

INCH-POUND

MIL-DTL-48559B
16 August 2012
SUPERSEDING
MIL-M-48559A(AR)
30 March 1990

DETAIL SPECIFICATION

MOUNT, TELESCOPE AND QUADRANT - M172A1

Reactivated after 16 August 2012 and may be used for new and existing designs and acquisitions

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers the Mount, Telescope and Quadrant: M172A1 which supports the Fire Control Quadrant: M18A1 for use on the M777 and M198 series of howitzers and gives elevation compensation to correct for cant when the mount is leveled by a cross level movement. The mount also supports and aligns the mounting bracket for the Elbow Telescope: M138A1.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all requirements of documents cited in sections 3 and 4 of this specification, whether or not documents are listed in this section.

Comments, suggestions, or questions on this document should be addressed to: Commander, US Army ARDEC, ATTN: RDAR-QES-E, Picatinny, New Jersey 07806-5000 or emailed to picaardecdtdznbranch@conus.army.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST online database at <https://assist.dla.mil>.

AMSC N/A

FSC 1240

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2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-F-13926 - Fire Control Materiel, Manufacture, and Inspection, General Specification for

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-1916 - DOD Preferred Methods for Acceptance of Product

(Copies of federal and military specifications, standards, and handbooks are available online at <https://assist.dla.mil/quicksearch/> or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.2.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

U.S. ARMY ARMAMENT RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (ARDEC) DRAWINGS

8658940	-	Inspection Aid
10554685	-	Mounting Bracket Assembly
10558253	-	Final Inspection Fixture for Mount, Telescope and Quadrant, XM172
11738143	-	Adapter, Torque
11738144	-	Adapter, Torque
11747193	-	Adapter, Vibrating and/or Shock for Mount, Telescope & Quadrant XM172
11747840	-	Gage, Interchangeability, Max
11747844	-	Gage, Interchangeability, Max
11747978	-	Gage, Interchangeability, Max
13005089	-	Mount, Telescope and Quadrant: M172A1

(Copies of these drawings may be requested online at pica.drawing.request@conus.army.mil or from U.S. Army ARDEC, ATTN: RDAR-EIS-PE, Picatinny, NJ 07806-5000)

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2.3 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein, the text of this document shall take precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 First article. When specified (see 6.2), a sample shall be subjected to first article inspection in accordance with 4.2.

3.2 Conformance. A sample shall be subject to conformance inspection in accordance with 4.3.

3.3 Mount. The mount shall conform to drawing 13005089.

3.4 Environmental.

3.4.1 Storage temperature. While thermally stabilized at temperatures of $+160 \pm 5^\circ\text{F}$ and $-60 \pm 5^\circ\text{F}$, the mount shall be inspected and shall not exhibit any signs of physical failure or damage. Upon return to and stabilization at standard ambient temperature, $+60^\circ\text{F}$ to $+90^\circ\text{F}$, the mount shall meet the requirements of 3.5 through 3.10 inclusive.

3.4.2 Operating temperature. The mount shall meet the requirements of 3.5, 3.7, 3.8, and 3.9 inclusive while exposed to and thermally stabilized at temperatures of $+145 \pm 5^\circ\text{F}$ and $-50 \pm 5^\circ\text{F}$. Upon return to and stabilization at standard ambient temperature, $+60^\circ\text{F}$ to $+90^\circ\text{F}$, the mount shall meet the requirements of 3.5 through 3.10 inclusive.

3.4.3 Shock. The mount shall withstand a total of 75 shock impulses, 15 in each direction of 3 mutually perpendicular axes as defined in Figure 1. Each shock impulse shall be a half sine wave with a time duration of 0.010 ± 0.001 seconds and peak amplitude for each shock impulse as shown in Table I. Subsequent to shock, the mount shall show no evidence of damage or physical failure and shall meet the requirements of 3.5 through 3.10 inclusive.

TABLE I. Shock orientation and impulse.

