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MILITARY SPECIFICATION

MICROPHONE, CARBON, HAND-HELD

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 hand-held carbon microphones for use in Military equipment.

2. APPLICABLE DOCUMENTS

2.1 The following specifications and standards, of the issue in effect on the date of invitation for bids, form a part of this specification.

SPECIFICATIONS

FEDERAL

QQ-C-533 —Copper-Beryllium Alloy Strip.
QQ-P-330 —Phosphor Bronze Bars, Plates, Rods, Sheets, Strips, Flat Wire, and Structural and Special Shaped Sections.
QQ-P-416 —Plating, Cadmium (Electrodeposited).
QQ-Z-325 —Zinc Plating (Electrodeposited).

MILITARY

MIL-M-14 —Molding Plastics and Molded Plastic Parts, Thermosetting.
MIL-P-642 —Plugs, Telephone.
JAN-A-669 —Anti-Seize Compound, White-Lead-Base, General Purpose (For Threaded Fittings).
MIL-E-5557 —Enamel, Heat-Resisting, Glyceryl-Phthalate, Black.
MIL-C-6166 —Cord, Headset-Microphone, CX-1301/AR.
MIL-P-6889 —Primer; Zinc Chromate, for Aircraft Use.
MIL-L-7178 —Lacquer; Cellulose Nitrate, Gloss, for Aircraft Use.
MIL-P-17652 —Preparation for delivery of Electronic, Electrical, and Electronic-Mechanical Parts.

STANDARDS

MILITARY

MIL-STD-105—Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-202—Test Methods for Electronic and Electric Component Parts.

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

3. REQUIREMENTS

3.1 Material. Materials which are not specified herein shall be of the best quality and entirely suitable for the purpose intended.

3.1.1 *Molded plastic-material.* All molded plastic parts shall be in accordance with Specification MIL–M–14. Type CFG shall be used where electrical properties are predominant. Type CFI–10, or equal, shall be used where mechanical properties are predominant.

3.1.2 *Carbon granules.* Carbon granules shall be of a quality, size and shape suitable in every respect for this particular application. The carbon granules shall be retained positively in the microphone unit in such a manner that it is impossible for them to leak from the carbon cavity during service use or under any of the conditions specified herein. All surfaces of the carbon chamber which are in contact with the carbon granules shall be suitably plated with gold. The plated surface shall be free from porosity and thoroughly cleaned before assembly.

3.1.3 *Contacts.* All metal parts of the microphone unit which make electrical contact with the switch in the handgrip shall be made of coin silver, or shall be flash plated with nickel and then gold plated. Contact shall be effected by spring pressure. All electrical contacts of the switch mechanism shall be coin silver.

3.1.4 *Metal switch parts.* Metal switch parts, except contacts, shall be phosphor bronze in accordance with Specification QQ–P–330, or suitably tempered beryllium copper in accordance with Specification QQ–C–533.

3.1.5 *Cementing compound.* Any cementing compound used in the construction of the microphone shall be of such a character and quality that it will withstand all service and test conditions specified herein without evidence of loosening or otherwise affecting the performance requirements of the microphone.

3.1.6 *Soldering flux.* Only resin, or resin and alcohol, may be used as a flux in the assembly of the microphone, or any part thereof, except that an acid flux may be used on all metal, non-electrical sub-assemblies, provided that they are thoroughly and completely cleaned of all traces of the acid immediately after the soldering operation has been completed.

3.2 Design requirements.

3.2.1 *Weight and dimensions.* The total weight of the complete microphone including baffle cap, holder and retractile cord with connector shall be not greater than 10.5 ounces. The form and dimensions of the microphone shall be as shown on figure 1.

3.2.2 *Case and baffle.* The case shall be of one piece molded plastic-material construction, and shall include the collar which receives the mouthpiece. The baffle cap shall be removable and shall be constructed of non-metallic material.

3.2.3 *Cord, retractile.* The cord shall be three conductors in accordance with Specification MIL–C–6166 except as follows:

3.2.3.1 *Cord anchorage.* The cord shall be anchored at the microphone and connector to withstand a 20 pound tension test with wires not connected.

3.2.3.2 The dimensions of the cord shall be as shown on figure 3.

3.2.4 *Connector.* One end of the cord shall be equipped with a plug in accordance with type PJ–068 of Specification MIL–P–642.

3.2.5 *Switch.* The switch shall be contained in the handgrip and shall be of the plunger type with an axial movement of approximately 1/8 inch. It shall be designed for operation by a heavily gloved hand. The pressure required to fully depress the switch shall not exceed 4 pounds and not less than 1.5 pounds shall be required to hold the contact closed. All contacts in the switch mechanism shall "make" without chattering in any position of the microphone.

3.2.5.1 *Switch action.* The switch action shall be of the momentary contact type which shall close the carbon granule circuit and an external relay circuit to ground while the button is held firmly depressed. The switch shall have a pronounced detent action and the making of contacts shall not occur before the detent action. Closing the switch contacts for relay and microphone operation shall occur approximately simultaneously. The contacts and springs shall withstand a minimum of 100,000 operations when connected to a standard Navy transmitter or transmitter satisfactory to the bureau or agency concerned.

