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21 OCTOBER 1959
SUPERSEDING
MIL-C-7979A
23 JULY 1956

MILITARY SPECIFICATION

CYLINDERS; HYDRAULIC BRAKE, MASTER, POWER ASSISTED

This specification has been approved by the Department of Defense and is mandatory for use by the Departments of the Army, the Navy, and the Air Force.

1. SCOPE

1.1 This specification covers hydraulic power assisted master brake cylinders designed for use in aircraft hydraulic wheel brake subsystems which operate at 0 to 1,500 pounds per square inch pressure and are used in airplane hydraulic systems having power input pressures up to 3,000 pounds per square inch.

2. APPLICABLE DOCUMENTS

2.1 The following documents, of the issue in effect on date of invitation for bids, form a part of this specification:

SPECIFICATIONS

MILITARY

MIL-P-5517 — Plastic Parts in Aircraft Hydraulic Equipment; General Tests for.

MIL-H-5606 — Hydraulic Fluid, Petroleum Base, Aircraft and Ordnance.

MIL-B-8584 — Brake Systems, Wheel, Aircraft, Design of.

MIL-H-8775 — Hydraulic System Components Aircraft, General Specification for.

STANDARDS

MILITARY

MIL-STD-105 — Sampling Procedures and Tables for Inspection by Attributes.

(Copies of specifications, standards, drawings, and publications required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

3. REQUIREMENTS

3.1 Preproduction sample. Prior to beginning quantity production, preproduction samples shall be subjected to preproduction testing. The preproduction sample shall be produced by the same method and of the

same material that will be used for quantity production of the item.

3.2 **General.** The requirements of Specification MIL-H-8775 apply as requirements of this specification, with the exceptions and additions specified herein. When the two specifications conflict, this specification shall govern. Unless otherwise specified by the procuring activity, the brake cylinders shall not be used with any fluid other than that conforming to the requirements of Specification MIL-H-5606.

3.3 **Design and construction.**

3.3.1 The design of hydraulic power assisted master brake cylinders shall include the following:

(a) A mechanically actuated pressure generator.

(b) A control unit whereby fluid under pressure is used to boost the output of the pressure generator and provides input force reaction (load-feel).

(c) A common communication line with the reservoir for the pressure generator and the power system return fluid.

3.3.1.1 The above features, where practical, shall be combined into one unit operable by the pilot's brake pedal. A suitable means for attaching the brake cylinder to the airplane structure and the operating linkage shall be included in the design. See figure 1.

3.3.2 *Input pressure.* The unit shall be designed for an input pressure of 3,000 pounds per square inch.

3.3.3 *Output pressures.* Output pressures shall be those "power on" and "power off" brake operating pressures which are required by the specific brake system being considered.

3.3.4 *Boost ratio.* The ratio of the output pressure generated by a given actuating force with power on, to the output pressure generated by the same given actuating force with power off, shall be known as the boost ratio of the unit, and the boost ratio shall be such that the required output pressures can be generated.

3.3.5 *Structural strength.* The operation of the brake cylinder shall not be impaired, and no part of the unit or its mountings shall give evidence of failure under the limit applied mechanical operating forces for a given airplane installation or for the wrench-torque loads required for making the necessary connections.

3.3.6 *Power assist cutoff.* Power assist shall cease when the power-on output pressure reaches a predetermined value as governed by the specific requirements of the brake system being considered (see figure 2).

3.3.7 *Brake line output.* Means shall be provided for limiting the output pressure of the brake cylinder with power on, to a value of the brake burst pressure divided by 1.67 (see figure 2). The force which shall be applied to the unit for determining the limiting output pressure shall be that which corresponds to the limit applied force at the brake pedal as defined in Specification MIL-B-8584.

3.3.8 *Bleeding.* Provisions shall be made in the design of the brake cylinder such that, with no mechanical force applied to the pressure generator, any entrapped air can be bled from the unit. This may be accomplished by proper internal design and does not necessarily require an external bleed port. A power bleeding feature whereby fluid from the pressure port can pass through the unit of the brake port is also required.