Orientation	Shock impulse and direction	Number of impulses
Longitudinal	-50 g's, +40 g's	15 each direction
Vertical	-30 g's, +30 g's	15 each direction
Transverse	-20 g's	15 total

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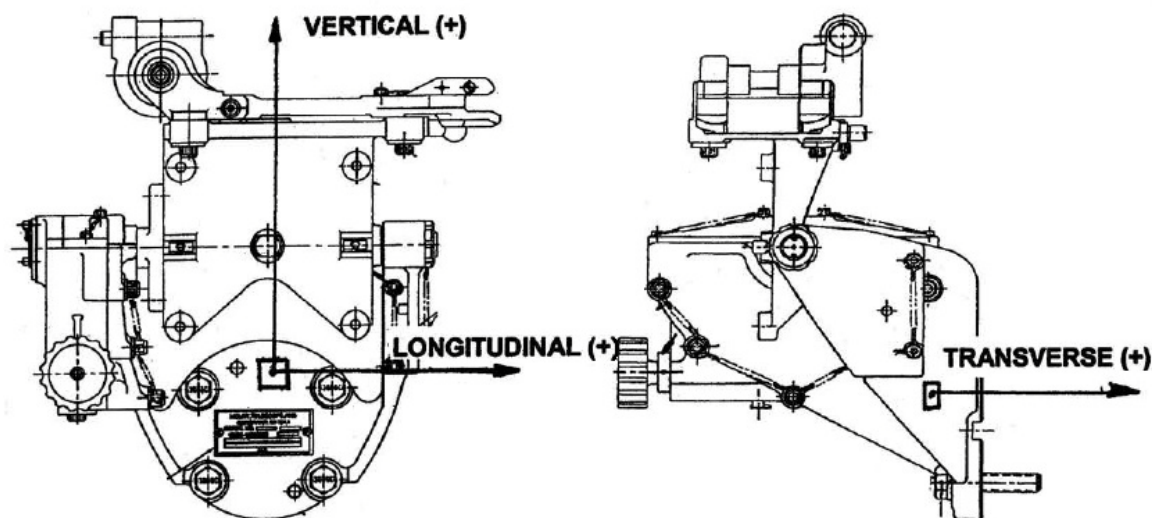


FIGURE 1. Orientation of shock loads.

3.4.4 Vibration "A". The mount shall withstand a total of 270 ± 5 minutes of sweep-cycle vibration. The vibration shall be applied for 90 ± 2 minutes along each of the three mutually perpendicular major axes shown in Figure 1. A complete sweep-cycle shall consist of vibration from origin (5 Hz at 1 inch double amplitude) to mid-point (5 ± 0.5 g's at 500 Hz) to origin, and shall have a duration of 15 ± 1 minutes. Double amplitude shall be constant at 1 inch between 5 Hz and 10 Hz, and varied with frequency to maintain a constant 5 ± 0.5 g's acceleration between 10 Hz and 500 Hz. Upon completion of vibration, the mount shall exhibit no evidence of damage or physical failure and shall meet the requirements of 3.5 through 3.10 inclusive.

3.4.5 Vibration "B". The mount shall be vibrated in the vertical plane shown in Figure 1 for a total of 15 ± 1 minutes of sweep cycle vibration. A complete sweep-cycle shall consist of vibration from origin (5 Hz at 1 inch double amplitude) to mid-point (5 ± 0.5 g's at 500 Hz) to origin, and shall have a duration of 15 ± 1 minutes. Double amplitude shall be constant at 1 inch between 5 Hz and 10 Hz and varied with frequency to maintain a constant 5 ± 0.5 g's acceleration between 10 Hz and 500 Hz. Upon completion of vibration, the mount shall exhibit no evidence of damage or physical failure and shall meet the requirements of 3.5 through 3.10 inclusive.

3.5 Alignment of locating surfaces.

3.5.1 Mounting surfaces for M18A1 quadrant. The mounting surface for the quadrant shall be parallel to the mounting surface of the mount within 1 minute of arc (0.3 mil).

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3.5.2 Locating keys for M18A1 quadrant. The locating keys for the quadrant shall be parallel to the locating keyway in the mount mounting surface within 2 minutes of arc (0.6 mil).

