SD67-1163

FINAL REPORT

FOR

AIR BEARING PLATFORM, T50-2

NAS8-20855 31 October 1967

H. Fornoff
Program Development Manager
Space Maneuvering Devices
Research, Engineering & Test

Reporting Period
Covering 1 July through 31 October 1967

Prepared for: George C. Marshall Space Flight Center
Huntsville, Alabama 35812

SPACE MANEUVERING DEVICES
SPACE DIVISION OF NORTH AMERICAN ROCKWELL CORPORATION
12214 LAKEWOOD BLVD., DOWNEY, CALIFORNIA

R-ME-MSE BLADE/TROOP

SDC7-1163

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FOREWORD

This Final Report prepared by the Maneuvering Devices Group of the Space Division of North American Rockwell Corp., for the Marshall Space Flight Center under Contract NAS8-20855, describes the design requirements and provides a brief functional description of the Air Bearing Platforms T50-2 designed and fabricated under this contract.

Additionally, this report recapitulates all documents prepared in conjunction with the contract and itemizes the drawings being furnished separately.

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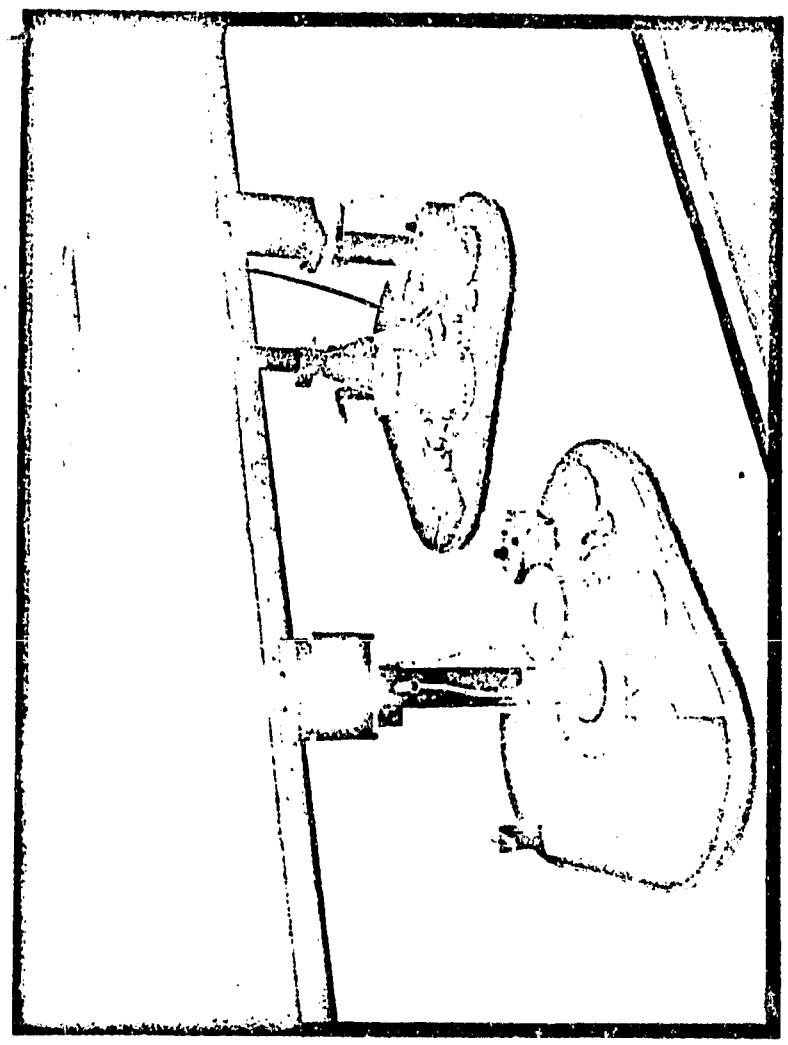


Frontispiece
Air Bearing Platforms, T50-2
Serials 1 & 2

1.0 DESCRIPTION

1.1 GENERAL

This report contains a brief narrative describing the T50-2 Lightweight Adjustable Air Bearing Platform and Support designed and fabricated by the Space Maneuvering Devices group of the Space Division of North American Rockwell Corporation, Downey, California, in support of Contract NAS8-20855, Herman T. Blaise, COR, for the National Aeronautics and Space Administration, George C. Marshall Space Flight Center, Huntsville, Alabama.

The T50-2 Air Bearing Platform is designed to provide a stable base simulated near-frictionless environment by means of air pads operating on a level smooth floor. It is to be used in conjunction with the NASA Serpentuator or other manual propulsion operations. The T50-2 has capability and versatility of being utilized in the studies and evaluations of docking, undocking, and other difficult simulated space maneuvers requiring simulated low friction environment through the use of air bearings.

1.2 PERFORMANCE CHARACTERISTICS

1.2.1 System

The T50-2 Air Bearing Platform supports a nominal 200-pound load on an equilateral three foot triangular base constructed of aluminum tubing. The platform configurations are shown on Drawing M0001047 (see Section 3.2). The T50-2 has two configurations--they are (Figure 1) the manned version including a man-seat pedestal and serpentuator attach bracket, and the (Figure 2) unmanned version which only includes the serpentuator support bracket. The T50-2 base consists of a motor-blower combination, 3 air pads, an electrical control box, operator's control treadle switch and operator's motor speed control, and a 115 VAC 60 cycle umbilical recoiling power cord with connector.

The platform flotation lifting height can be adjusted by speed control of the blower-motor. The platform levelness due to unbalanced loads is controlled by manually adjustable valves which restrict the air flow delivery to each air pad.

1.2.2 Operating Instructions

Detailed operational and maintenance instructions are furnished in SMD-0410, "Service and Maintenance Manual for Air Bearing Platform, T50-2".