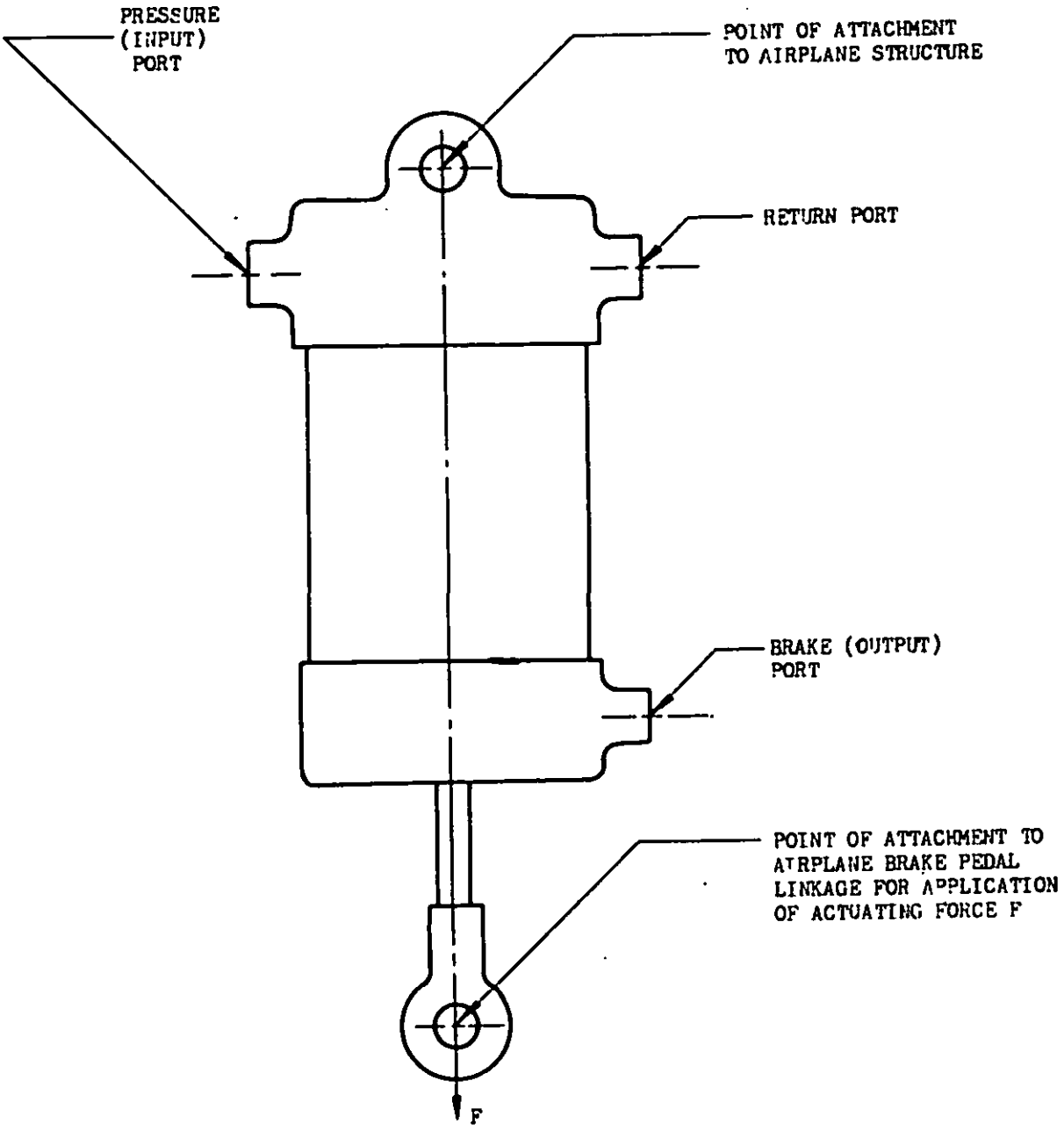

FIGURE 1. *Cylinder; hydraulic master, brake, power assisted*

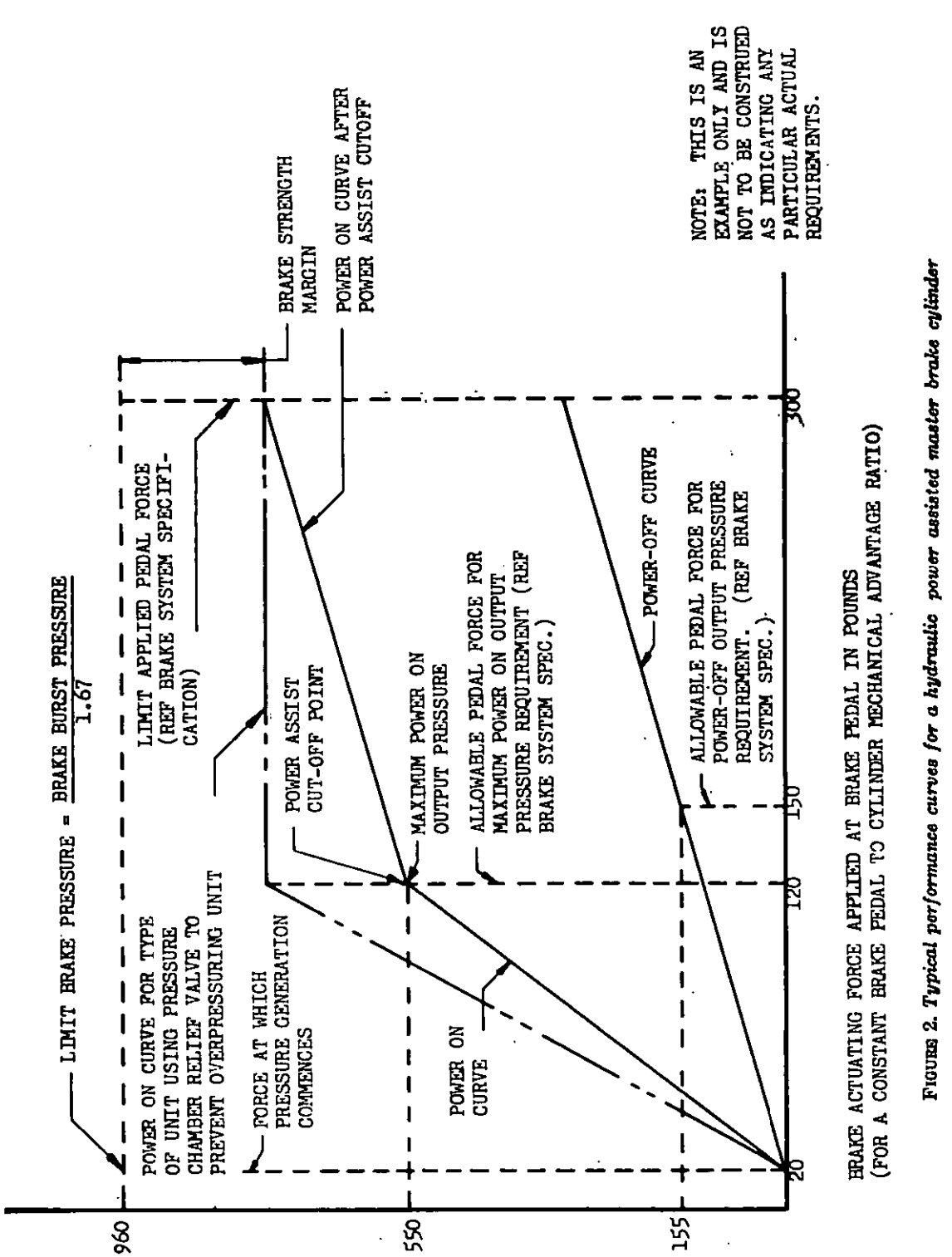

FIGURE 2. *Typical performance curves for a hydraulic power assisted master brake cylinder*

3.3.9 *Return mechanism.* A means shall be provided within the unit to return the pressure generator to its relaxed position upon release of the actuating force. The return rate shall be sufficiently rapid to provide a pressure drop in the unit, enough greater than that in the brake system, to assure a buildup to the required pressure within the required number of pumping strokes when tested as specified in 4.6.7.

3.3.10 *Pumping.* The control unit shall be designed to permit "pumping up" of the hydraulic pressure in a brake system where the control unit travel to operate the brake may become greater than the travel normally required, such as in the case of a leaking packing in the unit, a leak in the brake system, or increase in brake clearance due to wear. It shall also serve to facilitate bleeding of air from the system and maintaining an air-free system. The pumping valve shall remain sealed at all times during the operating stroke and shall be designed to open immediately at any time when the brake line hydraulic pressure may become appreciably less than the reservoir pressure. Pressure drop through the valve during pumping shall be sufficiently low to assure compliance with the pumping test specified in 4.6.7.

3.3.11 *Operation temperatures.* The brake cylinder shall be designed and constructed for operation at a temperature of from —65° to +160°F.

3.4 Performance. The brake cylinder shall satisfy the performance requirements specified in section 4 when subjected to the tests headed as follows:

(a) Immersion of plastic parts (4.6.2).

(b) Static leakage (4.6.3).

(c) Proof pressure and leakage (4.6.4).

(d) Sustained force function (4.6.5).

(e) Power cutoff (4.6.6).

(f) Pumping function (4.6.7).

(g) Through bleeding (4.6.9).

(h) Extreme temperature (4.6.10).

(i) Endurance (4.6.11).

(j) Efficiency (4.6.12).

(k) Boost ratio (4.6.13).

(l) Burst pressure (4.6.14).