3.5.3 Mounting surfaces for gunner's quadrant. The mounting surfaces for the gunner's quadrant shall be parallel to the keyway in the mount mounting surface within 45 seconds of arc (0.225 mil).

3.6 Performance.

3.6.1 Cross level adjustment. The mount shall travel through an excursion of at least 34 degrees to the left and 34 degrees to the right from the center position.

3.6.2 Backlash (cross level). Backlash in the cross level mechanism shall not exceed 1.5 mils at any setting between 34 degrees to the left and 34 degrees to the right.

3.6.3 Boresight elevation adjustment. The boresight elevation adjustment shall move a line of sight a minimum of 18 mils above and 18 mils below horizontal utilizing the slot in bracket assembly 10554685 as a pivot point.

3.6.4 Boresight azimuth adjustment. The boresight azimuth adjustment shall move a line of sight a minimum of 18 mils to the left and 18 mils to the right of a vertical plane parallel to the mount's mounting surface.

3.7 Cross level knob torque. The running torque required to rotate the cross level knob shall be within the limits of 4 to 12 inch pounds when checked at standard ambient temperature of +60°F to +90°F. Starting torque shall not exceed 18 inch pounds when checked at standard ambient temperature of +60°F to +90°F. When checked at the operating temperature conditions of 3.4.2, the running and starting torque shall not exceed 30 inch pounds.

3.8 Boresight elevation adjustment screw torque. The running and starting torque required to rotate the boresight elevation adjustment screw at standard ambient temperature of +60°F to +90°F shall not exceed 11 inch pounds. When checked at the temperature conditions specified in 3.4.2, the running and starting torque shall not exceed 27 inch pounds.

3.9 Interchangeability.

3.9.1 Interchangeability of mounting surface for M18A1 quadrant. Any M18A1 quadrant that is within specification shall be able to be installed on the M172A1 mount.

3.9.2 Interchangeability of mounting surface of M172A1 mount. The M172A1 mount shall be able to be installed on the mounting surface of any howitzer that is within specification.

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3.9.3 Interchangeability of mounting surface for M138A1 telescope. Any M138A1 telescope that is within specification shall be able to be installed on the M172A1 mount.

3.10 Workmanship. Workmanship of the M172A1 mount shall be in accordance with the requirements of MIL-F-13926.

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4. VERIFICATION

TABLE II. Requirement/verification cross reference matrix.

Method of Verification 1 - Analysis 2 - Demonstration 3 - Examination 4 - Test						Class of Verification A - First Article B - Conformance		
Section 3 Requirements	Description	Verification Method				Verification Class		Section 4 Verification
		1	2	3	4	A	B	
3.1	First article			X	X	X		4.2
3.2	Conformance			X	X		X	4.3
3.3	Mount			X		X	X	4.3.2.1
3.4.1	Storage temperature				X	X	X	4.4.1
3.4.2	Operating temperature				X	X	X	4.4.2
3.4.3	Shock				X	X	X	4.4.3
3.4.4	Vibration "A"				X	X		4.4.4
3.4.5	Vibration "B"				X		X	4.4.5
3.5.1	Mounting surfaces for M18A1 quadrant			X		X	X	4.5.1
3.5.2	Locating keys for M18A1 quadrant			X		X	X	4.5.2
3.5.3	Mounting surfaces for gunner's quadrant			X		X	X	4.5.3
3.6.1	Cross level adjustment				X	X	X	4.6.1
3.6.2	Backlash (cross level)				X	X	X	4.6.2
3.6.3	Boresight elevation adjustment				X	X	X	4.6.3
3.6.4	Boresight azimuth adjustment				X	X	X	4.6.4
3.7	Cross level knob torque				X	X	X	4.7
3.8	Boresight elevation adjustment screw torque				X	X	X	4.8
3.9.1	Interchangeability of mounting surface for M18A1 quadrant				X	X	X	4.9.1
3.9.2	Interchangeability of mounting surface of M172A1 mount				X	X	X	4.9.2
3.9.3	Interchangeability of mounting surface for M138A1 telescope				X	X	X	4.9.3
3.10	Workmanship			X		X	X	4.10

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4.1 Classification of inspection. The inspection requirements specified herein are classified as follows:

- a. First article inspection (see 4.2)
- b. Conformance inspection (see 4.3)

4.2 First article. When specified, a sample shall be subjected to first article verification in accordance with Table III.