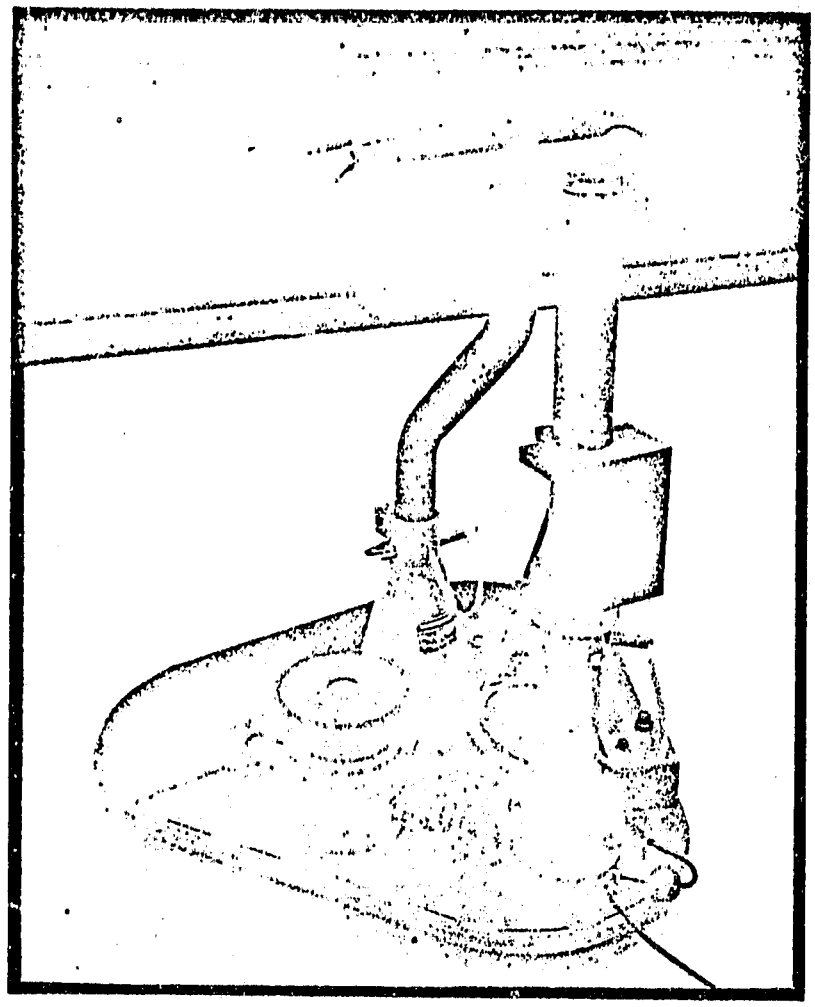


Figure 1 - Air Bearing Platform T50-2 Manned

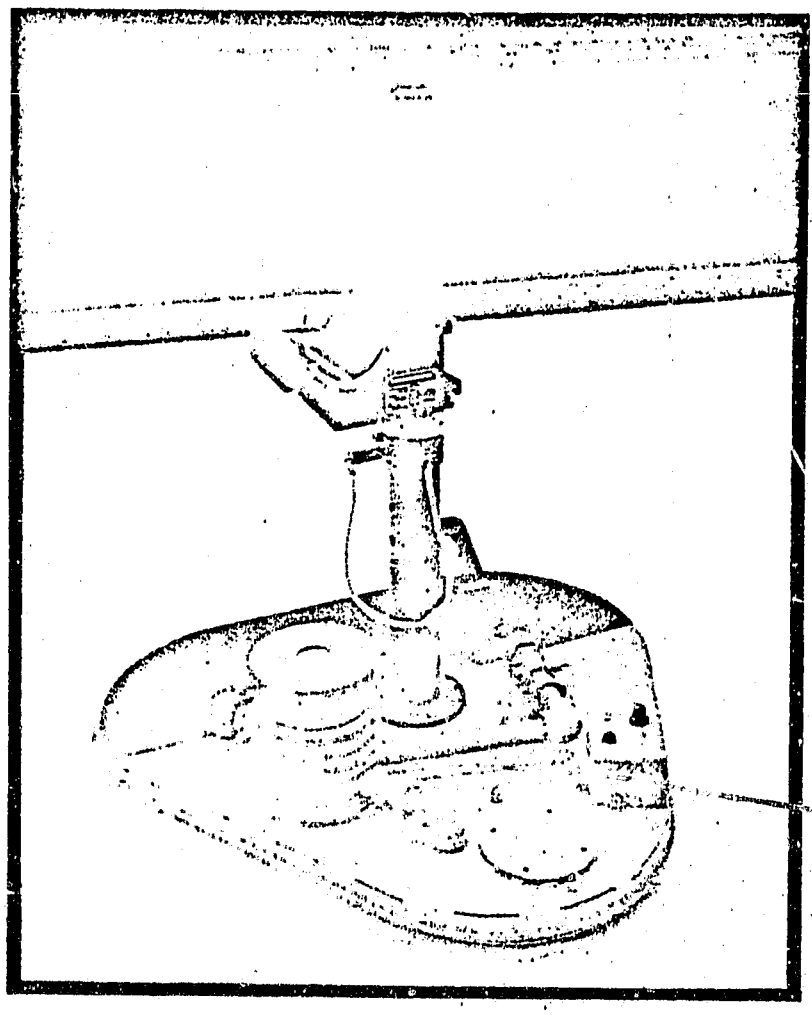


Figure 2 - Air Bearing Platform, T50-2 Unmanned

1.2.3 Mechanical

The physical dimensions of the two configurations are shown on Drawing M0001047 (see Section 3.2). The weight of the mechanical assemblies are:

Platform Air Bearing T50-2	55 lbs
Serpentuator Attach Post & Bracket	12 lbs
Serpentuator Support, Post & Bracket	12 lbs
Operator's Mast and Safety Yoke	18 lbs.

1.2.4 Electrical

The electrical system is shown on Drawing M0001047 Sheet 2 (see Section 3.0). The design of the electrical system provides for either continuous unmanned control or operator's continuous control of the platform flotation. The blower-motor is protected by a 10 ampere, combination circuit-breaker/toggle switch assembly. Choice of manned and unmanned mode is selectable by a toggle switch mounted in the electrical control box. The unmanned speed control is also contained in the electrical control box. The manned control is extended to the use of a treadle foot switch and operator's safety yoke positioned blower-motor speed controller.

1.2.5 Pneumatic

The pneumatic system is shown on Drawing M0001047 Sheet 2 (see Section 3.0). The system contains 115 VAC 60 cycle blower, a distribution plenum chamber, three in-line air flow restrictor valves, and three air pads. The electric blower is capable of supplying plenum pressure of 2.5 psig up to flow deliveries of 15 scfm. (Refer to Appendix A, WN-0385, Engineering Evaluation: Blower Motor Performance Parameters.) The three air pads are capable of floating a total air platform load in excess of 600 pounds.

1.2.6 Power

The only power requirement necessary is a single phase 115 VAC 60 cycle at a maximum current requirement of 10 amperes. This may be supplied from any 115 VAC utility outlet box with a third wire safety ground pin. The safety ground, if not available at a standard wall outlet, may be provided through the use of a parallel ground adapter, which adapts the 3-prong AC plug for use in standard 2-prong AC outlet. In this case, the parallel ground adapter lead wire must be connected to a suitable electrical safety ground point.

2.0 SCOPE

Technical work performed during this contract as discussed in the technical proposal submitted to MSFC (SID 67-601-1) for the design of Air Bearing Platforms is rather straightforward. During the contract negotiations, the COR, (H. T. Blaise) established, additionally, certain fixed technical requirments; i.e.

1. The unit was to be powered by a 110V single phase, 60 cycle motor.

2. Air bags, rather than precision air pads were to be used.

3. The man support and serpentuator support details were to conform to established NASA designs.

Thus to a large extent the physical layout of components was the only identifiable design task.

2.1 FINAL DESIGN

The final design requirements, negotiated during the contract, included provisions for air flow control other than by throttling the air supply to the air pads. Technical data received from the supplier, indicated that the pads could support light weight as well as heavy loads, but that variable input air pressures were required if light weight loads were not to create an instability. The commercially available pads are made more tolerant of weight extremes by means of enlarging the air port to the pad. This is shown on Drawing M0001041 (see Section 3.0). The net effect is to drop the total lifting capability by about 30%, but in so doing, the lightest load that the pads can support is more than halved.

2.1.1 Air Pressure Control

Remaining, was the problem of air pressure control. At the request of the COR a simulation of blower motor and air pad was provided along with a means for varying speed control. It turned out that voltage control of the motor is an ideal way of controlling air flow; motor heat is proportional to I^2R losses; pressure increases roughly squared with motor speed. Thus reduced pressure directly offsets motor heat rise. With less heat being generated, less cooling air is required.

The laboratory test is reported in WN-0385 dated 4 August 1967 and is reproduced as Appendix A. The work done under this contract on motor speed control for air pressure variation was duly reported to NASA Technology Utilization Group, at NAR on 12 October 1967. A copy of this report is reproduced as Appendix B.

