

MIL-C-6390B**13 NOVEMBER 1959****SUPERSEDING****MIL-C-6390A****30 OCTOBER 1953****MILITARY SPECIFICATION****CLAMPS AND INSTRUMENTS, AIRCRAFT,
INSTALLATION OF**

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 Scope. This specification covers the installation of clamp-mounted aircraft instruments.

1.2 Classification. The installations shall be of the following nominal sizes, for installing instruments whose cases conform to Standard MS33639 for the same respective nominal sizes, with clamps which conform to the respective part numbers shown:

<i>Installation size</i>	<i>Clamp MS part number</i>
1 inch	MS28042-4
1½ inch	MS28042-3
2 inch	MS28042-1
3 inch	MS28042-2

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:

STANDARDS**MILITARY**

MS28042 — Clamp, Mounting, Aircraft Instruments.

MS33639 — Cases, Instrument, Clamp-Mounted, Aircraft.

AIR FORCE-NAVY AERONAUTICAL

AND10387 — Drill Sizes and Drilled Hole Tolerances-Twist.

(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 Panel cutouts. The instrument panel cutouts shall conform to figure 1.

3.2 Interinstrument distance. The horizontal or the vertical distance, or both, between

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the centers of each two instruments, when the instruments are of the same size, shall be at least the following value:

<i>Installation size</i>	<i>Minimum distance</i>
1 inch	1½ inches
1½ inch	1½ inches
2 inch	2½ inches
3 inch	3¾ inches

When the instruments are of different sizes, the minimum interinstrument distance as described above shall be one-half the sum of the values given above for the two sizes.

3.3 Clamp orientation. Each clamp shall be installed on the back of the instrument panel with the clamp mounting screw toward the upper left and the clamp actuator toward the lower right as viewed looking at the front (dial) side of the instrument panel.

3.4 Tube and cable lengths. The connections to the indicators (tubes or cables) shall be flexible and of sufficient length to allow withdrawal of the indicators from the dial side of the panel so that with the connections made, the indicators' rear surfaces shall be a minimum distance of 4 inches in front of the panel.

4. QUALITY ASSURANCE PROVISIONS

4.1 General. All the tests required herein for the testing of installations of clamp-mounted aircraft instruments are classified as acceptance tests, for which necessary sampling techniques and method of testing are specified in this section.

4.1.1 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.

4.2 Test conditions.

4.2.1 Instrument. Whenever an instrument or case is mentioned, it shall conform to Standard MS33639 for the applicable nominal size.