TABLE III. First article inspection.

Examination or Test	Section 3 Requirement	Section 4 Verification
Storage temperature	3.4.1	4.4.1
Operating temperature	3.4.2	4.4.2
Shock	3.4.3	4.4.3
Vibration "A"	3.4.4	4.4.4
Mounting surfaces for M18A1 quadrant	3.5.1	4.5.1
Locating keys for M18A1 quadrant	3.5.2	4.5.2
Mounting surfaces for gunner's quadrant	3.5.3	4.5.3
Cross level adjustment	3.6.1	4.6.1
Backlash (cross level)	3.6.2	4.6.2
Boresight elevation adjustment	3.6.3	4.6.3
Boresight azimuth adjustment	3.6.4	4.6.4
Cross level knob torque	3.7	4.7
Boresight elevation adjustment screw torque	3.8	4.8
Interchangeability of mounting surface for M18A1 quadrant	3.9.1	4.9.1
Interchangeability of mounting surface of M172A1 mount	3.9.2	4.9.2
Interchangeability of mounting surface for M138A1 telescope	3.9.3	4.9.3
Workmanship	3.10	4.10

4.2.1 First article quantity. First article inspections shall be performed on three (3) complete units.

4.2.2 First article inspection to be performed. The first article inspection shall be performed in accordance with Table III.

4.2.3 First article rejection. If any item of the sample fails to comply with any of the first article requirements, the first article shall be rejected.

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4.3 Conformance inspection.

4.3.1 Lot formation. Lot formation shall be in accordance with the lot formation requirements of MIL-STD-1916, paragraph “Formation and identification of lots and batches.”

4.3.2 Conformance inspection quantity. Conformance inspection quantities shall be in accordance with MIL-STD-1916, paragraph “Sampling of lots or batches.” Conformance criteria shall be in accordance with 4.3.2.1 and MIL-STD-1916, paragraph “Verification level (VL).”

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4.3.2.1	<u>Mount.</u>			Drawing number 13005089
Classification	Examination or test	Conformance criteria	Requirement paragraph	Next higher assembly None
				Inspection method reference
<u>Critical</u>	None defined			
<u>Major</u>				
101	Presence of Plate, Identification, 13010957	100%	3.3	Visual
102	Completeness of assembly	100%	3.3	Visual
103	Storage temperature	3 units per lot <u>1/</u>	3.4.1	4.4.1
104	Operating temperature	100%	3.4.2	4.4.2
105	Shock	100%	3.4.3	4.4.3
106	Vibration "B"	100%	3.4.5	4.4.5
107	Mounting surfaces for M18A1 quadrant	100%	3.5.1	4.5.1
108	Locating keys for M18A1 quadrant	100%	3.5.2	4.5.2
109	Mounting surfaces for gunner's quadrant	100%	3.5.3	4.5.3
110	Cross level adjustment	100%	3.6.1	4.6.1
111	Backlash (cross level)	100%	3.6.2	4.6.2
112	Boresight elevation adjustment	100%	3.6.3	4.6.3
113	Boresight azimuth adjustment	100%	3.6.4	4.6.4
114	Cross level knob torque	100%	3.7	4.7
115	Boresight elevation adjustment screw torque	100%	3.8	4.8
116	Interchangeability of mounting surface for M18A1 quadrant	100%	3.9.1	4.9.1
117	Interchangeability of mounting surface of M172A1 mount	100%	3.9.2	4.9.2
118	Interchangeability of mounting surface for M138A1 telescope	100%	3.9.3	4.9.3
<u>Minor</u>				
201	Workmanship	VL-II	3.10	4.10
NOTES:				
<u>1/</u> Lot shall be accepted if there are 0 failures, and rejected if there are 1 or more failures.				