The actual implementation of this motor speed design is shown on Drawing M0001047 Sheet 2 of 3 (see Section 3.2).

2.2 TIP-OVER TORQUES

At the suggestion of the COR, the manned pedestal was loaded with 150 lbs, 50 lbs over each air pad. A tip-over torque was then applied to the Serpentuator Attach Bracket to determine whether there were any unforeseen tip-over problems. The unit showed no rise from the floor until a torque of 12 foot-pounds was applied.

3.0 DOCUMENTATION

3.1 SPECIFICATIONS

Three specification type documents were produced under this contract. They are:

SMD-0384-2 Rev. 23 October 1967 (Appendix C) - Proof Procedure (Acceptance Test) Model T50-2 Air Bearing Platform

WN-0385 August 4, 1967 (Appendix A) - Engineering Evaluation: Blower Motor Performance Parameters

WN-0389 August 21, 1967 (Appendix D) - Acceptance Test Procedure, Model T50-2 Air Bearing Platform.

3.2 DRAWINGS

Ten drawings were prepared under this contract. Reproducible drawings on a transparent plastic medium are being furnished as a separate deliverable items on this contract. Drawings are of this date and revision.

Drawing	Rev.	Date	Title
(D) M0001041	-	10-20-67	Pad Assembly
(D) M0001042	-	10-10-67	Marking and Identification
(D) M0001043	D	10-18-67	Bracket, Mounting, Serpentuator
(D) M0001044	D	10-18-67	Clamp, Bracket Adjustment
(D) M0001045	E	10-19-67	Pedestal, Serpentuator
(J) M0001046	D	10-18-67	Pedestal, Man Support
(J) M0001047 Sht 1	D	10-2-67	Platform, Air Bearing
(D) M0001047 Sht 2	E	10-24-67	Electrical Schematic
(D) M0001047 Sht 3	E	10-24-67	Box, Electrical
(D) M0001219	-	10-20-67	Control, Remote

3.3 MONTHLY REPORTS

In addition to the drawings and specifications referred to above, monthly reports were prepared along with an Operational and Maintenance Manual.

REPORTS

F[illegible]	Date	Reporting Period
67MA5735	21 July 1967	1 July to 1 August 1967
67MA6372	12 September 1967	1 August to 31 August 1967
67MA6836	5 October 1967	1 Sept. to 30 Sept. 1967
SMD-0410	31 October 1967	Service & Maintenance Manual for Air Bearing Platform, T50-2

4.0 RECOMMENDATIONS

All useful recommendations for design improvement were incorporated within the two units, prior to shipment. These design changes are reflected in the drawings (Ref. Section 3.2) and Operational Manual (Ref. Section 1.2.2).

APPENDIX A

R. J. Miller

ENGINEERING EVALUATION: BLOWER MOTOR PERFORMANCE PARAMETERS

Purpose of Evaluation:

This evaluation was made to determine the operational characteristic of a blower motor in a plenum and air distribution breadboard representing the NASA T50-2 Air Bearing Platform design approach. The specific characteristic being investigated was the feasibility of pad air pressure control by the varying of applied motor voltage.

Test Equipment:

Blower breadboard (see photograph, Figure 1) incorporating a Type 115-250 blower

Hovair Type XD 16014 Air Pad

HP 400H VTVM RMS Voltmeter

1.002 ohm Resistor (current shunt)

0 to 15 psi Duraguage Type Pressure Gage

6 inch, 0 to 29 SCFM Fischer-Portor Flow Meter

Copper-Constantin Thermocouples

Thermocouple Switch - Lewis Engineering Instrument Company

L&N Type 8692 Temperature Potentiometer

115V 60 cps Variac GR Type W5MT

Evaluation Set Up:

Test equipment and Installation are in Figure 2.

Evaluation Procedure:

A nominal air pad performance condition was first established. This was accomplished by flowing air with minimum restriction through the air pad loaded with a 230 pound weight and adjusting to the minimum required applied motor voltage to float the pad at a low friction level. The plenum pressure was 1.0 psi at this condition. Pad flow was determined by diverting all the air flow from the pad through the flow meter.

With an applied voltage sufficient to float one pad at 230 pound load the flow at the valve was restricted until the plenum pressure was 1.0 psi, This flow, for one pad, was then measured as 3 SCFM (relative).

A nominal three pad flow condition was established as 9 SCFM at 1.0 psi to float a 690 pound load using 3 SCFM at 1.0 psi flow for one pad.

The evaluation was continued by varying the applied voltage and restrictor valve setting to maintain a constant flow of 9 SCFM. Motor load current, stabilized temperatures, and pressures were measured for each setting. (Note: Δ P in the 1 inch diameter pipe at these flows was not measureable.) The same constant flow evaluations were re-run for 12 SCFM and 15 SCFM.

Evaluation Data:

Data obtained in the Test Runs are tabulated in Table I.

Conclusions and Recommendations:

Referring to Figure 3, Plots of Recorded Data, it is apparent that the voltage applied to the blower motor offers significant control of air pressure delivered.

Temperature rise of the blower as measured at the frame end bearing is well within the allowable + 65°C. As expected for a given pressure setting, higher flow demand only increases the volt-amp power input to the motor. Greater flow also induces more motor cooling due to increase air flowing through the motor frame.

It is recommended that the T50-2 Air Bearing Platform blower motor be voltage controlled to permit setting of operating lift. This adjustment of applied voltage, gives the operator simple control over the previously difficult parameter adjustments of pressure, and correlated air flow and lift. This is accomplished by the use of a variable voltage transformer or through the use of an SCR motor speed controller.

