BOEING

SEATTLE, WASHINGTON

THE BOEING COMPANY

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NUMBER D2-9896-2 dated 10 June 1963

TITLE QUALIFICATION TEST REPORT FOR MODEL SPECIFICATION S-133-111-1-17 AND QUALIFICATION SUPPLEMENT I THEREOF, TRANSDUCER, MOTIONAL PICKUP

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U3 4287 9035 ORIG. 8/62

2-5142

ACTIVE PAGE RECORD

SECTION	ORIG REL PAGE NO.	REV SYM	ADDED PAGES						SECTION	ORIG REL PAGE NO.	REV SYM	ADDED PAGES					
			PAGE NO.	REV SYM	PAGE NO.	REV SYM	PAGE NO.	REV SYM				PAGE NO.	REV SYM	PAGE NO.	REV SYM	PAGE NO.	REV SYM
	1																
	2																
	3																
	4																
	5																
	6																
	7																
	8																
	9																

U3 4801 0600 ORIG. 8/62

2-5142-2

REV SYM_____

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED

U3 4287 9025 ORIG. 8/62

2-5142-2

REV SYM_____

TABLE OF CONTENTS

QUALIFICATION TEST REPORT
MODEL SPECIFICATION S-133-111-1-17
and QUALIFICATION SUPPLEMENT I, THEREOF,
TRANSDUCER, MOTIONAL PICKUP

1. SCOPE - This qualification document, which is associated with the respective basic specification (S-133-111-1-17, D2-9896) and qualification supplement (D2-9896-1) covers the qualification test report for Transducer, Motional Pickup, Type TR-179/GSQ-54. Also covered is the certification of full compliance with the qualification requirements of the foresaid supplement.

2. APPLICABLE DOCUMENTS - The complete basis for this qualification test report is derived from the following non-government documents and drawings:

The Boeing Company

10-20975	Rev. P.	Source Control Drawing Transducer, Motional Pickup
D2-9896	Date 3-6-62 Rev.(App III)7-6-62	Transducer, Motional Pickup, Model Specification (S-133-111-1-17)
D2-9896-1	Rev. 15 June 1962 (A. P. Technical Approval Pending 9 May 1962)	Supplement I to Model Specification (S-133-111-1-17), Qualification Requirements and Test Methods, Transducer, Motional Pickup
D2-14320	28 August 1962	Detail Qualification Test Procedure for Transducer, Motional Pickup (S-133-111-1-17)
14050	11 June 1963	Qualification Test Report for Transducer, Motional Pickup Meg Product Division Mandrel Industries, Inc.

(Application for copies should be addressed to The Boeing Company, Aero-Space Division, P. O. Box 3985, Seattle 24, Washington.)

3. QUALIFICATION REQUIREMENTS - The qualification requirements for the transducer are stated in Section 3, "Qualification Requirements" of the qualification supplement, which includes coverage of the configuration, performance and environments of the article subject to qualification testing. Correlation of all qualification test reporting to the foresaid qualification requirements is provided by the correlation table on the following page. Following this and related thereto is a certification of full compliance with the requirements of the qualification supplement.

TABLE I

CORRELATION OF THE QUALIFICATION TEST REPORT 14050
with the REQUIREMENTS OF QUALIFICATION SUPPLEMENT I (D2-9896-1)
to MODEL SPECIFICATION S-133-111-1-17 (D2-9896)

NOTE: The qualification supplement specifies the requirements and test methods of 3.3 through 3.8 and 4.4 through 4.4.5 of the basic specification except that certain paragraphs of the basic specification are deleted. The qualification supplement also specifies requirements and test methods in addition to the foregoing. These requirements are referenced below.

Paragraph of S-133-111-1-17 Basic Specification D2-9896 as specified by Qualification Supplement	Paragraph of Qualification Supplement I D2-9896-1	Title of Test	Page of Test Report 14050
3.7, 3.8 & 4.4.1	3.6, 3.7 & 4	Examination of Product	19
3.3.1 & 4.4.2.1	3.3 & 4.	Isolation	23, 24, 25
3.3.2 & 4.4.2.2	3.3 & 4.	Sealing	45
3.3.3 & 4.4.2.3	3.3 & 4.	Sensitivity	49
3.3.4 & 4.4.2.4	3.3 & 4.	Monitor Test	29
3.3.5 & 4.4.2.5	3.3 & 4.	Resistance	21
3.3.6 & 4.4.2.6	3.3 & 4.	Orientation	49
3.3.7 & 4.4.2.7	3.3 & 4.	Natural Frequency and Damping	51
3.4.1.1 & 3.4.1.2	3.4 & 4.2	Temperature-Altitude, Non-Operating	32
	3.4.1 & 4.3	Humidity	38
	3.4.2, 4.4 & 4.5	Shock, Non-Operating	42 & 43
3.4.1.5	3.4 & 4.6	Vibration, Non-Operating	40
3.4.1.6 & 4.4.3.1.5	3.4 & 4.	Fungus	2
	3.4.3 & 4.7	Sand & Dust	36
	3.5 & 4.8	Electro-Interference	46
	No Requirement	Operating Life	47

CERTIFICATION OF QUALIFICATION

I hereby certify that the Transducer, Type TR-179/GSQ-54, Meg Products Division, Mandrel Industries, Incorporated, Part Number 344201, Figure "A" 1295, having been tested as certified on page 3 of Report 14050, in my opinion has evidenced full compliance with Supplement I, Qualification Requirements and Test Methods, Revision dated 15 June 1962,* of Model Specification S-133-111-1-17, dated 6 March 1962, ** except as noted in 5.1 herein.

[redacted]

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The Boeing Company
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* (Air Force technical approval pending 9 May 1962)

** (Air Force technical approval pending 6 March 1962), and Revision (Appendix III) dated 6 July 1962.

4.0 QUALIFICATION TEST REPORT - It is intended that this document provide only correlation and certification information. The qualification testing is completely described in Document 14050 prepared by the vendor-manufacturer, Meg Products Division, Mandrel Industries, Incorporated. The vendor report has been reviewed by The Boeing Company and is considered adequate to show compliance with the requirements of Supplement I (D2-9868-1) as certified on the previous page. Document 14050 is an integral part of this report and is attached hereto.

5.0 CONCLUSIONS AND RECOMMENDATIONS - The Transducer has successfully demonstrated compliance with the requirements of the qualification supplement (D2-9896-1) except as noted in 5.1 below.

5.1 Damping - The transducers failed to meet the damping requirement of Supplement I (D2-9896-1). The discrepancy between the requirement of D2-9896-1 and the test results is considered to be minor with respect to performance of the system in which the transducer is used, since the system was designed utilizing test data taken with transducers manufactured to the same drawings and process specifications as the units tested herein.

6.0 NOTES

6.1 Relative to any reference in the vendors report 14050 to "preproduction tests" such reference is construed as "qualification tests".

6.2 Critique of Vendor Document 14050

6.2.1 Output of the transducers (Serial Numbers 0000001A and 0000002A) did not exceed specification limits at 20 cps as stated on page 14 of report 14050. Data shown below was obtained during subsequent testing at Boeing and is within the limits of qualification supplement (D2-9896-1). The data below replaced data for 5, 10 and 20 cps on page 59 of 14050.

Frequency cps	Output (MVRMS) 0000001A	0000002A
5	.28	.21
10	.53	.44
20	1.0	.90

6.2.2 Corrective action recommended on page 6 of report 14050 is superseded by the recommendation of paragraph 5.1 above.

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