4.3.3 Conformance inspection to be performed. The conformance inspection shall be performed in accordance with 4.3.2.1.

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4.3.4 Conformance rejection. If any item of the sample fails to comply with any of the conformance requirements, the lot shall be rejected.

4.4 Environmental.

4.4.1 Storage temperature. The mount shall be placed in the test chamber and the temperature of the chamber reduced gradually to $-60 \pm 5^{\circ}\text{F}$ and shall remain at this temperature for a minimum of 4 hours. At the completion of this 4 hour period, the mount shall be removed from the environmental chamber and inspected for signs of physical failure or damage. The mount shall be placed back in the environmental chamber and the temperature shall then be gradually raised to $+160 \pm 5^{\circ}\text{F}$ and the mount shall remain at this temperature for a minimum of 4 hours. At the completion of this 4 hour period, the mount shall be removed from the environmental chamber and inspected for signs of physical failure or damage. The mount shall be placed back in the environmental chamber and the temperature of the test chamber shall be gradually reduced to room ambient temperature ($+60^{\circ}\text{F}$ to $+90^{\circ}\text{F}$) at which time the mount shall be removed from the test chamber. The mount shall then meet the requirements of 3.5 through 3.10 inclusive. (See 6.6, Thermal shock.)

4.4.2 Operating temperature. The mount shall be placed in the environmental chamber and the temperature of the chamber reduced gradually to $-50 \pm 5^{\circ}\text{F}$. The mount shall remain at this temperature for a minimum of 4 hours. At the completion of this 4 hour period, and while at $-50 \pm 5^{\circ}\text{F}$, the mount shall meet the requirements of 3.5, 3.7, 3.8, and 3.9 inclusive. Upon completion of this portion of the test, the mount shall then be placed back in the environmental chamber and the temperature shall be raised gradually to $+145 \pm 5^{\circ}\text{F}$. The mount shall remain at this temperature for a period of 4 hours. At the completion of this 4 hour period, and while at $+145 \pm 5^{\circ}\text{F}$ the mount shall again meet the requirements of 3.5, 3.7, 3.8, and 3.9 inclusive. Upon completion of this test, the mount shall be returned to the environmental chamber and the temperature shall be gradually reduced to room ambient temperature ($+60^{\circ}\text{F}$ to $+90^{\circ}\text{F}$) at which time the mount shall be removed from the test chamber and shall meet the requirements of 3.5 through 3.10 inclusive. (See 6.6, Thermal shock.) The same units may be used for both storage temperature and operating temperature verifications, if desired.

4.4.3 Shock. The M172A1 mount shall be mounted to the test equipment utilizing the keyway and four mounting bolts torqued to 85-90 foot-pounds, a M18A1 Quadrant and a M138A1 telescope or equivalent weight and center of gravity simulators shall be mounted to it in the designated locations, and then it shall be subjected to the shock requirements in accordance with 3.4.3. Fixture 11747193 may be used to adapt the mount to the shock test equipment. Upon completion of the shock test, the mount shall be examined and inspected to meet the requirements of 3.5 through 3.10 inclusive.

4.4.4 Vibration "A". The mount shall be mounted utilizing the keyway and four mounting bolts torqued to 85-90 foot-pounds and then subjected to the vibration requirements in accordance with 3.4.4. Fixture 11747193 may be used to adapt the mount

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to the vibration test equipment. Upon completion of the vibration test, the mount shall be examined and inspected to meet the requirements of 3.5 through 3.10 inclusive.

4.4.5 Vibration "B". The mount shall be mounted utilizing the keyway and four mounting bolts torqued to 85-90 foot-pounds and then subjected to the vibration requirements in accordance with 3.4.5. Fixture 11747193 may be used to adapt the mount to the vibration test equipment. Upon completion of the vibration test, the mount shall be examined and inspected to meet the requirements of 3.5 through 3.10 inclusive.