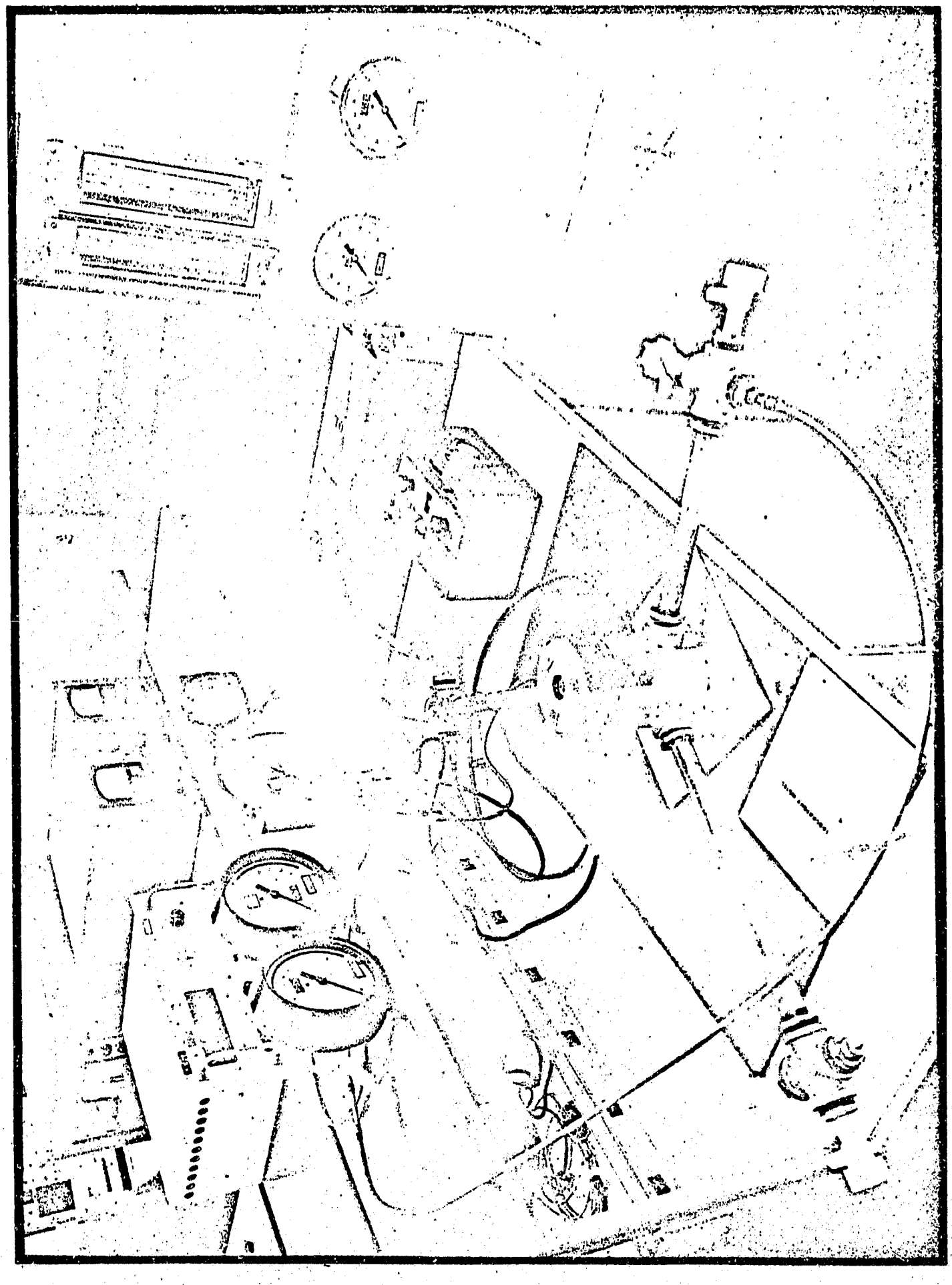
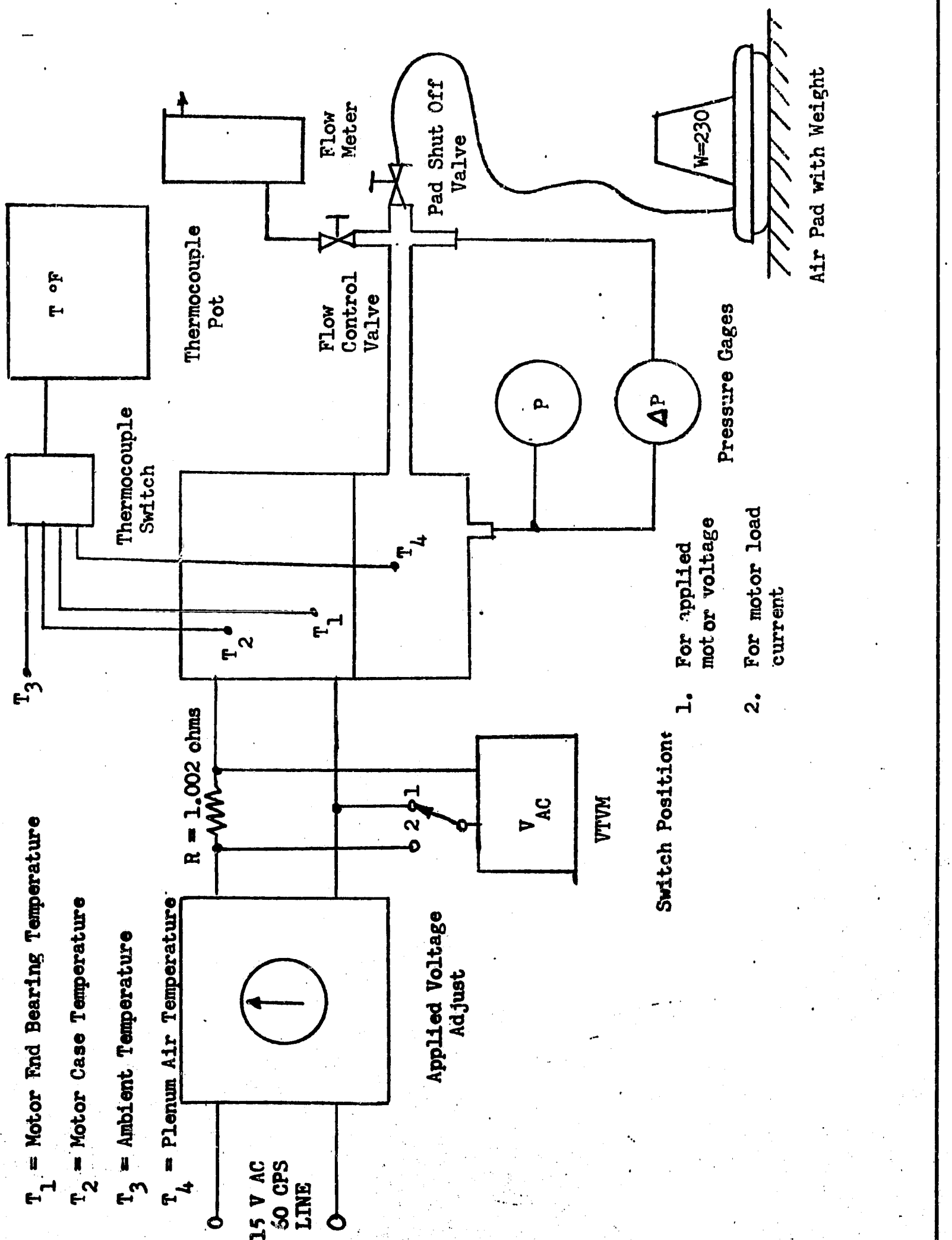


Figure 1. "Blower Breadboard"

PREPARED BY: R. Miller	NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION	PAGE NO. 4 OF 6
CHECKED BY:	Figure 2	REPORT NO. WN-0385
DATE: 7-31-67	Evaluation Experiment Setup	MODEL NO.



