

Test Report No. 2533A-4723

Issue 2

REPORT OF TEST ON

LIMITORQUE CORPORATION
SMB-0-25
VALVE OPERATOR

Report Writer: *R. F. Soltis*
R. F. Soltis

Test Engineer: *W. A. Black* *gls*
W. A. Black

LOCKHEED ELECTRONICS COMPANY
PLAINFIELD, NEW JERSEY

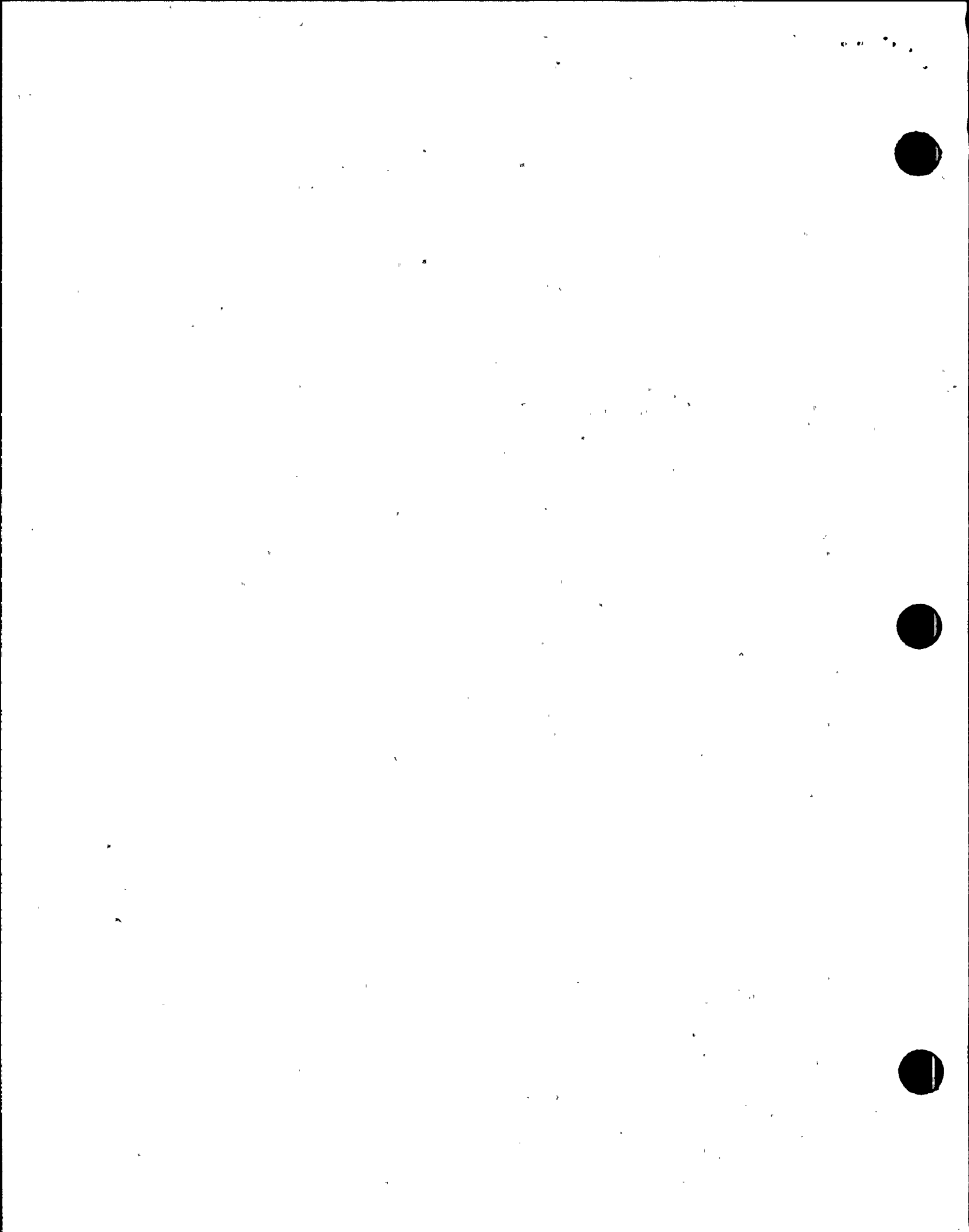
Date: September 23, 1970

Approved by: *Nat Johnson*
N. Johnson, Supervisor
Environmental Laboratory



LEC 197P-1

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PURPOSE OF TEST:

To subject the test specimen to the Seismic Test referenced in Limatorque Corporation Purchase Order Number 348572, dated 8/6/70.