3.2.5.2 *Button switch shaft.* The button switch shaft shall be provided with an external

oil impregnated felt seal which shall act as a lubricating bearing for the shaft and shall prevent the entrance of dust, dirt and moisture.

3.2.6 *Holder.* The microphone holder shall conform to the limiting dimensions shown on figure 2 and shall be suitable for permanent installation. It shall be designed so that the microphone may be quickly and easily deposited or removed by one hand. It shall hold the microphone securely regardless of position. Its weight shall not exceed 1.5 ounces.

3.3 Performance requirements.

3.3.1 *Resistance.* The direct current resistance of the microphone shall be within 100 ohms ± 20 percent before the vibration test. After the vibration test, it shall be within 100 ohms plus 30 percent or minus 20 percent.

3.3.2 *Frequency response.* The frequency response of the microphone with the face in a vertical position shall be not less than 42 decibels between 300 and 4000 cycles per second, inclusive, when a sound pressure level of 115 db re 0.0002 dyne per sq. cm. is established at the face of the microphone. The response in this range shall be within plus or minus 4 db of the response at 1000 c.p.s. and the difference between any two successive readings 100 c.p.s. apart up to 1000 c.p.s and 250 c.p.s. apart above 1000 c.p.s. shall not exceed 2.5 db. Below 300 and above 4000 c.p.s. the response shall fall off at a rate of not less than 3 db per octave.

3.3.3 *Positional response.* The frequency response of the microphone, when measured with the microphone mounted at angles of plus 90, plus 45, minus 45, and minus 90 degrees, shall be not less than 40 db between 300 and 4000 c.p.s., inclusive, when a sound pressure level of 115 db re 0.0002 dyne per sq. cm. is established at the face of the microphone. In each position, the response throughout the frequency range shall be within plus or minus 5 db of the response at 1000 c.p.s. and the difference between any two successive readings shall not exceed 3 db.

3.3.4 *Temperature cycling.* The response of the microphone shall not vary more than 4 db from its initial response at any frequency between 300 and 4000 c.p.s. after the microphone has been subjected to five temperature cycles ranging between minus 55° and plus 75° Centigrade (C.) (minus 67° and plus 167° Fahrenheit (F.)).

3.3.5 *Altitude.*

3.3.5.1 *Pressure cycling.* The response of the microphone shall not vary more than 4 db from its initial response at any frequency between 300 and 4000 c.p.s. after the microphone has been subjected to five pressure cycles ranging between 3.4 and 30.0 inches of mercury.

3.3.5.2 *Pressure equalization.* The response of the microphone at 1000 c.p.s. shall not decrease by more than 5 db while the microphone is subjected to a pressure increase corresponding to a descent of 5000 feet per minute from an altitude of 15,000 feet (16.6 inches of mercury) to sea level (30.0 inches of mercury).

3.3.6 *Humidity.* The response of the microphone shall not vary by more than 4 db from its initial response at any frequency between 300 and 4000 c.p.s. immediately following four 24 hour humidity cycles ranging from 50°C. to minus 10°C.

3.3.7 *Impact.* The microphone shall show no structural failure or defects and the final response shall not show a change greater than 4 db from its initial response when subjected to the test specified in 4.4.10.

3.3.8 *Vibrations.* The microphone shall show no structural failure or defects, and its response shall be within 4 db of its initial response at any frequency between 300 and 4000 c.p.s. after being subjected to the vibration test of 4.4.9.

3.3.9 *Salt spray.* All metal parts shall be capable of passing a 100 hour salt-spray test as specified in 4.4.12.

3.3.10 *Anti-packing.*

3.3.10.1 *Overload button current.* The microphone shall be capable of retaining its response within 4 db at 1000 c.p.s. after being subjected to a button current of 80 milliamperes (ma) continuously for 1 hour.

3.3.10.2 *Surges.* The microphone shall be capable of retaining its response within 4 db at 1000 c.p.s. after ten interruptions of the

current in the standard test circuit shown on figure 5, within a 50 microhenries (μh) inductance added in series, and a variable resistance for a microphone current of 50 ma.

3.3.10.3 *Extended operation.* The microphone shall be capable of transmitting intelligible speech after being subjected to a button current of 60 ma. continuously for 6 hours. The microphone shall be capable of retaining its response within +4 db at 1000 c.p.s.

3.4 Finish.

3.4.1 *Plastic material finish.* Plastic material shall be polished or shall have a satinized dull finish on all exterior surfaces to eliminate moisture absorption.

3.4.2 *Aluminum alloy parts.* Aluminum alloy parts shall be protected against corrosion. Parts that are exposed when the microphone is assembled, or when the microphone is removed from the handgrip shall be finished with one black coat or primer in accordance with Specification MIL–P–6889, and one coat of instrument black baking enamel in accordance with type IV of Specification MIL–E–5557.

3.4.3 *Other non-ferrous metals and alloys.* These shall be plated or otherwise suitably finished or closed to provide protection against corrosion and deterioration. This kind of plating or finish applied shall depend upon the characteristics of the individual part and its use in the microphone. The plating and finish used for each individual part shall be such as to provide good appearance, corrosion and deterioration resistance, and long life for that part. Various problems such as soldering, fitting, assembly, reaction with adjacent parts and the like, shall be considered in the selection of the plating or finish.