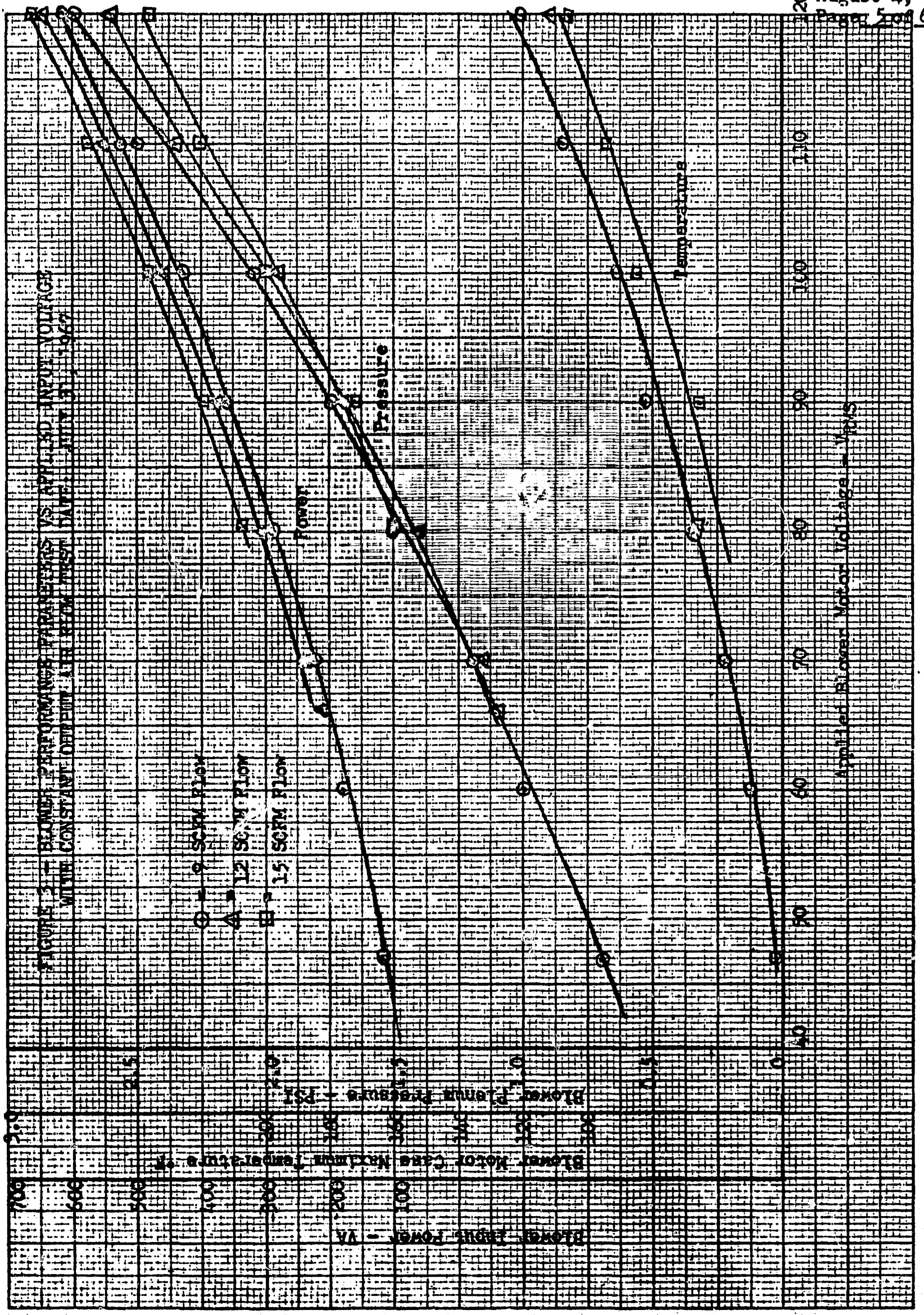


FIGURE 3 - BLOWER PERFORMANCE PARAMETERS VS APPLIED INPUT VOLTAGE
WITH CONSTANT OUTPUT AIR REQUIREMENTS
DATE: JULY 31, 1967
Blower Input Power - VA
Blower Motor Case Maximum Temperature °F
Blower Plenum Pressure - PSI
Blower Plenum Pressure - "H2O
Applied Blower Motor Voltage - VAC
Temperature
Pressure
Θ - 0 SCFM Flow
Δ - 12 SCFM Flow
□ - 15 SCFM Flow

TABLE I EVA[illegible]ATION DATA

Applied Voltage V	Flow = 9 SCFM							Flow = 12 SCFM							Flow = 15 SCFM						
	P	I_{ac}	T_1	T_2	T_3	T_4	VA	P	I_{ac}	T_1	T_2	T_3	T_4	VA	P	I_{ac}	T_1	T_2	T_3	T_4	VA
47	0.7	2.5	102	90	70	95.5	118														
60	1.0	3.0	110	97.5	70	103.5	180														
66	-	-	-	-	-	-	-	1.1	3.2					211							
70	1.2	3.2	118	105	69	112	224	1.15	3.4					238							
80	1.5	3.6	127	114	685	121	288	1.4	3.8					304							
80.5	-	-	-	-	-	-	-	-	-					-	1.5	4.2	125	110	74	120	338
90	1.75	4.0	142	130	73	135	360	1.8	4.2					378	1.65	4.4	128	115	74	124	396
100	2.05	4.3	152	137.5	70	144	430	1.95	4.6					460	2.0	4.8	145	130	74	138	480
110	2.5	4.8	167.5	152	70	159	528	2.35	5.0					550	2.25	5.2	154.5	138	75.5	147	572
120	2.75	5.1	181	165	70.5	173	612	2.6	5.4	171	154	71	163	648	2.4	5.5	166	146	76	157	660

Notes:

1. P is plenum pressure in psi gage
2. T_1 is motor end bearing temperature °F
   T_2 is motor case temperature °F
   T_3 is ambient temperature °F
   T_4 is plenum air temperature °F
3. Only 120V setting temperature taken on 12 SCFM run
4. Odd voltage applied values are result of minimum voltages to provide flow required

APPENDIX B

INTERNAL LETTER
North American Aviation, Inc.

67-092-EVA-140
Date . 12 October 1967

TO . A. Rothenberg
Address . D/896
AA33

FROM . H. Fornoff
Address . D/092-120
BB28

Phone . 4667

Subject New Technology Reporting Requirements
Contract NAS8-20855, G.O. 02202

In accordance with your letter of 7 July 1967, the attached IL was this day forwarded to the Technology Utilization Group, Attention: R. H. Paul.

H. Fornoff

H. Fornoff
Program Development Manager
Space Maneuvering Devices
Research, Engineering & Test

DW/db

cc: J. Mahoney

INTERNAL LETTER
North American Aviation, Inc.

67-092-EVA-139
Date 12 October 1967

TO Technology Utilization Group
Address Attn: R. H. Paul
D/096-530
GB63

FROM H. Fornoff
Address D/092-120
BB28

Phone 4667

Subject: New Technology Reporting Requirements
Contract NAS8-20855, G.O. 02202

In accordance with instructions received from Allan Rothenberg, II. dated 7 July 1967, subject as above to H. Fornoff, you are advised that there are no patentable inventions or disclosures emanating from this contract.

There was one significant investigation conducted on or about 31 July in the presence of the NASA COR, H. T. Blaise. This investigation concerned itself with the pressure control of an electrically driven air pump, by means of voltage control of the motor. Normally, pressure is controlled by constrictions in the downstream side. This limits the volume of air across the electric motor, the motor overheats and burns out. By reducing the voltage I^2R losses are reduced at about the same rate that the volume of cooling air is reduced.

The test results are reported in the attached WN-0385. The reduction to practice is shown in drawing M0001047, Sheet 2, released by EO 638167, attached.

The Project Engineer, D. Wolkov, advises that there are no other disclosures to be made.

H. Fornoff

H. Fornoff
Program Development Manager
Space Maneuvering Devices
Research, Engineering & Test

DW/db

cc: J. Mahoney
A. Rothenberg

Enc: WN-0385
Drawing M0001047

Design Assurance

Project Engineer

Program Development Manager

MSFC Technical Representative

APPENDIX C

PROOF PROCEDURE (ACCEPTANCE TEST) MODEL T50-2 AIR BEARING PLATFORM

Introduction

The Air Bearing Platform (T50-2) is designed to support a nominal 200 pounds and is an equilateral three foot triangular configuration composed of 1¼" aluminum tubing covered with 1/8" aluminum sheet metal. The T50-2 consists of a motor and blower combination, 3 mylar air pads, a serpentuator mast, electrical master switch, operator's treadle ("dead man") switch, treadle bypass switch and a 115 VAC 60 cycle umbilical connector with provisions for mounting operator's mast and safety yoke.