MANUFACTURER:

Limatorque Corporation
5114 Woodall Road
Lynchburg, Virginia 24502

SPECIMENS TESTED:

SMB-0-25 Valve Operator

APPLICABLE DOCUMENTS:

Limatorque Corporation Purchase Order Number 348572, dated 8/6/70.

CASE NUMBER:

34-8041-0723

QUANTITY OF
SPECIMENS TESTED:

One (1)

SECURITY CLASSIFICATION
OF SPECIMENS TESTED:

Unclassified

DATE TEST COMPLETED:

8/20/70

TEST CONDUCTED BY:

LOCKHEED ELECTRONICS COMPANY
ENVIRONMENTAL LABORATORY

DISPOSITION OF
SPECIMENS TESTED:

Returned to Limatorque Corporation per LEC Packing Slip Number 66227, dated 8/24/70.

ABSTRACT:

The test specimen was subjected to the Seismic Test referenced in Limatorque Corporation Purchase Order Number 348572, dated 8/6/70.

The 5.3G portion of testing was complete with no discrepancies noted.

The 10 G portion of testing was terminated during the second cycle due to noted fatiguing of the gear limit switch mounting hardware.

TEST APPARATUS:

Reaction-Type Vibration Machine, LAB Company Model RVH-72-5000, S/N 51401.

Vibration Meter, MB Company Model M-6, S/N 423.

Vibration Pickups, MB Company Type 120, S/N 11263 and Type 124, S/N 14074.



TEST PROCEDURE:

The test specimen was secured to the vibration machine, as shown in Figure 1 and subjected to an exploratory scan over the frequency range of 5 to 35 Hz in two (2) axes. The exploratory scans were followed by three (3) cycles of vibration in each axis. Each cycle consisted of two (2) minutes of vibration at a frequency of 35 Hz and an acceleration level of 5.3G's followed by one (1) minute of no vibration.

The test specimen was then set up as shown in Figure 2 and subjected to the above mentioned test in the third axis. At completion of this test, an additional exploratory scan was performed over the frequency range of 5 to 49 Hz and two (2) cycles were performed at a frequency of 48 Hz and an acceleration level of 10 G's.

The test specimen was energized during testing and all electrical monitoring was performed by Limatorque Corporation personnel.

TEST RESULTS:

The 5.3 G portion of testing was completed with no evidence of any discrepancies noted during either axis of test.

During the exploratory scan of the 10 G portion of testing, the gear limit switch mounting hardware loosened. These screws were tightened prior to the start of the first cycle.