3.4.4 *Steel parts.* Steel parts shall be cadmium plated in accordance with Specification QQ–P–416, or zinc plated in accordance with Specification QQ–Z–325.

3.4.5 *Threads.*

3.4.5.1 *Metal-to-metal contacts.* Threads of metal-to-metal contact shall be coated with an anti-seize compound conforming to Specification JAN–A–669.

3.4.5.2 *Exposed threaded joints.* Exposed threaded joints between the microphone and mouthpiece shall be coated with a lacquer conforming with Specification MIL–L–7178 to prevent accidental loosening of these parts.

3.4.6 *Marking.* Each microphone shall be permanently and legibly marked as shown on figure 1.

3.5 Interchangeability. All parts shall be interchangeable with corresponding parts furnished by the same contractor. Mating of parts shall provide for proper and efficient functioning of the microphones without the necessity of selective fitting.

3.6 Wiring diagram. Each microphone shall be supplied with a printed card, tag or label pasted in the carton, showing a schematic wiring diagram of the microphone, cord and plug as shown on figure 4, with all the parts named for rapid and easy identification.

3.7 Workmanship. The microphone shall be manufactured, finished and assembled in a workmanlike manner, and in accordance with best commercial practices.

4. QUALITY ASSURANCE PROVISIONS

4.1 Acceptability tests. Five microphone units shall be forwarded to a laboratory designated by the bureau or agency concerned for the applicable tests specified herein and any additional tests considered necessary to determine conformance with this specification, and suitability for Military use. If the sample microphones do not conform to this specification, additional samples shall be submitted. Production shall not be started until the sample microphones have passed the acceptability tests.

Test	*Paragraph*
Visual and dimensional inspection	4.4.1
D.c. resistance	4.4.2
Frequency response	4.4.3
Anti-packing	4.4.8
Humidity	4.4.7
Impact	4.4.10
Altitude	4.4.6
Salt spray	4.4.12
Temperature cycling	4.4.5
Vibration	4.4.9
Positional response	4.4.4
Retractile cord	4.4.11

4.2 **Lot Acceptance.**

4.2.1 *Inspection tests.* Inspection tests shall be made by the contractor prior to submittal for lot acceptance by the inspector. Contractors not having laboratory facilities satisfactory to the inspector shall engage the services of a commercial testing laboratory acceptable to the inspector. Each microphone unit shall be subjected to the inspection and tests specified herein and any other tests specified herein which the inspector considers necessary to determine conformance with this specification.

4.2.2 *Sampling for lot acceptance.*

4.2.2.1 *Inspection lot.* All microphones presented at one time shall be considered a lot for purposes of acceptance inspection and tests.

4.2.2.2 *Sampling for group A tests.* A random sample of microphones shall be selected in accordance with table I from each inspection lot by the inspector and shall be subjected to each of the group A tests specified in 4.2.3.1 with lot acceptance based on the following sampling requirements in accordance with Standard MIL–STD–105.

TABLE I. *Sampling for group A tests*
AQL (approx.) = 1.5 percent defective.

Number of microphones in inspection lot	Number of microphones in sample	Number of equipments nonconforming on any Group A test	
		Acceptance number	Rejection number
15 and under	7	0	1
16 to 40	10	0	1
41 to 110	15	0	1
111 to 300	25	1	2
301 to 500	35	1	2
501 and over	50	2	3

4.2.2.3 *Sampling for group B tests.* A random sample of microphones shall be selected from each inspection lot by the inspector in accordance with table II and shall be subjected to each of the group B tests specified in 4.2.3.2.

4.2.2.4 *Sampling for group C tests.* A sample number of microphones shall be selected in accordance with table III by the inspector from the end of each month's production and shall be subjected to the group C tests specified in 4.2.3.3.

TABLE II. *Sampling for group B tests.*

Number of microphones in inspection lot	Number of microphones in sample	Number of equipments nonconforming on any group B tests	
		Acceptance number	Rejection number
15 and under	3	0	1
16 to 40	5	0	1
41 to 110	7	0	1
111 to 300	10	0	1
301 to 500	15	1	2
501 and over	25	2	3

TABLE III. *Sampling for group C tests.*

Number of microphones in 1 month's production	Number of microphones in sample
110 and under	1
111 to 500	2
501 and over	3

4.2.3 *Lot acceptance tests.*

4.2.3.1 *Group A tests.* Each of the sample microphones selected in accordance with 4.2.2.2 shall be subjected to each of the tests specified herein which shall be conducted or witnessed by the inspector and the results of each test compared with this specification. Failure to conform to this specification for any group A test shall be counted as a defect and the microphone shall be rejected. If the number of such nonconforming microphones in any sample exceeds the acceptance number for that sample the lot represented by the sample shall be rejected. Rejected lots may be offered again for inspection and tests provided all microphones in the lot have been retested by the contractor for the test(s) causing rejection and all noncompliance corrected.

