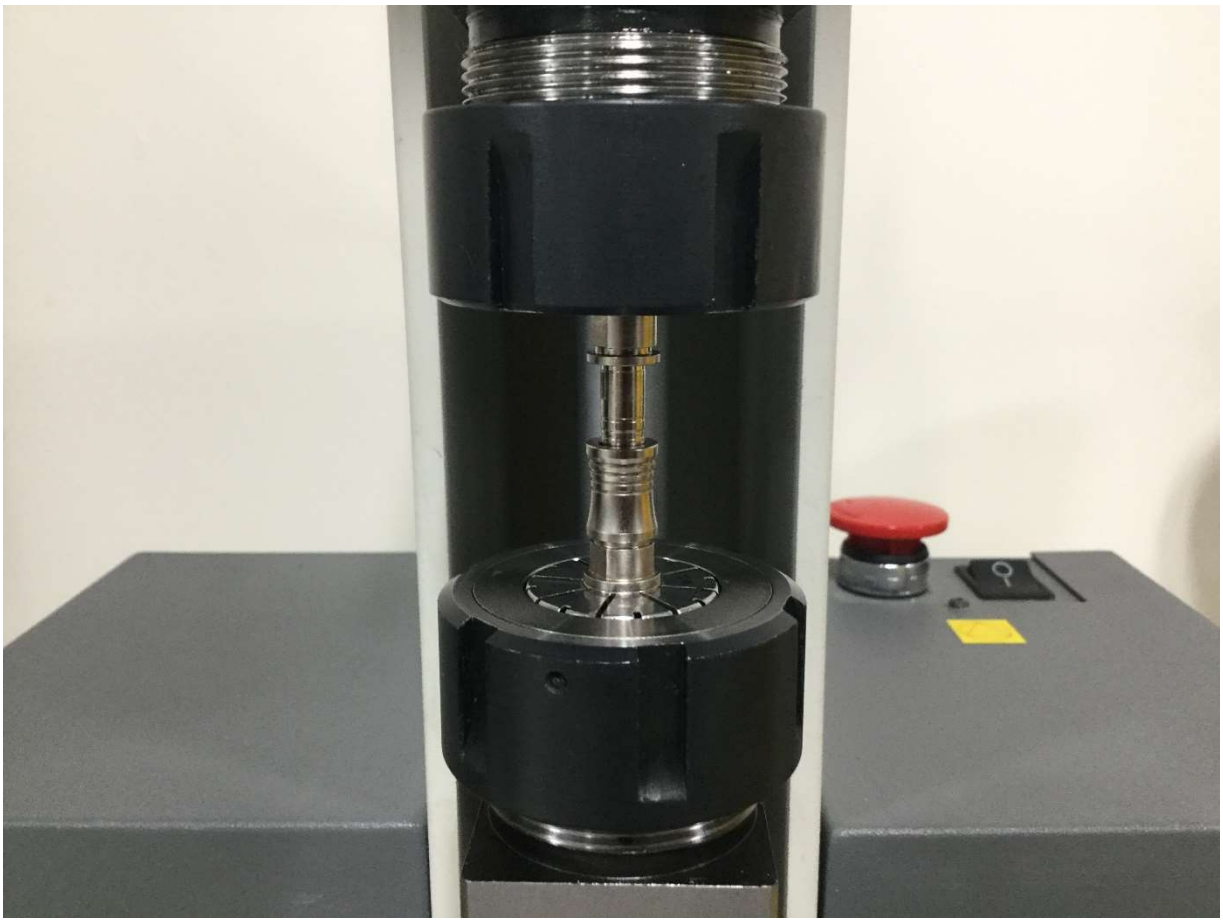

Figure 7: Mating Durability Test Setup (Detailed View)

END OF REPORT