3.5 Marking. All ports shall be clearly and permanently marked to indicate the proper connection to be made.

4. QUALITY ASSURANCE PROVISIONS

4.1 Unless otherwise specified herein, the supplier is responsible for the performance of all inspection requirements prior to submission for Government inspection and acceptance. Except as otherwise specified, the supplier may utilize his own facilities or any commercial laboratory acceptable to the Government. Inspection records of the examinations and tests shall be kept complete and available to the Government as specified in the contract or order.

4.1.1 *General.* The quality assurance provisions of Specification MIL-H-8775 shall apply as quality assurance provisions of this specification, with the exceptions and additions specified herein. When the two specifications conflict, this specification shall govern.

4.1.2 *Classification of tests.* The inspection and testing of the brake cylinders shall be classified as follows:

(a) Preproduction tests (see 4.2).

(b) Acceptance tests (see 4.3).

4.2 Preproduction tests.

4.2.1 *Sampling instructions.* The preproduction sample(s) shall consist of the following brake cylinders and shall be tested in a place and manner designated in the con-

tract, purchase order, or invitation for bids (see 6.2.1).

(a) One test unit shall be made with critical fits within 10 percent of the maximum allowed clearance as specified by the detail drawing tolerances. This unit shall be used for endurance and normal temperature functional tests.

(b) A second unit shall be made with critical fits within 10 percent of the minimum allowed clearance as specified by the detail drawing tolerances. This second unit shall be used for extreme temperature Preproduction tests.

4.2.2 *Tests.* The Preproduction tests of brake cylinders shall consist of all the tests of this specification, as described under "Test methods" (4.6).

4.3 **Acceptance tests.** The Acceptance tests shall consist of Individual tests and Sampling tests.

4.3.1 *Individual tests.* Each hydraulic power assisted master brake cylinder shall be subjected to the following tests in the order specified herein:

(a) Examination of product (4.6.1).

(b) Static leakage (4.6.3).

(c) Proof pressure and leakage (4.6.4).

(d) Sustained force function (4.6.5).

(e) Power cutoff (4.6.6).

(f) Pumping function (4.6.7).

(g) Operation (4.6.8).

4.3.2 *Sampling tests.* Sample brake cylinders shall be selected from each inspection lot in accordance with Standard MIL–STD–105 at inspection level II, using an acceptable quality level (AQL) of 1.0 percent defective for the following tests described under "Test methods" (4.6):

(a) Immersion of plastic parts (4.6.2).

(b) Through bleeding (4.6.9).

(c) Extreme temperature (4.6.10).

(d) Endurance (4.6.11).

(e) Efficiency (4.6.12).

(f) Boost ratio (4.6.13).

(g) Burst pressure (4.6.14).

(h) Packing and marking (4.6.15).

4.3.3 *Rejection and retest.*

4.3.3.1 *Preproduction test failure.* The failure of any Preproduction test unit subjected to the tests as the first unit of a new design shall be cause for rejection of the design represented. The acceptance of the remaining brake cylinders on a contract or purchase order shall be dependent upon approval of the test results on the Preproduction sample required by 4.2.2.

4.3.3.2 *Acceptance test failure.* Rejected lots may be resubmitted in accordance with the paragraph titled "Resubmitted lots" of Standard MIL–STD–105. A resubmitted lot shall be inspected using tightened inspection. Before resubmitting, full particulars concerning the previous rejection and the action taken to correct the defects found in the original units shall be furnished to the inspector. The units rejected after retest shall not be resubmitted without the specific approval of the procuring activity.

4.3.3.3 *Inspection lot.* For purposes of inspection sampling, an inspection lot shall be all brake cylinders manufactured under the same conditions and offered for inspection at one time.

4.4 **Report of tests.** A report, in duplicate, showing the quantitative results for all the tests required by this specification, shall be submitted to the procuring activity.

4.5 Test conditions.

4.5.1 *Test fluids.* The hydraulic fluid used for all the tests shall conform to the requirements of Specification MIL-H-5606, except as otherwise specified herein. All entrapped air must be bled from the brake cylinder and the unit filled with the fluid before conducting any tests of this specification.

4.5.2 *Temperature.* Unless otherwise specified, the tests shall be conducted with the oil at a room temperature of 70° to 110°F. The actual temperature during the Preproduction tests shall be reported.

4.5.3 *Pressure.* Operating pressures for all tests shall be 3,000 pounds per square inch input pressure and those output pressures which are required by the particular brake installation for which the brake cylinder will be used.

4.6 Test methods.

4.6.1 *Examination of product.* Each brake cylinder shall be carefully examined to determine conformance to the requirements of this specification with respect to materials, workmanship, and marking, and for conformance with the limiting dimensions indicated on the applicable manufacturer's drawings.