Group A tests	*Paragraph*
Visual and dimensional inspection	4.4.1
D.c. resistance	4.4.2
Frequency response	4.4.3

4.2.3.2 *Group B tests.* Each of the sample microphones selected in accordance with 4.2.2.3 shall be subjected to the positional response test specified in 4.4.4 which shall be conducted

or witnessed by the inspector and the results of the test compared with this specification. Failure to conform to this specification for the group B test shall be counted as a defect and the microphones shall be rejected. If the number of such nonconforming microphones in any sample exceeds the acceptance number for that sample, the lot represented by the sample shall be rejected. Rejected lots may be offered again for inspection and tests provided all microphones in the lot have been retested by the contractor for the test(s) causing rejection and all noncompliance corrected.

4.2.3.3 *Group C tests.* Each of the sample microphones selected in accordance with 4.2.2.4 shall be subjected to each of the tests specified herein, and the results of each test compared with this specification. In the event of any failure to conform to this specification for any group C test, the contractor shall correct the cause of failure on future production units and repair the deficiency in any microphones not yet shipped.

Group C tests	*Reference*
Humidity	4.4.7
Impact	4.4.10
Salt spray	4.4.12
Temperature cycling	4.4.5
Vibration	4.4.9
Altitude	4.4.6

4.3 Test conditions. All tests specified herein shall be made under the following ambient conditions, except as otherwise required in specific test requirements:

(a) Temperature: From plus 20° to plus 35° C. (68° to 95° F.)

(b) Pressure: From 28 to 30 inches of mercury

(c) Humidity: From 15 to 90 percent relative

4.3.1 *Test circuit apparatus.* The test circuit apparatus shall be assembled and connected as shown on figures 5 and 6 and shall consist of the equipment described as follows:

4.3.2 *Audio oscillator.* The audio oscillator shall have a waveform distortion not greater than 2 percent. It shall be used with a high quality amplifier, capable of driving a Western Electric 555 speaker, or equivalent, up to a level of about 120 db re 0.0002 dyne per sq. cm.

4.3.3 *Vacuum tube voltmeter.* The vacuum tube voltmeters (VTVM) used in the test circuit shall have a flat frequency response (plus or minus 1 db) from 100 to 10,000 c.p.s. and they shall be capable of measuring voltages from 0.001 to 10 volts root mean square (v.r.m.s.).

4.3.4 *Sound source.* The sound source shall be a Western Electric 555 speaker, or equivalent. The distortion in the output of the sound source shall be such that the second harmonic is at least 35 db, the third at least 40 db, and the fourth at least 45 db below the fundamental.

4.3.5 *Baffle.* A wooden ring shall be mounted on the front of the sound source, as shown on figure 6, in a plane parallel with the face of the microphone.

4.3.6 *Coupler.* A brass coupler, of the dimensions shown on figure 7 shall be mounted concentrically on the sound source as shown on figure 6.

4.3.7 *Microphone baffle and dummy case.* A standard baffle as shown on figure 8 shall be used for holding the microphone under test. In addition, a dummy microphone case of shape similar to that of the microphone under test, shall be constructed as shown on figure 9 for use in calibrating the sound source.

4.3.8 *Base.* The test equipment shall be mounted on a rigid base of suitable design with provision for rocking the microphone unit through 270 degrees. Provision shall be made for rotating the stand through 360 degrees in a vertical plane perpendicular to the face of the microphone.

4.3.9 *Test procedure.* The microphone baffle shown on figure 8 shall be set up in front of the sound source. The condenser microphone shall be mounted in the baffle by means of a dummy case (see 4.3.7). A ¼ inch air gap shall separate the coupler and the microphone grid. The microphone axis shall coincide with the center line of the mouth of the sound source. After having determined the electrical input to the sound source required to yield a constant sound pressure level of 115 db re 0.0002 dyne per sq. cm. the condenser microphone and the dummy case shall be removed and the carbon microphone mounted in its test fixture as shown on

figure 6. The geometric center line of the grid shall coincide with the center line of the mouth of the sound source. The microphone shall be shaken vigorously before being mounted. Then, with the face of the microphone in a vertical plane, the microphone and test fixture shall be rotated about the microphone axis twice through a cycle consisting of a rotation of 270 degrees and back to the original positions. Each cycle shall be accomplished in approximately 2 seconds. The entire stand shall then be rotated to the position in which the microphone is to be tested. The short circuit current shall be set to 60 ma., the short circuit switch opened and 3 seconds allowed for current stabilization. An agitating tone shall then be applied to the microphone by sweeping the oscillator through the 1000 to 3000 c.p.s. frequency range three times, at a rate of approximately one complete sweep (1000-3000-1000 c.p.s.) in 2 seconds. The sound source input shall be controlled in such a manner that the sound pressure applied to the microphone during the application of the sweep band is not less than 120 db at any frequency. At the conclusion of the third sweep cycle, the audio oscillator shall be shut off without destroying the previous conditioning, that is, there shall be no loud clicks. After 1 or 2 seconds delay, the test tone shall be turned on and the response of the microphone measured in accordance with 4.4.3. The total time for taking the response data shall not exceed 3 minutes.

4.4 Test methods. Tests required by this specification shall be conducted in accordance with the following procedures:

4.4.1 *Visual and dimensional inspection.* Each sample selected in accordance with 4.2.3.1 shall be examined externally to determine conformance with this specification with respect to material, workmanship, design, weight and dimensions.