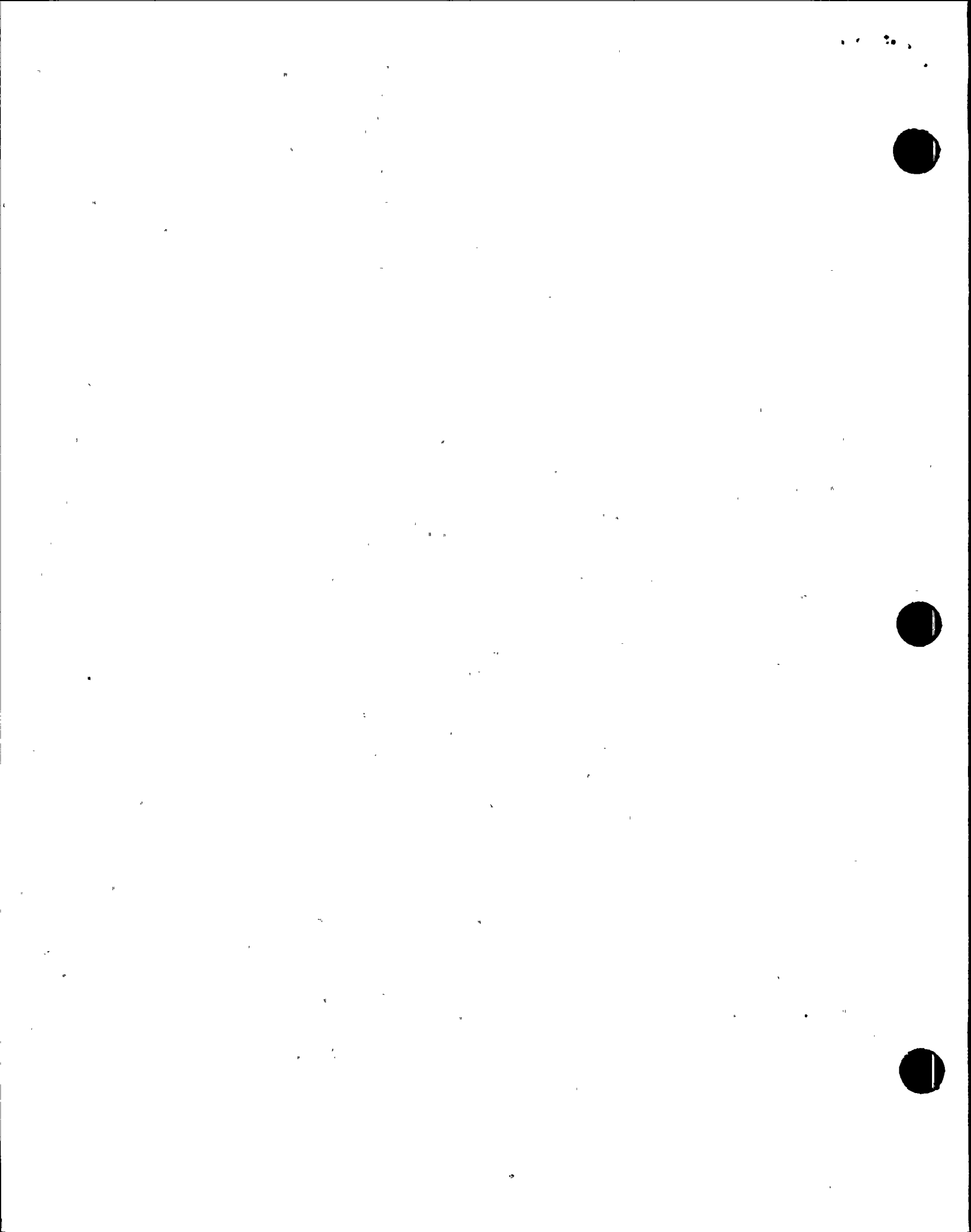
The first cycle at 10 G's was then completed with no discrepancies noted. After approximately one (1) minute of the second cycle, the test was terminated due to fatiguing of the gear limit switch mounting hardware.

For additional information, refer to the five (5) attached data sheets.

RECOMMENDATIONS:

None. Data merely submitted.