4.6.2 *Immersion of plastic parts.* Brake cylinders containing plastic parts shall be subjected to, and meet the test requirements of Specification MIL-P-5517. These tests shall be conducted prior to all other tests for first articles unless these tests are specifically waived by the procuring activity on the basis that the plastic material used has been previously approved in similar usage.

4.6.3 *Static leakage.* With the brake cylinder in the normally installed and full off positions, apply 2-psi pressure to all internal fluid spaces. For preproduction units, the pressure shall be applied for 2 hours, and the external leakage shall not exceed 1 drop per hour. For individual units, the pressure shall be applied for 10 minutes, and no external leakage shall occur in that time.

4.6.4 *Proof pressure and leakage.*

4.6.4.1 *Pressure port.* With the brake cylinder in the full off position, 25 psi and then 1.5 times the input pressure shall be applied to the pressure port with the brake and return ports open. The internal leakage shall not exceed 2 drops per minute after the first minute at the 25-psi pressure and 30 drops per minute after the first minute at pressure equal to 1.5 times the input pressure. Each pressure shall be applied for a period of 3 minutes. There shall be no external leakage at either pressure.

4.6.4.2 *Brake port.* The brake cylinder shall be mounted in its normal operating position, and the piston shall be connected to a manual stop to retain it in the mid-travel position. The side of the pressure generator opposite the brake port shall be opened to the atmosphere. A pressure of 10 psi shall be applied to the brake port for 3 minutes, followed by the application of a pressure of 1.5 times the maximum power on output pressure for 3 minutes. No external leakage shall be allowed. After 1 minute, the leakage at the open ports shall not exceed 2 drops per minute at either pressure. When the cylinder is permitted to return completely to the off position, the valve passages shall permit flow from the brake port out the return port. This test shall be repeated 9 times for Preproduction tests only.

4.6.4.3 *Return port.* With the brake cylinder at the fully actuated position and the brake and pressure ports open, apply 25 psi and then 1.5 times the maximum power on output pressure to the return port. There shall be no external leakage in 2 minutes at either pressure.

4.6.4.4 *Harness.* The brake cylinder shall

be mounted in a position and test fixture which simulates its actual operating condition, and the brake port shall be connected directly to a hydraulic-pressure gage. A pressure source of 1.5 times the input pressure shall be applied to the pressure port. A mechanical force equal to the force resulting from a 300-pound brake pedal force for a given airplane installation shall then be applied to the unit while it is in the midtravel position and held for a period of 5 minutes. A lever system and weights may be used to apply the force to the unit. This test shall be repeated allowing for escape of fluid from the pressure generator section in order that the test load is applied when the actuating shaft is at a position representing 75 percent of the stroke. There shall be no external leakage, permanent distortion, failure, or malfunctioning of any part of the unit.

4.6.5 *Sustained force function.* The brake port shall be connected to a gage, and input pressure shall be applied to the pressure port with the return port connected to the reservoir. The pressure generator shall then be loaded at approximately the midtravel position using an operating lever and weights. The operating lever weights shall correspond to 25 percent followed by 100 percent of the pilot effort which corresponds to the maximum power-on output pressure. At each load, the output pressure shall be within ±5 percent of the design maximum power-on output pressure. A slow fluctuation of the output pressure is permissible. This fluctuation pressure range shall not exceed 5 percent of the design maximum power-on output pressure. The leakage out the reservoir port during this test shall not exceed 2 cubic inches per minute after the first minute, and the position of the piston shall remain unchanged. The duration of the test shall be 2 minutes at each of the 2-rod loads. When the load is removed, all moving parts of the brake cylinder shall return to the full off position. The test shall be repeated twice for the Preproduction tests.

4.6.6 *Power cutoff.* A test shall be conducted to determine the output pressures developed with various actuating forces applied to the brake cylinder. A curve shall then be plotted to show that power assist ceases at the maximum power-on output pressure (see figure 2). For Individual tests, any means whereby the proper cutoff function may be observed will be acceptable.

4.6.7 *Pumping function.* With zero psi at the input pressure port, the reservoir return port of the control unit shall be connected to a supply reservoir and the brake port to a simulated brake consisting of a cylinder having a spring-loaded piston. Line lengths, types, and sizes, together with reservoir head pressure used (or intended to be used) in the airplane installation shall be simulated in the test. The simulated brake shall require a minimum hydraulic pressure of 30 psi for initial movement of the piston, after which pressure reaction shall increase linearly with displacement, reaching at least 200 psi after having been displaced by a volume equivalent to 200 ±10 percent of the minimum full displacement of the control unit. At that point it shall bottom. The control unit shall fully displace the piston and reach power-off operating pressure with 5 actuating strokes, with hydraulic fluid and the control unit at (a) 160° ±5°F. and (b) —20° ±5°F. Return of the unit to its relaxed position, preparatory to the next pumping stroke, shall be self-motivated. The test shall be repeated with power system input pressure supplied to the input pressure port of the control unit, in which case it shall fully displace the piston in the loading cylinder and reach power on operating pressure within 5 actuating strokes. A schematic diagram of the test setup is shown in figure 3.