4.4.2 *D.c. resistance.* The d.c. resistance of the microphone unit shall be measured with the rated button current applied, before the frequency response test of 4.4.3 and after the vibration test of 4.4.9. The resistance shall be calculated from the voltage across the microphone and the button current, with a sound pressure level of 115 db at 1000 c.p.s. established at the face of the microphone. The voltage and current readings shall be taken 10 seconds after the application of the signal.

4.4.3 *Frequency response.* Response measurements shall be made between 200 and 5000 c.p.s. at intervals of 100 c.p.s. up to 1000 c.p.s. and at intervals of 250 c.p.s. above 1000 c.p.s. The output voltage of the microphone unit, measured across the 100 ohm resistor, R2 shown on figure 5, shall be plotted in decibels re 1 millivolt versus frequency.

4.4.4 *Positional response.* Response data shall be taken in each of the positions specified herein using the test setup described in 4.4.3. The specified angles of plus 90, plus 45, minus 45, minus 90 degrees shall be measured in a vertical plane between the sound source-microphone axis and the horizontal. Positive angles mean microphone face up; negative angles mean microphone face down.

4.4.5 *Temperature cycling.* The microphone shall be tested in accordance with the temperature cycling method 102, condition A of Standard MIL–STD–202. After being subjected to five temperature cycles, the microphone shall be kept at room temperature for 1 hour prior to testing for frequency response (see 4.4.3), to determine conformance with 3.3.4.

4.4.6 *Altitude.*

4.4.6.1 *Pressure cycling.* The pressure cycling shall consist of 30 minutes at 3.4 inches of mercury and 30.0 inches of mercury. The pressure transition between stable conditions shall be at a rate of approximately 0.5 inch of mercury per second.

4.4.6.2 *Pressure equalization.* The change in microphone response at 1000 c.p.s. shall be observed during the simulated descent with the microphone response test apparatus in the altitude chamber.

4.4.7 *Humidity.* The microphone shall be tested in accordance with the moisture resistance cycle method 106, of Standard MIL–STD–202. Upon removal from the humidity chamber, the frequency response of the microphone shall be determined in accordance with 4.4.3 to determine conformance with 3.3.6. The

excess condensation may be shaken from the unit prior to testing.

4.4.8 *Anti-packing.*

4.4.8.1 *Electrical.*

4.4.8.1.1 *Overload button current.* The overload button current of 80 ma. shall be applied for 1 hour while the microphone is installed in the standard test circuit. The frequency response test shall be run immediately after completion of the test without further conditioning.

4.4.8.1.2 *Surges.* The microphone shall be installed in the standard test circuit under the conditions specified in 3.3.10.2. Immediately after the push-to-talk switch has been operated the required ten times, the frequency response test of 4.4.3 shall be run without further conditioning.

4.4.8.2 *Extended operation.* The microphone shall be subjected to a button current of 60 ma. continuously for 6 hours before being tested.

4.4.9 *Vibration.* The microphone shall be placed in a vertical position on a standard vibration machine giving motion of 0.03 inch amplitude (0.06 inch total excursion) in three planes simultaneously: vertical, horizontal, and 45 degrees to the horizontal, with a frequency varying from 10 to 50 to 10 c.p.s. approximately every 3 minutes. The microphone shall be connected to the standard test circuit shown on figure 5 with the actual carbon current set at 50 ma. The current shall be turned on for 2 minutes and off for 2 minutes throughout the test period of 2 hours. At the end of this test, the frequency response of this microphone shall be measured to determine conformance with 3.3.8.

4.4.10 *Impact.* The test for frequency response shall be made to determine conformance with 3.3.7 after the microphone has been dropped twelve times from a height of 36 inches to a hard surface such as a concrete floor.

4.4.11 *Retractile cord test methods.* The cord shall be tested in accordance with Specification MIL–C–6166 to determine conformance with 3.2.3.

4.4.12 *Salt spray test.* All metal parts shall be tested in accordance with method 101, test condition A of Standard MIL–STD–202.

5. PREPARATION FOR DELIVERY

5.1 Preservation, packaging, packing and marking. Microphones shall be prepared by level A or C preservation and packaging and level A, B, or C packing as specified in the contract or order, in accordance with Specification MIL–P–17652. Microphones shall be preserved by method IA for level A. Marking shall be as specified in Specification MIL–P–17652.

6. NOTES

6.1 Ordering data. Procurement documents should specify the following:

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

(b) Whether preservation and packaging shall be level A or C, and whether packing shall be level A, B, or C (see 5.1).