4.5 Alignment of locating surfaces. Test fixture 10558253 or functional equivalent shall be used for the inspection of M172A1 mount. Position the test fixture on a vibration free surface in accordance with the set-up instructions outlined on drawing 10558253. Wall target 10558253-13 shall be positioned and fixed in a suitable area. Follow all set-up and operating instructions prior to securing the mount to the fixture. Verifications shall be done with the starting position of the mount as follows:

- a. The mounting surface of the mount shall be in a vertical plane.
- b. The locating keyway of the mount shall be in a horizontal plane within 10 seconds.
- c. The surface to mount the M18A1 quadrant shall be in a vertical plane.
- d. The aligning surfaces of the M138A1 direct fire telescope mounting bracket shall be perpendicular to the mounting surface of the mount.
- e. The four mounting bolts shall be torqued to 85 to 90 foot pounds.

4.5.1 Mounting surfaces for M18A1 quadrant. With the mount oriented as stated in 4.5, insert quadrant adapter 10558253-11 on the quadrant mounting surface of the mount. Place inspection aid, 8658940, on the adapter surface perpendicular to the quadrant mounting surface and the mounting keys of the mount. The surface of quadrant must be vertical and parallel to the mounting surface within the requirement of 3.5.1 as measured with the inspection aid.

4.5.2 Locating keys for M18A1 quadrant. With the mount oriented as stated in 4.5, and adapter 10558253-11 positioned on the quadrant mounting surface of the mount, place inspection aid, 8658940, on the adapter surface parallel to the quadrant mounting surface and the mounting keys of the mount. The locating keys for the quadrant shall be parallel to the mounting surface of the mount within the requirement of 3.5.2 as measured with the inspection aid.

4.5.3 Mounting surfaces for gunner's quadrant. With the mount oriented as stated in 4.5, place inspection aid, 8658940, on the mounting surfaces for the gunner's quadrant. The mounting surfaces for the gunner's quadrant shall be parallel within the requirement of 3.5.3 as measured with the inspection aid.

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4.6.1 Cross level adjustment. With the mount oriented as stated in 4.5, and adapter 10558253-11 positioned on the quadrant mounting surface, place inspection aid, 8658940, on the adapter surface perpendicular to the mounting keys. The cross level adjustment must be in the center of travel established in 4.5 before checking cross level travel. Rotate the cross level knob until rotation reaches a positive stop. Adjust inspection aid to level elevation and center level vial bubble. Cross level travel shall meet the requirements of 3.6.1. Rotate the cross level knob to position previously established in 4.5. Repeat the above procedure in the opposite direction.

4.6.2 Backlash (cross level). With the mount oriented as stated in 4.5, scribe an index line on the mounting casting nearest to the cross level knob. Place an index pointer on the cross level knob directly opposite the scribed index line. The index pointer may be held in place mechanically or by the use of commercial putty. Rotate the cross level knob one turn and place the pointer in coincidence with the scribed index line. Place inspection aid, 8658940, on adapter 10558253-11 and center the level vial bubble. Rotate the cross level knob one half turn and return to the position originally established by the indices. The reading on the inspection aid is required to be within the limits specified in 3.6.2 for backlash. This procedure shall be repeated at zero cant and in three places in each direction from stop to stop.

4.6.3 Boresight elevation adjustment. With the mount oriented as stated in 4.5, install the sighting device, 10558253-1, (simulates elbow telescope) on the appropriate mounting surface of the mount. Observe coincidence between the reticle of the sighting device and the vertical and horizontal lines of the wall target. Turn slotted shaft 10554687 of the elevation adjustment located in bracket assembly 10554685 to its full extent of travel. This rotation will activate the cam to the lowest and highest positions. The elevation adjustment shall move the line of sight above and below the horizontal line of the wall target to the limits specified in 3.6.3.

4.6.4 Boresight azimuth adjustment. With the mount oriented as stated in 4.5, install the sighting device, 10558253-1, (simulates elbow telescope) on the appropriate mounting surface of the mount. Observe coincidence between the reticle of the sighting device and the vertical and horizontal lines of the wall target. Azimuth adjustment shall be inspected by adjusting the opposing screws located in the mounting bracket assembly 10554687. Azimuth movement is activated by backing off one of the screws and turning in the opposing screw. Rotation of the screw will be performed until azimuth movement has reached the limits and or stops. This procedure will be repeated once to the left and once to the right until the line of sight has traveled to the limits specified in 3.6.4.