4.2.2 Clamp. Whenever a clamp is mentioned, it shall be the MS part number specified in 1.2.

4.3 Individual tests. Each installation shall be inspected to determine compliance with the following subparagraphs.

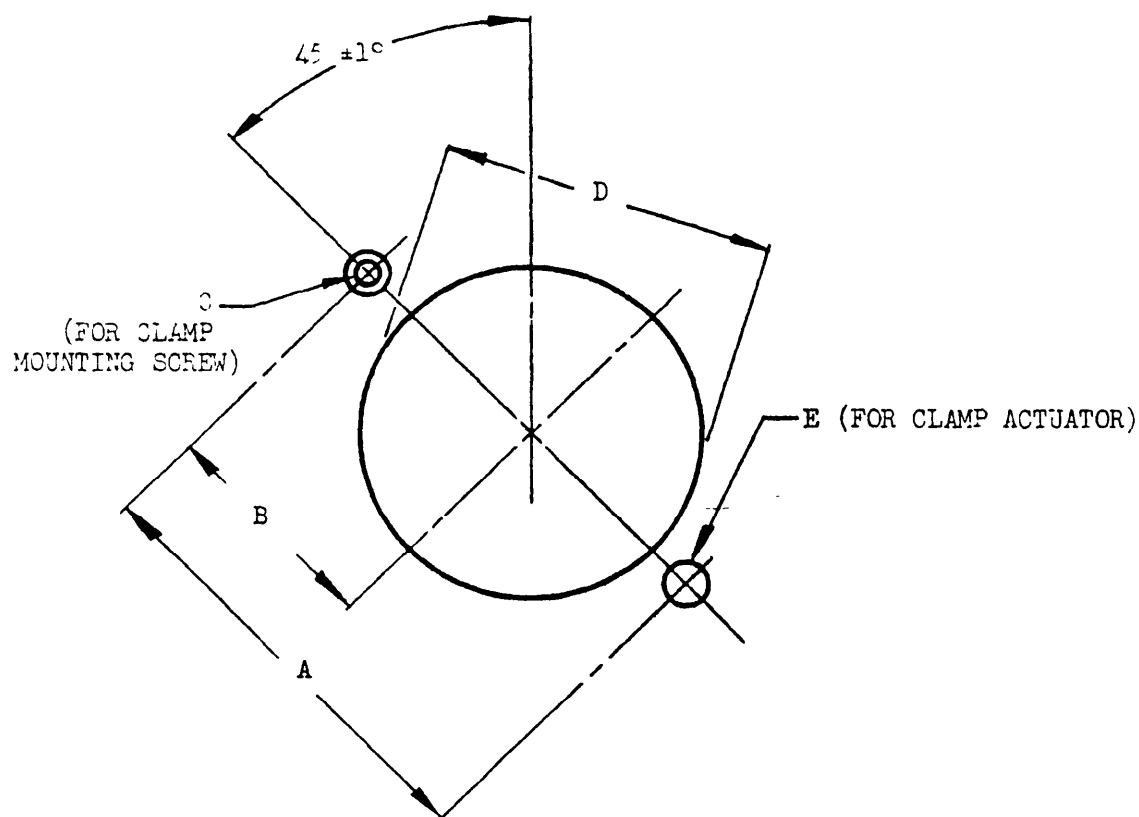
4.3.1 Retention. The instrument shall be installed. The clamp and instrument shall be inspected to determine that they are secure. It shall not be possible to rotate the instrument or pull it forward while gripping the shoulder at the front of the case with the fingers.

4.3.2 Removal. The clamp actuator shall be loosened. During the loosening process, the operation of the clamp mechanism shall be smooth and there shall be no evidence of binding or sticking. The instrument shall then be withdrawn from the panel by gripping the shoulder at the front of the case and pulling forward. During the withdrawal process, there shall be no evidence of binding or sticking between the instrument and panel or clamp.

4.3.3 Tube and cable lengths. The installation shall be measured to determine that it conforms to 3.4.

4.4 Rejection and retest. Installations which have been rejected may be reworked to correct the defects and resubmitted for acceptance. Before resubmittal, full particulars concerning previous rejection and the action taken to correct the defects found in the original shall be furnished the inspector.

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INSTALLATION SIZE	A ±0.010	B ±0.005	C *	D	E *
1-INCH	1.330	0.665	NO. 28 CSK 100° X 17/64	1.005 +0.015 -0.000	NO. 25
1-1/2 INCH	1.830	0.915		1.505 +0.015 -0.000	
2-INCH	2.453	1.203	NO. 15 CSK 100° X 21/64	1.953 ±0.010	NO. 5
3-INCH	3.500	1.750		3.156 ±0.010	

DIMENSIONS IN INCHES.

* DRILLS AND TOLERANCES IN ACCORDANCE WITH STANDARD AND10387.

FIGURE 1. Panel cutouts — dial side.

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Installations rejected after retest shall not be resubmitted without the specific approval of the procuring activity.

5. PREPARATION FOR DELIVERY

5.1 This section is not applicable to this specification.

6. NOTES

6.1 **Intended use.** The installations covered by this specification are intended for use with the clamps specified in 1.2 for mounting instruments whose cases conform to Standard MS33639 for their respective nominal sizes in aircraft instrument panels.

Notice. When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use or sell any patented invention that may in any way be related thereto.

Custodians:

Army—Transportation Corps
Navy—Bureau of Aeronautics
Air Force

Preparing activity:

Navy—Bureau of Aeronautics