Custodians:

Army—Signal Corps
Navy—Bureau of Ships
Air Force

Other interest:

Navy—AMC

Preparing activity:

Navy—Bureau of Ships

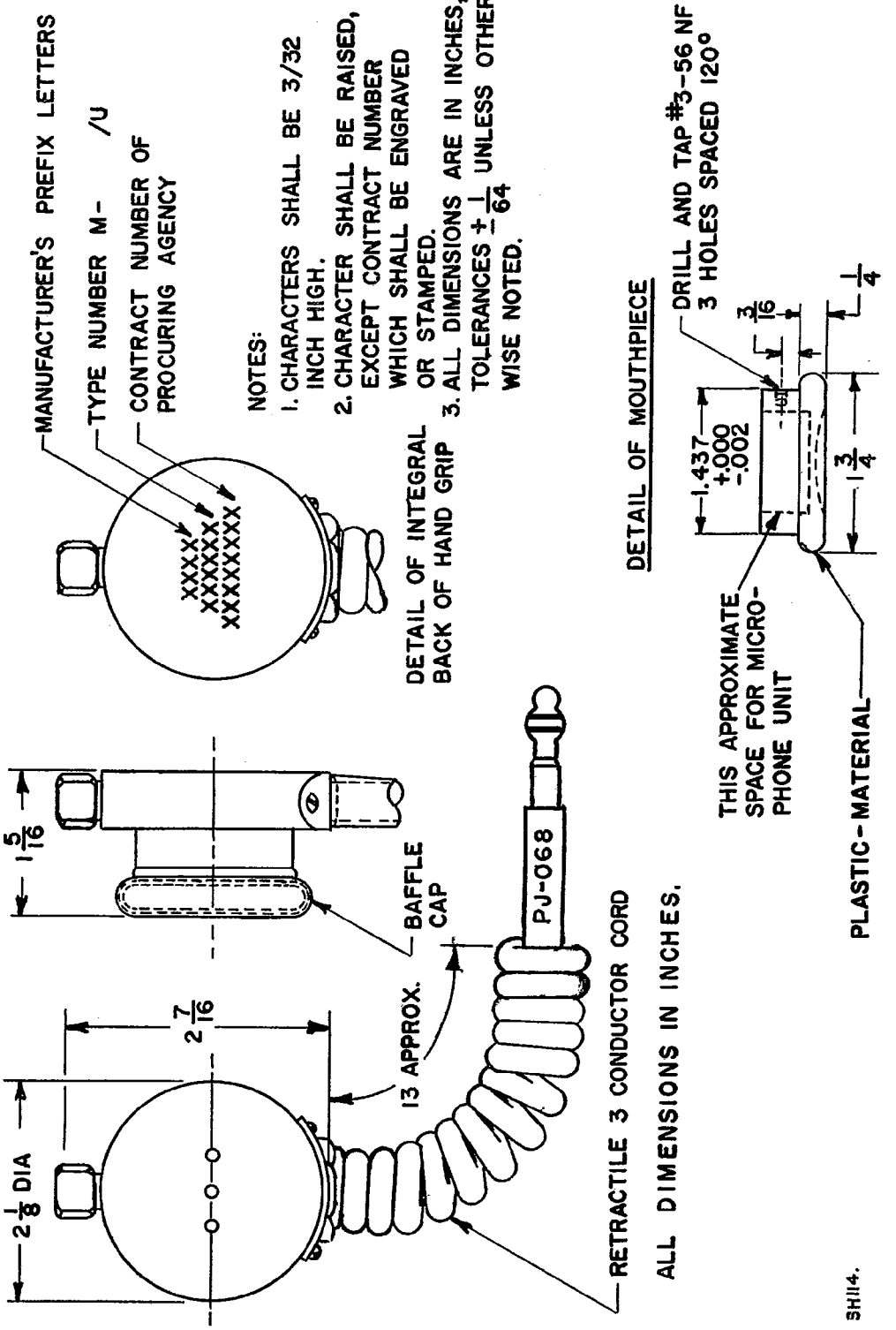
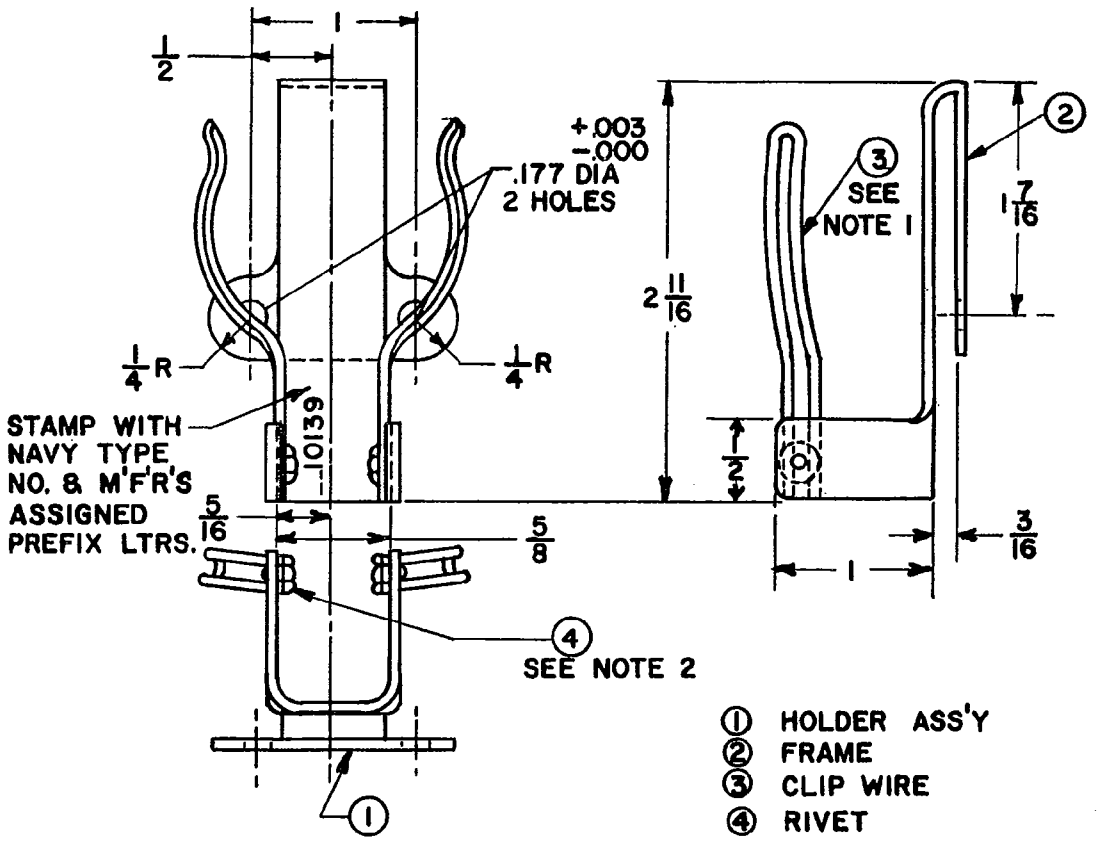