Test Engineer: W. A. Black
W. A. Black



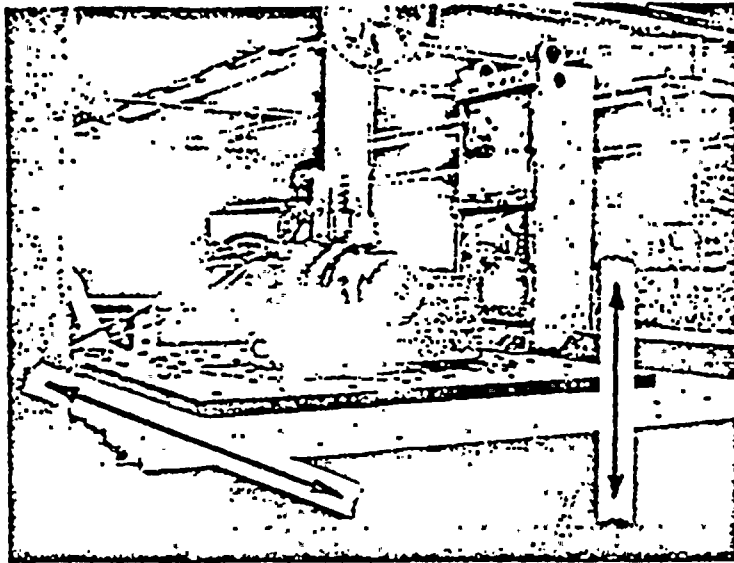


FIGURE 1
VIBRATION TEST SETUP
(HORIZONTAL AND VERTICAL)

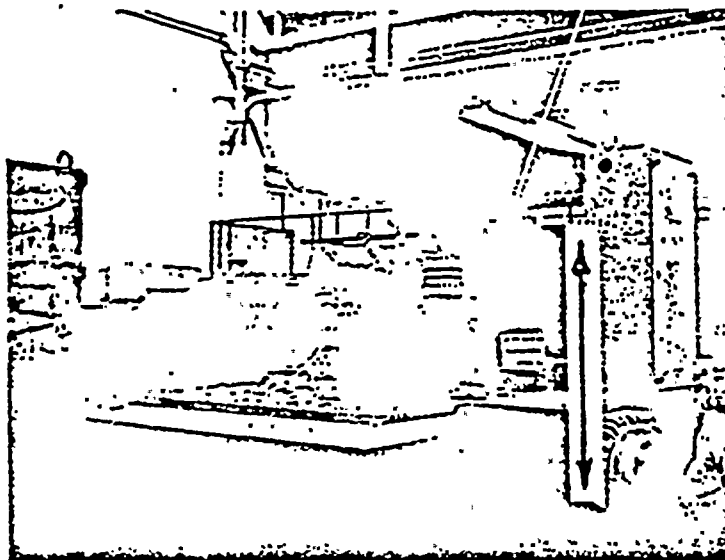


FIGURE 2
VIBRATION TEST SETUP
(VERTICAL)

LOCKHEED ELECTRONICS
ENVIRONMENTAL LABORATORY DATA SHEET 13545 2

Date: 8
2-1-70

Specimen Description

SAB-10-25 VIBRA OPERATOR
PHILIP GEAR

Case: 31
5-01-1703
Technician
L. J. Jones

Test Condition EXPLOATORY SCAN

SCAN 5-33 CPS. VERTICAL EARTH QUAKE
VIB. TEST

Test Engineer
J. J. Jones

VERTICAL					
NO	DATA	NO	DATA		
5	.076	32	.087	Total Scan Time = 5 MIN.	
6	.076	33	.066		
7	.076	34	.066		
8	.076	35	.066		4.6'S
9	.075				
10	.075				
11	.072				
12	.072				
13	.071				
14	.071				
15	.070				
16	.069				
17	.069				
18	.069				
19	.068				
20	.068				
21	.068				
22	.068				
23	.068				
24	.068				
25	.068				
26	.068				
27	.068				
28	.067				
29	.067				
30	.067				
31	.067				

LOCKHEED ELECTRONICS
ENVIRONMENTAL LABORATORY DATA SHEET ISSUE 3

Date: 8
20-70

Specimen Description

SMB-0-25 VASHE OPERATOR
PHILIP GARR.

Case: 34
5011-1713

Technician
W. J. [unclear]

Test Condition

EXPLORATORY SCAN
HORIZONTAL.
5-35 cps. EARTH QUAKE
VIB. TEST.