Applicability

The purpose of the proof procedure of the T50-2 is to verify basic vehicle design stability operation and performance as a low friction support for serpentuator simulations. With an operator securely positioned in the safety yoke and using the serpentuator or manual propulsion, the unit has the capability of performing docking, undocking, and other difficult simulated space maneuvers on an air bearing floor.

Procedure

The T50-2 testing shall be performed in accordance with the Inspection and Test Instructions.

Documentation

All test activities, data, and anomalies shall be documented in the Vehicle Log Book and the Acceptance Test Data Sheet. Discrepancies found during the test shall be recorded on the Squawk Sheet (Form M-25-U) attached.

STA. NO.	INSPECTION & TEST INSTRUCTIONS			NUMBER	
INSP. DEPT.	TITLE Proof Procedure (Acceptance Test)			REL. DATE	
MFG. DEPT.	PART NAME Air Bearing Platform		PART NO.	REV.	DATE
MODEL NO. T50-2	SERIAL NO.	ORIGINATOR D. M. Rew	Q.E.L. APPROVAL	PAGE 1 OF 2	

NOTE: EXERCISE CARE TO AVOID DAMAGE TO AIR PADS

1. Verify instrumentation calibration due date and record._____

2. Physically examine the T50-2 for manufacturing discrepancies and/or shipping damage and record:_____

3. Weigh the T50-2 and record._____

4. Measure and record motor case temperature (ambient) and record._____

5. Place T50-2 on parking pad on air bearing floor.

Ø 6. Set air pad bypass valves to full open. (See Figure 1)

7. Connect the 115VAC 60 cycle umbilical; reel out sufficient electrical power cable to accommodate preprogrammed travel of air bearing platform so as to prevent unwanted automatic power cable retraction.

Ø 7a. Place mode switch in man mode position.

8. Close electrical master switch.

9. Close treadle bypass switch in order to actuate motor and blower, the unit is now floating on its air pads. Adjust and set variable speed control to provide necessary or adequate air flow.

Ø 10. Move T50-2 on air bearing floor surface and measure distance i.e. height of lift at each air pad from the floor to the bottom of the frame of the unit. Adjust air pad bypass valves individually to level patform and to obtain a clearance distance of not less than 1 $\pm$ 0.25 inches. Record clearance:_____, _____, _____

11. Apply 50 pound (unbalanced) load over each air pad sequentially and readjust air pad valves to attain balance.

12. Observe performance for stability and minimal drift.

13. Set serpentuator attach brackets to approximate height.

14. Attach serpentuator actuator.

15. Adjust inching mechanism to eliminate stress in serpentuator.

STA. NO.	INSPECTION & TEST INSTRUCTIONS			NUMBER	
INSP. DEPT.	TITLE Proof Procedure (Acceptance Test)			REL. DATE	
MFG. DEPT.	PART NAME		PART NO.	REV.	DATE
MODEL NO. T50-2	SERIAL NO.	ORIGINATOR D. M. Rew	Q.E.L. APPROVAL	PAGE 2 OF 2	

16. Open master switch to shut blower motor.

    DO NOT MOUNT OR DISMOUNT FROM VEHICLE WHILE BLOWER MOTOR IS RUNNING

17. Offset operator weight with weights properly positioned over the center of gravity to make up a load of 200 lbs.

18. Place mode switch to unmanned position and close master switch.

19. Verify the air pad valves setting; see Paragraph 10 (above).

20. Repeat Paragraph 12 (above).

21. Move platforms across floor; record stress in serpentuator. Select floor area which represents average condition as indicated by stress charts. Mark floor area. (The Government will determine stress in the serpentuator with equipment and personnel available at time of proof testing.)

22. Return platforms to typical floor segment. Repeat Paragraph 15.

23. Perform serpentuator traverse 10 times, see Figure 2.

24. At midpoint and completion of test and after one (1) hour of operation measure

    a) Record motor case temperature rise (Temperature rise should not exceed 65°C.)

    b) Record stress at serpentuator attach points.

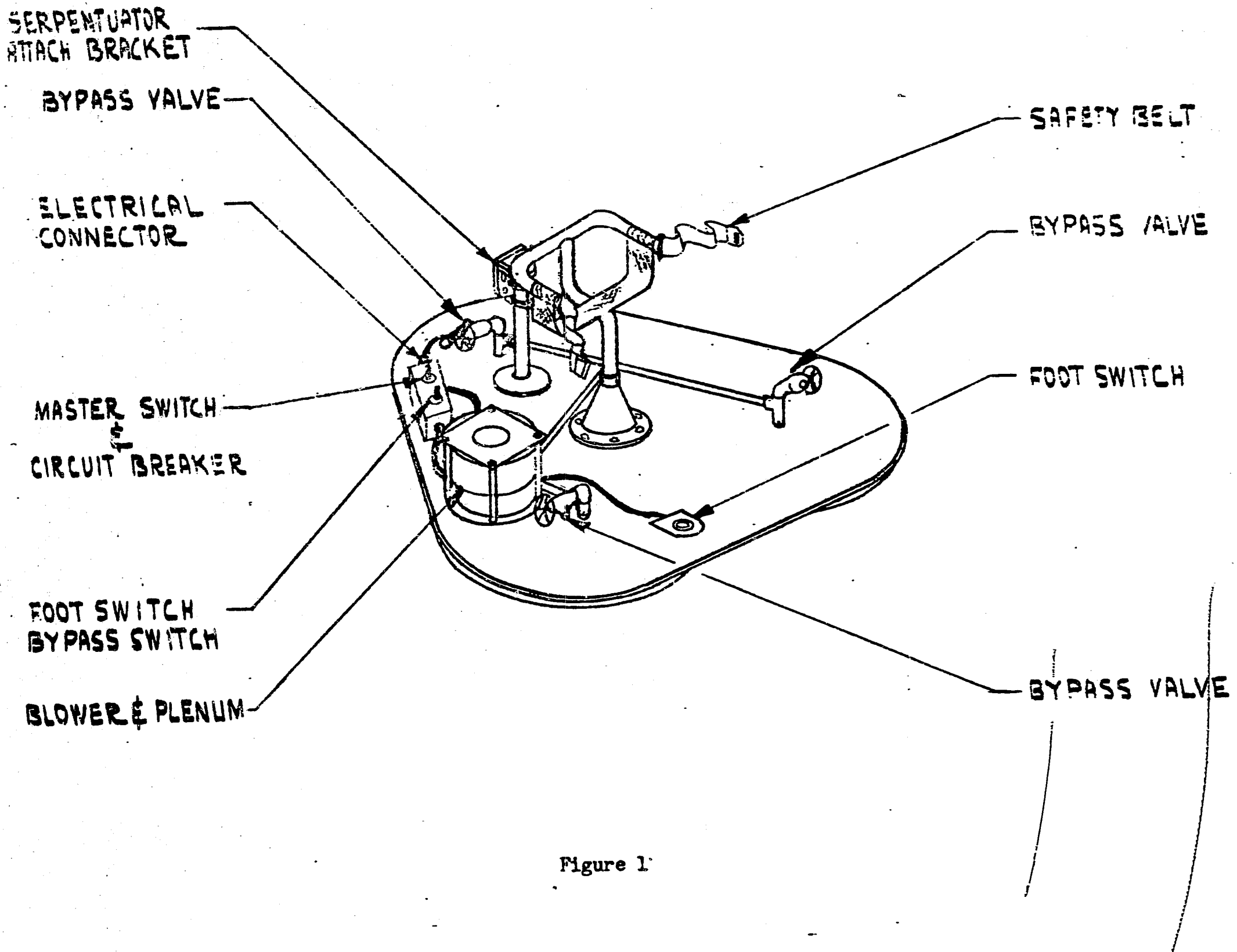

SERPENTUATOR ATTACH BRACKET
BYPASS VALVE
ELECTRICAL CONNECTOR
MASTER SWITCH & CIRCUIT BREAKER
FOOT SWITCH BYPASS SWITCH
BLOWER & PLENUM
SAFETY BELT
BYPASS VALVE
FOOT SWITCH
BYPASS VALVE