FIGURE 1. *Hand-held microphone.*

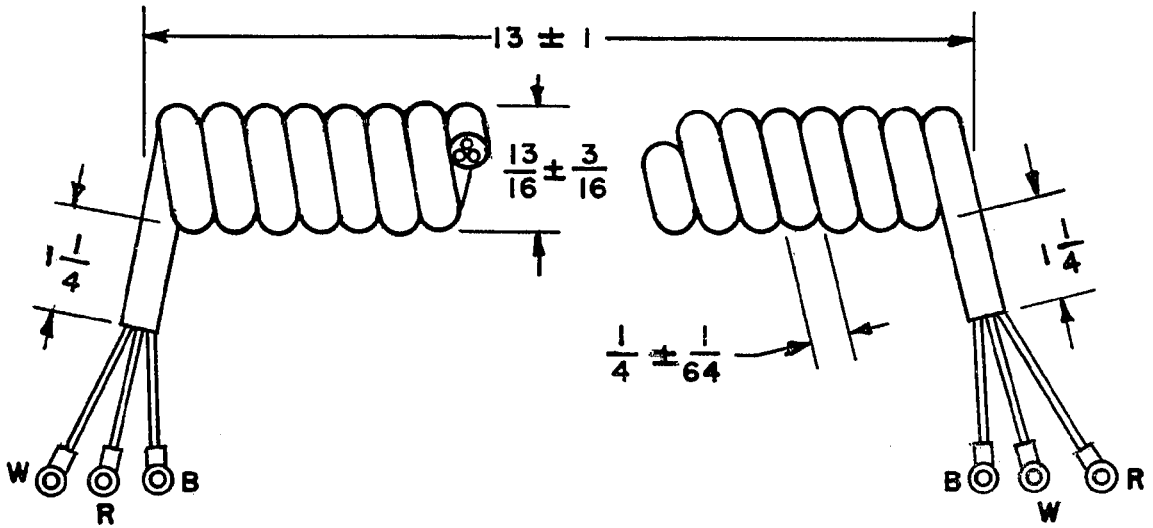


NOTES:

1. SHAPE OF 3 SHALL BE AS PICTURED.
2. SHAPE OF 4 OPTIONAL, BUT SHALL BE SUITABLE FOR PURPOSE INTENDED.
3. TOLERANCES: FRACTIONAL $\pm \frac{1}{64}$, DECIMAL ±.005 UNLESS OTHERWISE INDICATED.

SH115

FIGURE 2. *Microphone holder.*



CONDUCTOR LENGTHS: PLUG END

W (WHITE): TIP TERMINAL; 1 INCH

R (RED): RING TERMINAL; 11/16 INCH

B (BLACK): SLEEVE TERMINAL; 11/32 INCH

TOLERANCE: +1/16 −0

TERMINALS: #2 HOLE, 3/8 LONG

CONDUCTOR LENGTHS: MICROPHONE END

R (RED): RING TERMINAL; 2 9/16 INCHES

W (WHITE): TIP TERMINAL; 15/16 INCH

B (BLACK): SLEEVE TERMINAL; 15/16 INCH

TOLERANCE: +1/4 −0

TERMINALS: #2 HOLE, 1/2 LONG

ALL DIMENSIONS ARE IN INCHES.

NOTE 1. CONDUCTOR LENGTHS ARE MEASURED FROM JACKET EDGE TO TERMINAL EYE CENTER.