Test Engineer

7/2/66

112.	119A.	112.	119A.	
5	.098	32	.084	Total SCAN TIME = 5 MIN. 5.3 G's
6	.098	33	.084	
7	.096	34	.084	
8	.094	35	.084	
9	.092			
10	.092			
11	.092			
12	.090			
13	.090			
14	.090			
15	.090			
16	.088			
17	.090			
18	.090			
19	.088			
20	.088			
21	.088			
22	.088			
23	.088			
24	.088			
25	.088			
26	.086			
27	.088			
28	.086			
29	.086			
30	.086			
31	.086			

100-100000



LOCKHEED ELECTRONICS
ENVIRONMENTAL LABORATORY DATA SHEET ISSUE 2

Date: 5/20-70

Specimen Description *SMB-0-25 VALUE OPERATOR.
PH-21 GARR.*

Case: 35
5-41-07-3

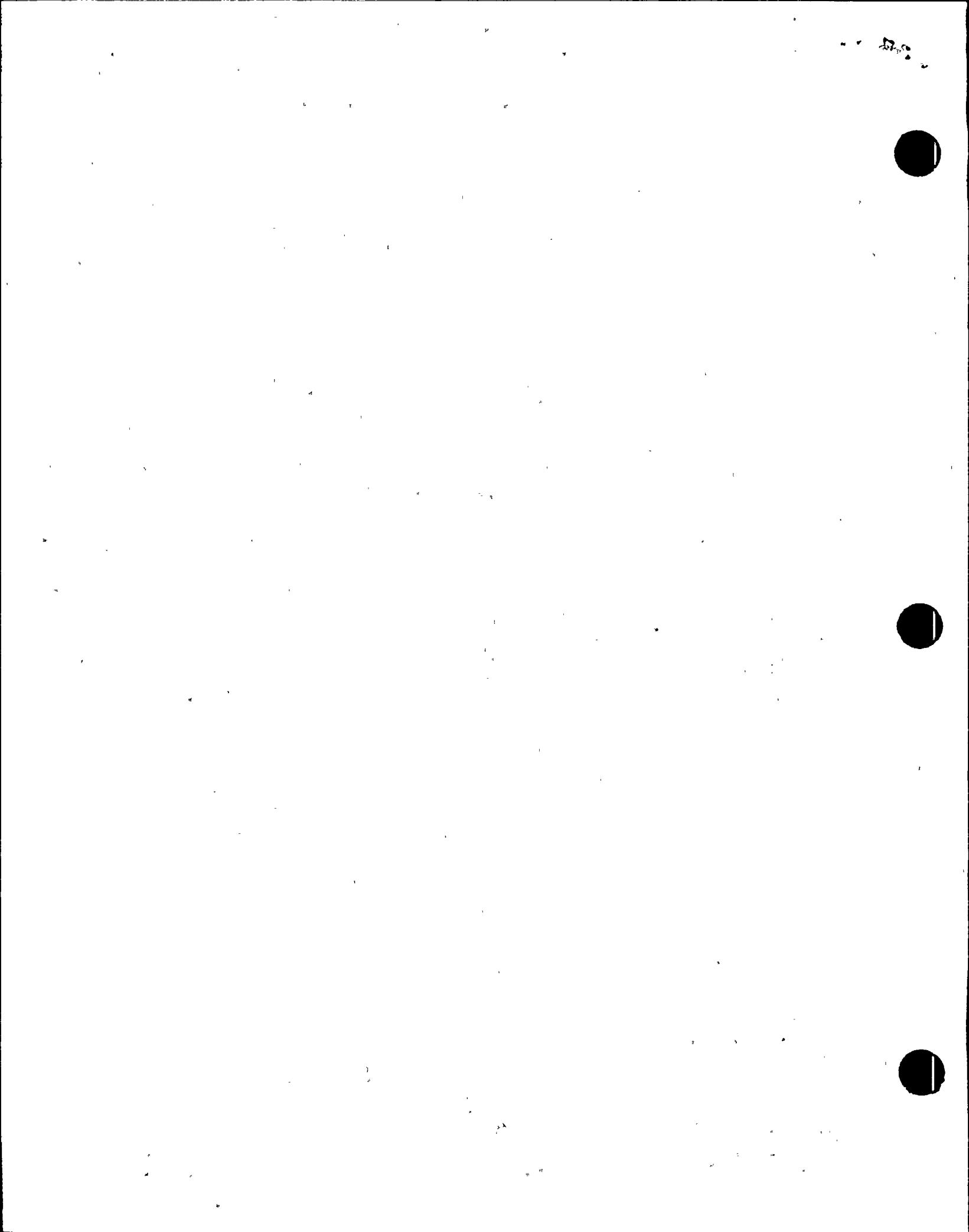
Technician
W. J. Smith

Test Condition *EXPLORATORY SCAN
VERTICAL WITH UNIT STANDING.
DATA TAKE
V.I.B. TEST.*

Test Engineer

W. J. Smith

								Remarks
No.	N.P.A.							
							Total Scan Time = 3 MIN.	
5	.1							
6	.1							
7	.1							
8	.1							
9	.093							
10	.096							
11	.091							
12	.098							
13	.092							
14	.092							
15	.092							
16	.092							
17	.090							
18	.090							
19	.090							
20	.090							
21	.090							
22	.088							
23	.088							
24	.085							
25	.088							
26	.088							
27	.088							
28	.088							
29	.088							
30	.086							
31	.086							
32	.086							
33	.086							
34	.086							
35	.086	5.3 G						



LOCKHEED ELECTRONICS
ENVIRONMENTAL LABORATORY DATA SHEET ISSUE 2

Date: 8/20/70

Specimen Description
SAB-0-25 VALVE OPERATOR.
PHIL. GEAR.

Case: 57
8-11-0723

Technician
C. J. Fung

Test Condition EXPLORATORY SCAN