4.6.7.1 A qualitative type of pumping test may be substituted in place of the foregoing test for Individual tests only, in which the supply line configuration shall simulate that of the airplane. The brake port shall be capped while the control unit is held in its

fully actuated position. As the control unit is cycled, a rapid decrease in the length of successive "pressure" strokes of the piston shall be noted. Return of the piston, preparatory to the next pumping stroke, shall be self-motivated. This test shall be conducted with (a) zero pressure and (b) power system input pressure at the input pressure port, at a room temperature of 50° to 110°F. and with hydraulic fluid at a temperature of 70° to 130°F.

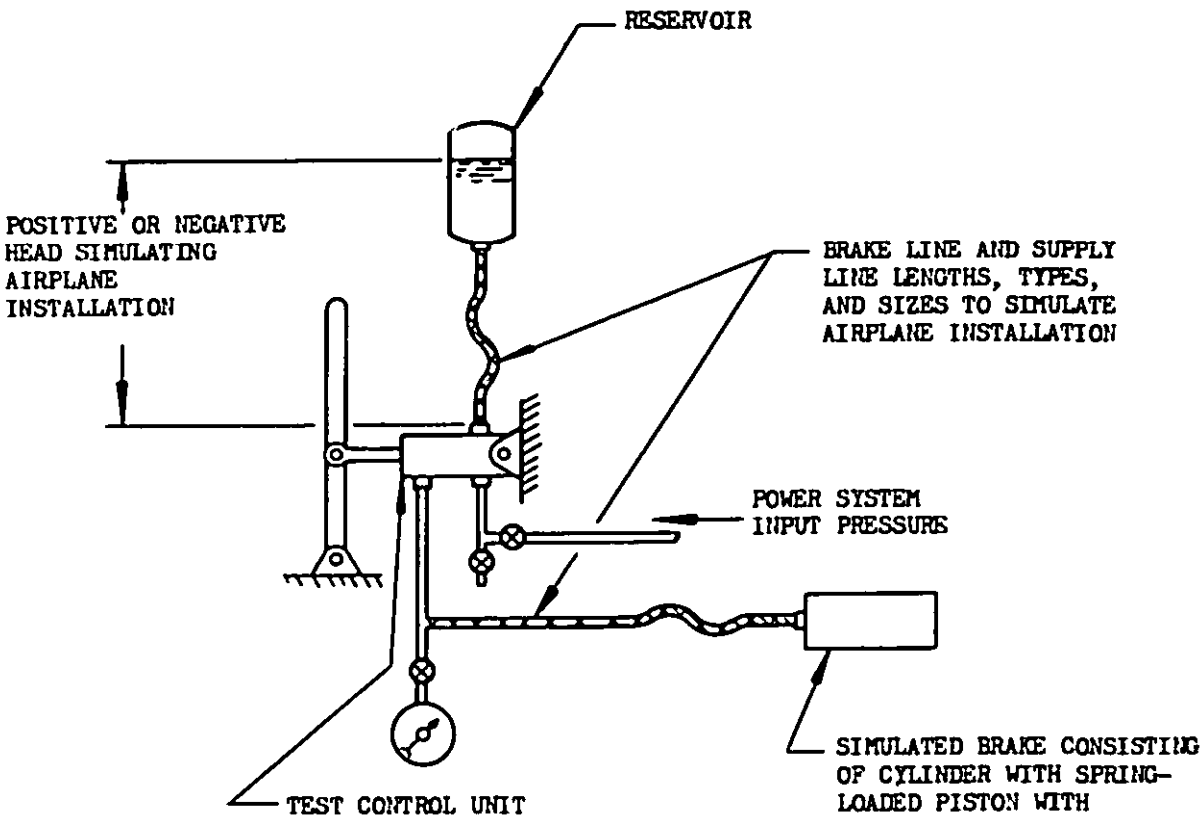

FIGURE 3. *Pumping test setup*

4.6.8 *Operation.* Each brake cylinder shall then be subjected to an operation test with power on. At one point in each cycle of this test, the maximum power on output pressure shall be attained without exceeding the actuating force required for the given installation. External leakage after 25 such cycles shall not exceed 1 drop. There shall be no evidence of chattering, vibration, or other malfunction.