Figure 1

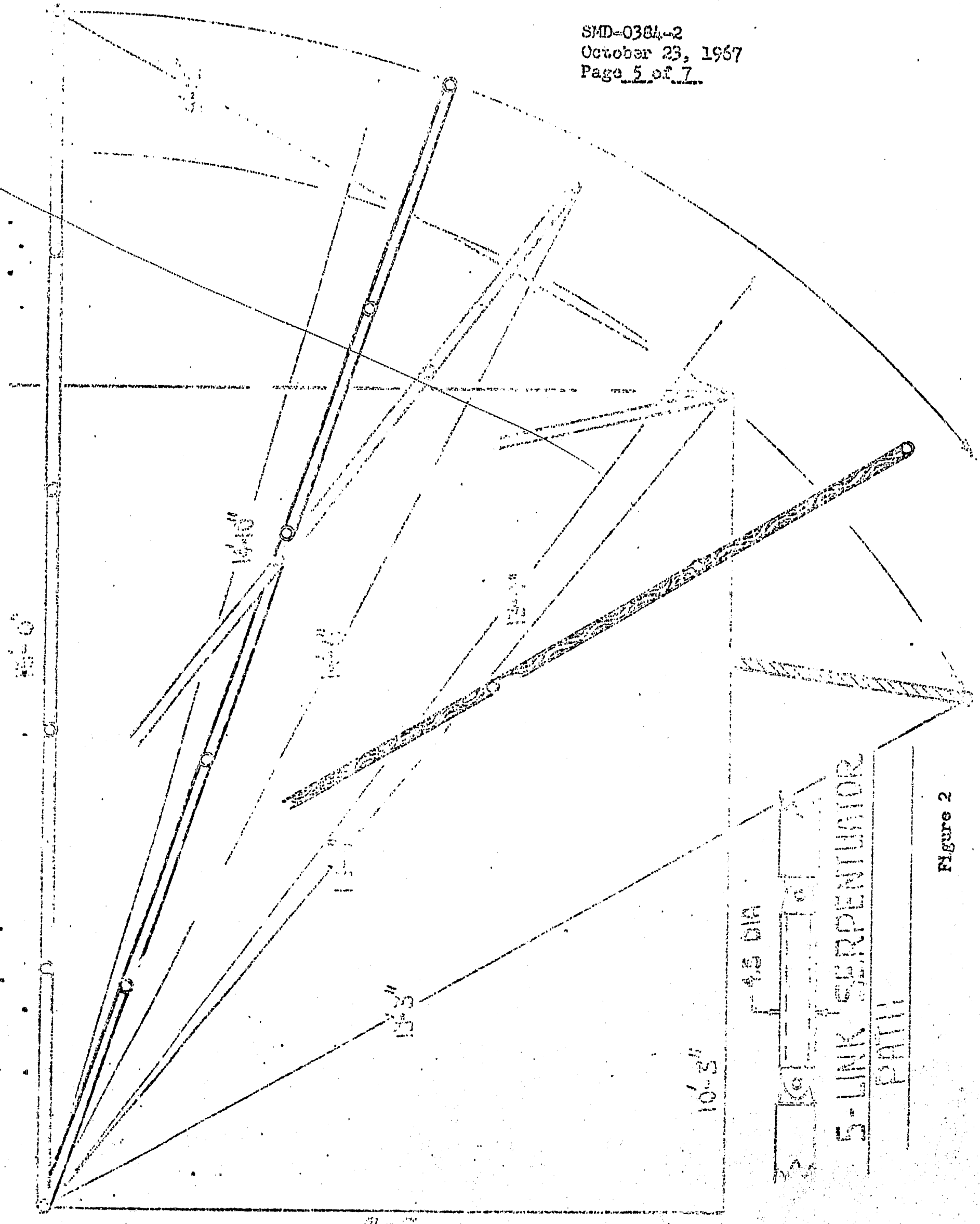


Figure 2

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

ACCEPTANCE TEST DATA SHEET

PAGE ____ OF ____

SYSTEM				MANUFACTURER			
PART NO.		MODEL NO.		SERIAL/LOT NO.		INSTALLED IN	
TEST SPEC.		TEST LOC.		TEST DATE		DATE ACCEPTED	
PARAGRAPH	NOMINAL (A) LOWER LIMIT (B)	TOLERANCE (A) UPPER LIMIT (B)	ACTUAL	PARAGRAPH	NOMINAL (A) LOWER LIMIT (B)	TOLERANCE (A) UPPER LIMIT (B)	ACTUAL

TEST EQUIPMENT USED

NAME	MODEL	SERIAL NO.	CALIBRATION DUE	REMARKS

REMARKS CONCERNING TEST ARE CONTAINED ON PAGE ____ UNDER "NOTES AND COMMENTS"

FORM 962-K-6 REV 5-64

SQUAWK SHEET

MAKE ENTRIES LEGIBLE - USE BALL POINT PEN WITH FIRM PRESSURE

MODEL	P/N	S/N	DEPT.	DATE	ICP

SQWK NO. CHAR	SQWK ENT'D BY	DESCRIPTION OF DISCREPANCY AND ACTION TAKEN	CLEARED BY: Mech. and/or Lead.	Inspect. & Date	Cust. & Date
		ACTION TAKEN			
		ACTION TAKEN			
		ACTION TAKEN			
		ACTION TAKEN			

FORM M-25-U REV. 1-66

SHADED AREAS FOR CUSTOMER USE ONLY

Page Complete

INSP

COPY 1

M 520412 D

APPENDIX D

Originator

Design Assurance

Project Engineer

ACCEPTANCE TEST PROCEDURE MODEL T50-2 AIR BEARING PLATFORM

Introduction

The Air Bearing Platform T50-2 is designed to support a nominal 200 pounds and is an equalateral three foot triangular configuration composed of 1 1/4 inch aluminum tubing enclosed with 1/8 inch aluminum sheet metal. The T50-2 consists of a motor and blower combination, three (3) mylar air pads, a serpentuator mast, electrical master switch, operator's treadle ("dead man") switch, treadle bypass switch, and a 115 V AC 60 cycle umbilical connector with provisions for mounting an operator's mast and safety yoke.