VERTICAL WITH UNIT STANDING.
EARTH QUAKE
VIB. TEST

Test Engineer

W. J. [unclear]

No.								Remarks
	1st	2nd	3rd	4th	5th	6th	7th	
5	1		38	.086				Total SCANNING = 7 MIN.
6	1		39	.086				
7	1		40	.086				
8	.075		41	.086				
9	.095		42	.086				
10	.096		43	.086				
11	.095		44	.086				
12	.094		45	.086				
13	.081		46	.086				
14	.086		47	.086				
15	.085		48	.086	10 g's			
16	.084		49	.086	10 g's			
17	.081		50					
18	.084							
19	.084							
20	.084							
21	.082							
22	.082							
23	.082							
24	.082							
25	.082							
26	.082							
27	.082							
28	.082							
29	.081							
30	.086							
31	.086							
32	.086							
33	.087							
34	.087							
35	.087							
36	.086							
37	.086							

LOCKHEED ELECTRONICS
ENVIRONMENTAL LABORATORY DATA SHEET

Date:
5-20-70

Specimen Description

SMB-0-25
VALVE OPERATOR

Case: 34-
8071-0723

Technician
R. J. [Signature]

Test Condition

CYCLING TEST

Test
Engineer

[Signature]

AXIS	CYCLE	VIBRATION INPUT	TIME	
NO.	NO.	G'S	MINUTES	
1	1	5.3	2	AXIS #1 = VERTICAL VIBRATION AS SHOWN IN FIGURE 1 AXIS #2 = HORIZONTAL VIBRATION AS SHOWN IN FIGURE 2 (PARALLEL TO SHAFT) AXIS #3 = VERTICAL VIBRATION AS SHOWN IN FIGURE 2 5g INPUTS WERE APPLIED AT 35 HZ, 10g INPUTS WERE APPLIED AT 43 HZ
		0	1	
	2	5.3	2	
		0	1	
	3	5.3	2	
		0	1	
2	1	5.3	2	*TEST STOPPED AT THIS TIME DUE TO FATIGUING OF MOUNTING HARDWARE
		0	1	
	2	5.3	2	
		0	1	
	3	5.3	2	
		0	1	
3	1	10.0	2	*TEST STOPPED AT THIS TIME DUE TO FATIGUING OF MOUNTING HARDWARE
		0	1	
	2	10.0	1	