4.6.9 *Through bleeding.* With the brake cylinder mounted in its normal operating position and connected to a lever system, in-

put pressure shall be applied at the pressure port, and the unit shall be operated to contact the stop at the end of travel of the pressure generator. A free and continuous flow shall occur out the brake port.

4.6.10 *Extreme temperature.*

4.6.10.1 *General.* The brake cylinder having all critical fits within 10 percent of the minimum allowed clearances as specified by the detail drawing tolerances shall be subjected to the extreme temperature tests as described below. A tabulation of the actual measured dimensions of the critical mating parts, together with the limit dimensions specified by the detail drawings, shall be included in the test report. Transfer cylinders may be used to supply the volumes of stabilized temperature input fluid required for these tests.

4.6.10.2 *High temperature.* The brake cylinder and its operating fluid shall be contained in a chamber having an ambient temperature of 160° ±5°F. for 24 hours. The test cylinder shall then be subjected to the tests of this specification entitled Pumping function (4.5.7) and Sustained force function (4.6.5), and it shall satisfactorily pass these tests.

4.6.10.3 *Low temperature.* The brake cylinder and its operating fluid shall be contained in a chamber having an ambient temperature of —65°F. maximum for 24 hours, during which time a fluid head of 2 psi shall be applied to all the ports. There shall be no external leakage. The unit shall then be subjected to the tests of this specification entitled Sustained force function (4.6.5). In addition, the action of the unit shall be observed for any indication of binding, and any functioning different from that at normal temperatures shall be reported.

4.6.10.4 *Rapid warmup.* The test chamber shall be warmed rapidly from the —65°F. temperature to the +160°F. temperature. A record of the test chamber temperature and the input and output fluid temperatures shall be maintained. The test entitled Sustained force function (4.6.5) shall be repeated at 5-minute intervals during the warmup, and the operation of the cylinder shall be observed for any indication of binding or functioning different from that at normal temperatures. This test may be ended after the test chamber ambient temperature has been stabilized at 160°F. and the temperature of the input operating fluid, measured at the cylinder return port, has increased to 100°F.

4.6.11 *Endurance.* The brake cylinder shall be tested for endurance as follows:

(a) The test cylinder having all critical fits within 10 percent of the maximum allowed clearances as specified by the detail drawing tolerances shall be used for the Endurance test.

(b) Prior to the test, the test cylinder shall be hot-soaked for 7 days in the applicable hydraulic fluid at a temperature of 160°F. if it contains packings not of the type or glands not of the design which complies with the requirements of the applicable listed specifications.

(c) The test cylinder shall be mounted in the test fixture in its normal operating position.

(d) Each cycling stroke shall be 90 percent minimum of the total stroke of the pressure generator.

(e) The maximum power-on output pressure or a greater pressure shall be generated for 20,000 cycles; and one half of the maximum power-on output pressure shall be generated for an additional 80,000 cycles.

(f) The unit shall pump 25 percent of the pressure generator volume through a relief valve during each cycle.

(g) The movement of the unit during the return stroke of each cycle shall not be externally assisted.

(h) The rate of cycling shall be as rapid as the test conditions will permit.

(i) Prior to the Endurance test, after 20,000 and 60,000 Endurance test cycles, and at the conclusion of the Endurance test, the test cylinder shall be subjected to the tests of this specification entitled Individual tests, and the results shall be tabulated in detail in the test report (4.4).

(j) The test of this specification entitled Boost ratio (4.6.13) shall be performed prior to and at the end of the Endurance test.

(k) The actual dimensions of the test cylinder parts which undergo relative motion shall be recorded before and after the test. These dimensions, along with the difference between the two dimensions (wear) and the limit dimensions specified by the detail drawings, shall be tabulated in detail and included in the test report (4.4).

(1) All parts of the test cylinder shall be inspected before and after the test. A comparison of the condition of the parts shall then be made and included in the report.

4.6.12 *Efficiency.*

4.6.12.1 *Volumetric efficiency (power off).* The fluid displacement (power off) of the brake cylinder shall be measured by directing the output flow through a relief valve set at the maximum power-off pressure, into a fluid graduate. The average value of displacement per stroke, for 5 successive 100-percent strokes of the unit, shall be not less than the rated displacement of the unit.