4.7 Cross level knob torque. Use a standard torque measuring device with adapter 11738144 or similar to test starting and running torque as specified in 3.7.

4.8 Boresight elevation adjustment screw torque. Use a standard torque measuring device with adapter 11738143 or similar to test starting and running torque as specified in 3.8.

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4.9 Interchangeability.

4.9.1 Interchangeability of mounting surface for M18A1 quadrant. Insert, seat, secure, and subsequently remove the maximum interchangeability gage, 11747844, on the mounting surface for the M18A1 quadrant on the M172A1 to verify conformance to 3.9.1.

4.9.2 Interchangeability of mounting surface for M172A1 mount. Insert, seat, secure, and subsequently remove the maximum interchangeability gage, 11747840, on the mounting surface for the M172A1 mount to verify conformance to 3.9.2.

4.9.3 Interchangeability of mounting surface for M138A1 telescope. Insert, seat, secure, and subsequently remove the maximum interchangeability gage, 11747978, on the mounting surface for the M138A1 telescope on the M172A1 to verify conformance to 3.9.3.

4.10 Workmanship. Workmanship of the M172A1 mount shall be verified in accordance with MIL-F-13926.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Service or Defense Agency, or within the military service's system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The Mount, Telescope, and Quadrant: M172A1 is used to support and employ a fire control quadrant for laying the artillery weapon in elevation for indirect fire and direct fire. It also supports an elbow telescope intended for laying the artillery weapon in elevation for direct fire.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number and date of this specification.

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- b. Selection of an applicable level of preservation, packaging, and packing in accordance with MIL-STD-2073-1, Department of Defense Standard Practice for Military Packaging.
- c. Packaging Data Sheet SPI 13005089 as applicable (See 6.5).
- d. Applicable stock number.
- e. Provisions for first article testing.

6.3 Inspection equipment design.

6.3.1 Submission of designs for approval. Contractor designs for final acceptance inspection must be approved by the Government prior to fabrication or procuring the equipment. The contractor is referred to MIL-HDBK-204 for guidance. Submission of design concept on inspection equipment is permissible for tentative approval. The completion date for design review will be based on the date of the final submission of designs and the required delivery schedule as stipulated in the contract. Submit designs as required to: Commander, U.S. Army Armament Research, Development and Engineering Center, ATTN: RDAR-QEW-A, Picatinny Arsenal, NJ 07806-5000. This address will be specified on the Contract Data Requirements List DD Form 1433 in the contract. When the contractor submits inspection equipment designs to the Government for approval, he must give the following information in his letter of transmittal:

- a. The contract number.
- b. The contract item (name, model number, etc).
- c. The designs remaining to be submitted and the expected date of submittal.

6.4 Drawings. Drawings listed in Section 2 of this specification under the heading U.S. Army Armament, Research Development and Engineering Center (ARDEC) Drawings may also include drawings prepared by, and identified as Edgewood Arsenal, Frankford Arsenal, Rock Island Arsenal, or Picatinny Arsenal drawings. Technical data originally prepared by these activities is now under the cognizance of ARDEC.

6.5 Packaging data sheet drawings. The following packaging data sheet drawings should be obtained from U.S. Army ARDEC, ATTN: RDAR-EIL-P B455, Picatinny, NJ 07806-5000.

SPI 13005089 - Special Packaging Instruction for Mount, Telescope, and Quadrant: M172A1

6.6 Thermal shock. Caution should be exercised during environmental testing to avoid subjecting the mount to thermal shock. A rate of change of 5°F per minute has been

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shown not to thermally shock the units; however a different rate of temperature change may be used at the tester's discretion.

6.7 Subject term (key word) listing.

Howitzer
M777
M198
Towed Artillery

6.8 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

Custodian:
Army-AR
Navy-OS
Air Force-84

Preparing activity:
Army-AR
(1240-2012-002)

Review activities:
Army-AV, MI
Navy-MC
Air Force-99
DLA-CC

Civil agency:
GSA-FAS

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil>.