Applicability

The purpose of the Acceptance Test of the T50-2 is to verify basic vehicle design stability, operation, and performance as a low friction support for serpentuator simulations. With an operator securely positioned in the safety yoke and using the serpentuator or manual propulsion, the unit has the capability of performing docking, undocking, and other difficult simulated space maneuvers on an air bearing floor.

Procedure

The T50-2 testing shall be performed in accordance with the Inspection and Test Instructions.

Documentation

All test activities, data and anomalies shall be documented in the Vehicle Log Book and the Acceptance Test Sheet. Discrepancies found during the test shall be recorded on the Squawk Sheet (Form M-25-U).

STA. NO.	INSPECTION & TEST INSTRUCTIONS			NUMBER	
INSP. DEPT.	TITLE Acceptance Test			REL. DATE	
MFG. DEPT.	PART NAME Air Bearing Platform		PART NO.	REV.	DATE
MODEL NO. T50-2	SERIAL NO.	ORIGINATOR J. C. Fay	[redacted] APPROVAL F W Clark	PAGE 2 OF 4	

NOTE: EXERCISE CARE TO AVOID DAMAGE TO AIR PADS

INSP.

1. Verify instrumentation calibration due date and record.
2. Physically examine the T50-2 for manufacturing discrepancies and/or shipping damage and record.
3. Weigh the T50-2 and record.
4. Measure and record motor case temperature (ambient) and record.
5. Place T50-2 on parking pad on air bearing floor.
6. Set air pad bypass valves to mid-travel. (See Figure 1)
7. Connect the 115V AC 60 cycle umbilical; reel out sufficient electrical power cable to accommodate preprogrammed travel of air bearing platform so as to prevent unwanted automatic power cable retraction.
8. Close electrical master switch.
9. Close treadle bypass switch in order to actuate motor and blower, the unit is now floating on its air pads. Adjust and set variable speed control to provide necessary or adequate air flow.
10. Move T50-2 on air bearing floor surface and measure distance i.e. he height of lift at each air pad from the floor to the bottom of the frame of the unit. Adjust air pad bypass valves individually to level platform and to obtain a clearance distance of 1 ± 0.25 inches. Record clearance: _____ _____ _____
11. Apply 50 pound (unbalanced) load over each air pad sequentially and re-adjust air pad valves to attain balance.
12. Observe performance for stability and minimal drift.
13. Open master switch to shut off blower motor.

    DO NOT MOUNT OR DISMOUNT FROM VEHICLE WHILE BLOWER MOTOR IS RUNNING

14. Offset operator weight with weights properly positioned over the center of gravity to make up a load of 200 lbs.

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INSP. DEPT.	TITLE Acceptance Test			REL. DATE	
MFG. DEPT.	PART NAME Air Bearing Platform		PART NO.	REV.	DATE
MODEL NO. T50-2	SERIAL NO.	ORIGINATOR J. C. Fay	[redacted]. APPROVAL J Wolfarr	PAGE 3 OF 4	

15. Place treadle bypass switch to operate position and close master switch.

16. Actuate foot treadle (blower motor should operate).

17. Verify the air pad valves setting; see Paragraph 10 (above).

18. Repeat Paragraph 12 (above).

19. At midpoint and completion of test and after one (1) hour of operation measure and record motor case temperature rise. (Temperature rise should not exceed 65°C.)

INSP.

Form 966-A Rev. 1-64 NAA-S&ID

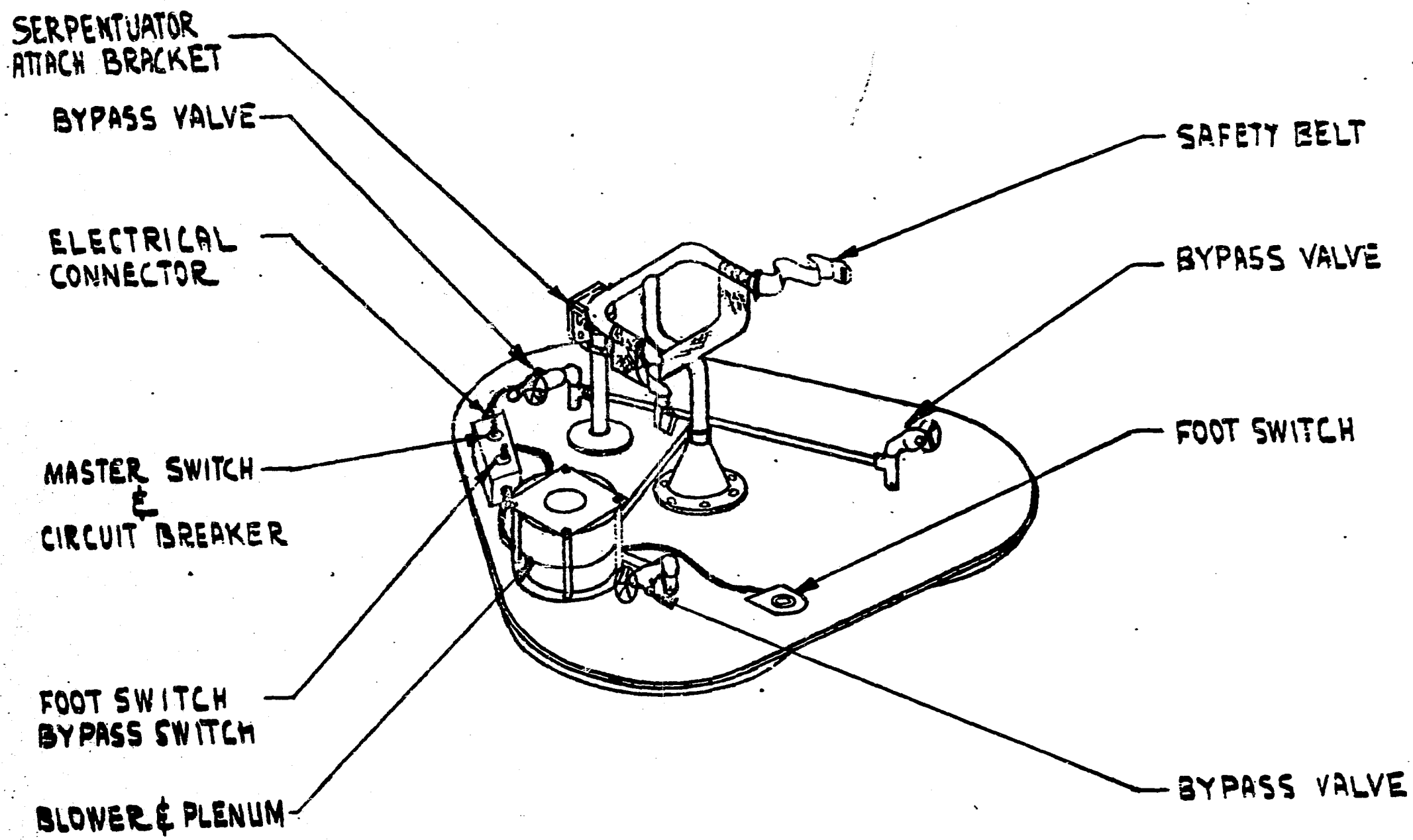
SERPENTUATOR ATTACH BRACKET
BYPASS VALVE
ELECTRICAL CONNECTOR
MASTER SWITCH & CIRCUIT BREAKER
FOOT SWITCH BYPASS SWITCH
BLOWER & PLENUM
SAFETY BELT
BYPASS VALVE
FOOT SWITCH
BYPASS VALVE

Figure 1