4.6.12.2 *Mechanical efficiency (power off).* The brake cylinder shall be mounted in a test fixture with means provided for measuring the mechanical force applied to the unit. The unit shall then be operated (power off) through at least 90 percent of its available stroke to produce the maximum power-off output pressure, and the mechanical force of the unit required to produce this pressure shall be measured. The ratio of the force calculated to produce the same hydraulic pressure in the unit, neglecting packing, mechanical friction, and return mechanism forces, to the force actually required, shall be known as the mechanical efficiency. The contractor shall establish the acceptable efficiency for each application, and test results shall be included in the data submitted as required under 4.4.

$$\text{Efficiency (percent)} = \frac{\text{Calculated force (lb)} \times 100}{\text{Actual force (lb)}} \quad (1)$$

4.6.13 *Boost ratio.* The brake cylinder shall be mounted in a test fixture with a means provided for applying various actuating forces to the cylinder. An input pressure source shall be connected to the pressure port, and a suitable gage shall be connected to the brake port. Actuating forces from zero to the force required to produce the maximum power on output pressure shall be applied to the unit in 25-percent increments of the force required to produce the maximum power on output pressure. At each actuating force, the output pressure developed shall be recorded, and a curve of the actuating force versus the output pressure shall be plotted. The test shall then be repeated with the power off using the same actuating forces as with the power on. The

boost ratio shall then be calculated from the following equation. The contractor shall establish the acceptable boost ratio for each application, and test results shall be included in the data submitted as required under 4.4.

$$\text{Boost ratio} = \frac{\text{Output pressure with power on for a given actuating force}}{\text{Output pressure with power off for a given actuating force}} \quad (2)$$

4.6.14 *Burst pressure.* With the brake cylinder lying free on a bench, burst test pressure shall be applied as follows:

(a) With the pressure and return ports plugged, apply a pressure which is equal to 2.5 times the maximum power-on output pressure to the brake port.

(b) With the return and brake ports open, apply 2.5 times the input pressure at the pressure port.

There shall be no external leakage or rupture of parts in the above tests.

4.6.15 *Packing and marking.* The inspector shall ascertain that the packing and marking of the brake cylinders conform to this specification.

5. PREPARATION FOR DELIVERY

5.1 **General.** The provisions contained in section 5 of Specification MIL-H-8775, as applicable, form a part of this specification.

6. NOTES

6.1 **Intended use.** The hydraulic power assisted master brake cylinders covered by this specification are intended for use in aircraft hydraulic brake systems as covered by Specifications MIL-H-5440 and MIL-B-8584 and are the mechanisms used to transform the force applied by the aircraft personnel into hydraulic pressure.

6.2 **Ordering data.** Procurement documents should specify the following:

(a) Title, number, and date of this specification.

(b) Selection of applicable levels of packaging and packing.

6.2.1 It is expected that the contract or purchase order will specify that two power brake valves of each size will be required as preproduction samples and that these preproduction samples will be subjected to the Preproduction tests to determine compliance with the requirements of this specification. The invitation for bids and the contract should specify the point of inspection for these tests.

6.2.2 *Storage surveillance.* Items preserved and packaged in accordance with level B requirements must be inspected to determine condition when not used within the time period indicated. Items not used within the time period specified must either be preserved or packaged again in accordance with level B requirements in this specification or with level A requirements if storage beyond an additional year is anticipated.

Custodians:
Army—Transportation Corps
Navy—Bureau of Aeronautics
Air Force

Preparing activity:
Navy—Bureau of Aeronautics

SPECIFICATION ANALYSIS SHEET

Form Approved
Budget Bureau No. 119-R004

INSTRUCTIONS

This sheet is to be filled out by personnel either Government or contractor, involved in the use of the specification in procurement of products for ultimate use by the Department of Defense. This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be procured with a minimum amount of delay and at the least cost. Comments and the return of this form will be appreciated. Fold on lines on reverse side, staple in corner, and send to preparing activity *(as indicated on reverse hereof)*.

SPECIFICATION

ORGANIZATION *(Of submitter)*

CITY AND STATE

CONTRACT NO.

QUANTITY OF ITEMS PROCURED

DOLLAR AMOUNT
$

MATERIAL PROCURED UNDER A

☐ DIRECT GOVERNMENT CONTRACT ☐ SUBCONTRACT

1. HAS ANY PART OF THE SPECIFICATION CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?

A. GIVE PARAGRAPH NUMBER AND WORDING.

B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES.

2. COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID

3. IS THE SPECIFICATION RESTRICTIVE?

☐ YES ☐ NO IF "YES", IN WHAT WAY?

4. REMARKS *(Attach any pertinent data which may be of use in improving this specification. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity)*

SUBMITTED BY *(Printed or typed name and activity)*

DATE

DD FORM 1 APR 63 1426

REPLACES NAVSHIPS FORM 4863, WHICH IS OBSOLETE

PLATE NO. 15419