SH116A

FIGURE 3. *Dimensions of retractile cord.*

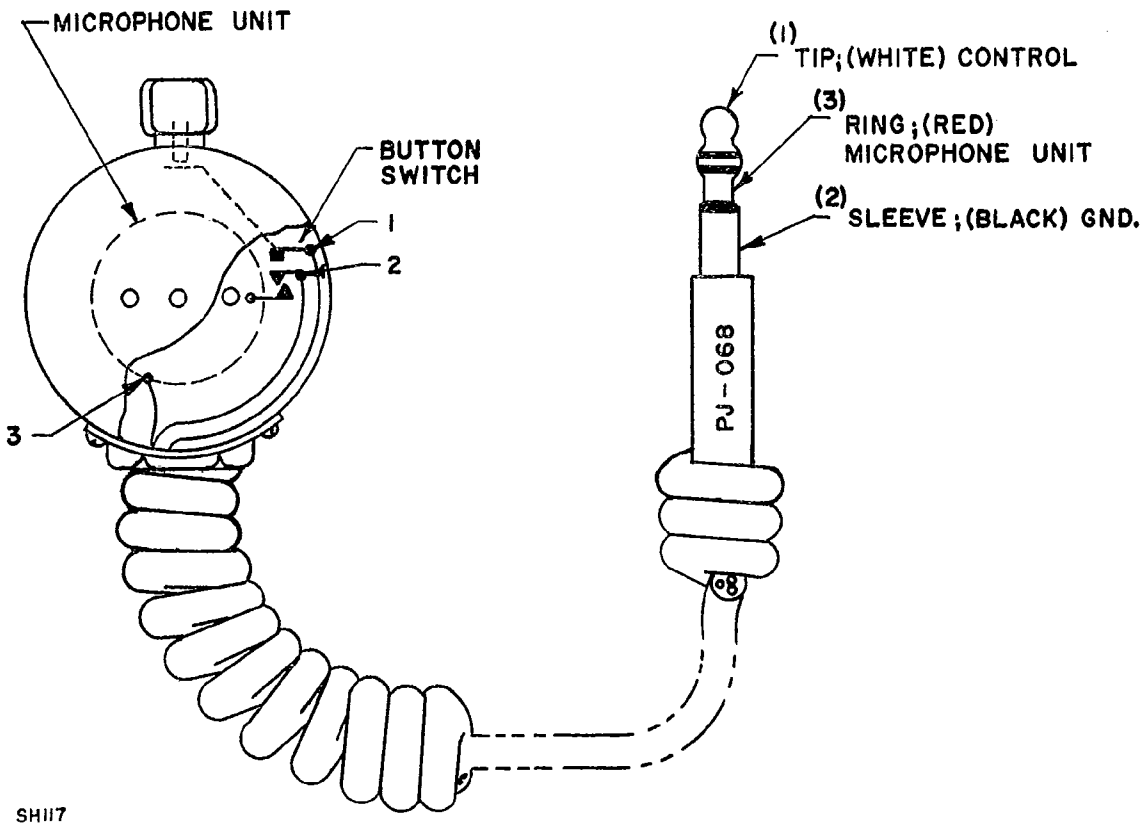


FIGURE 4. *Microphone wiring circuit*

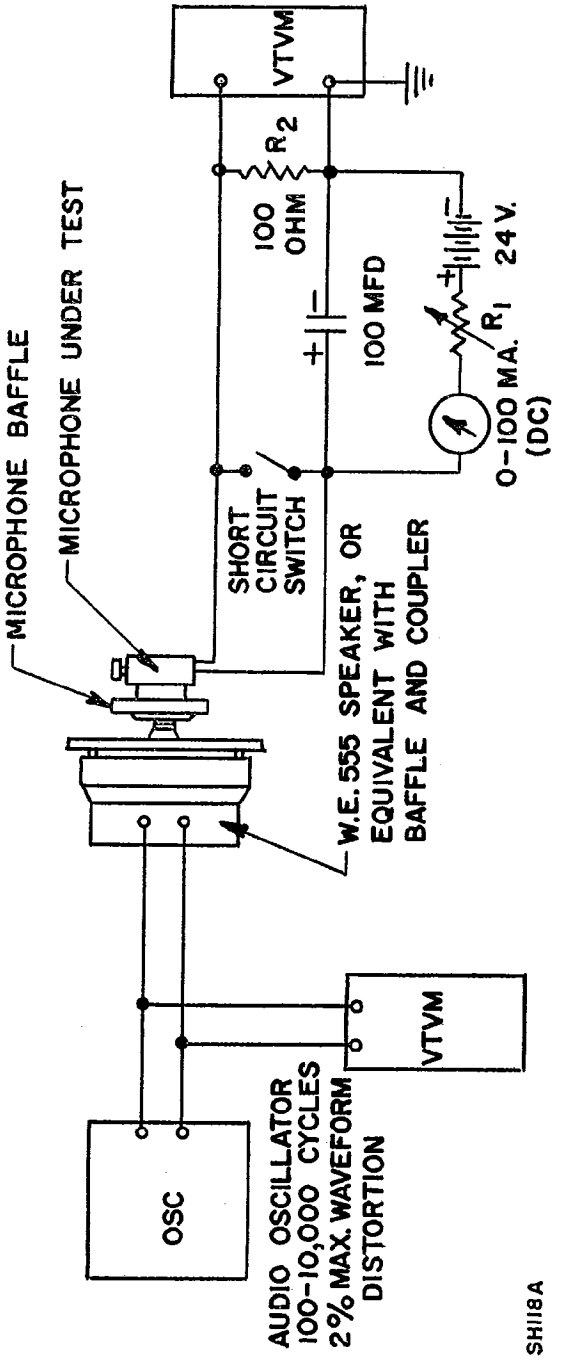
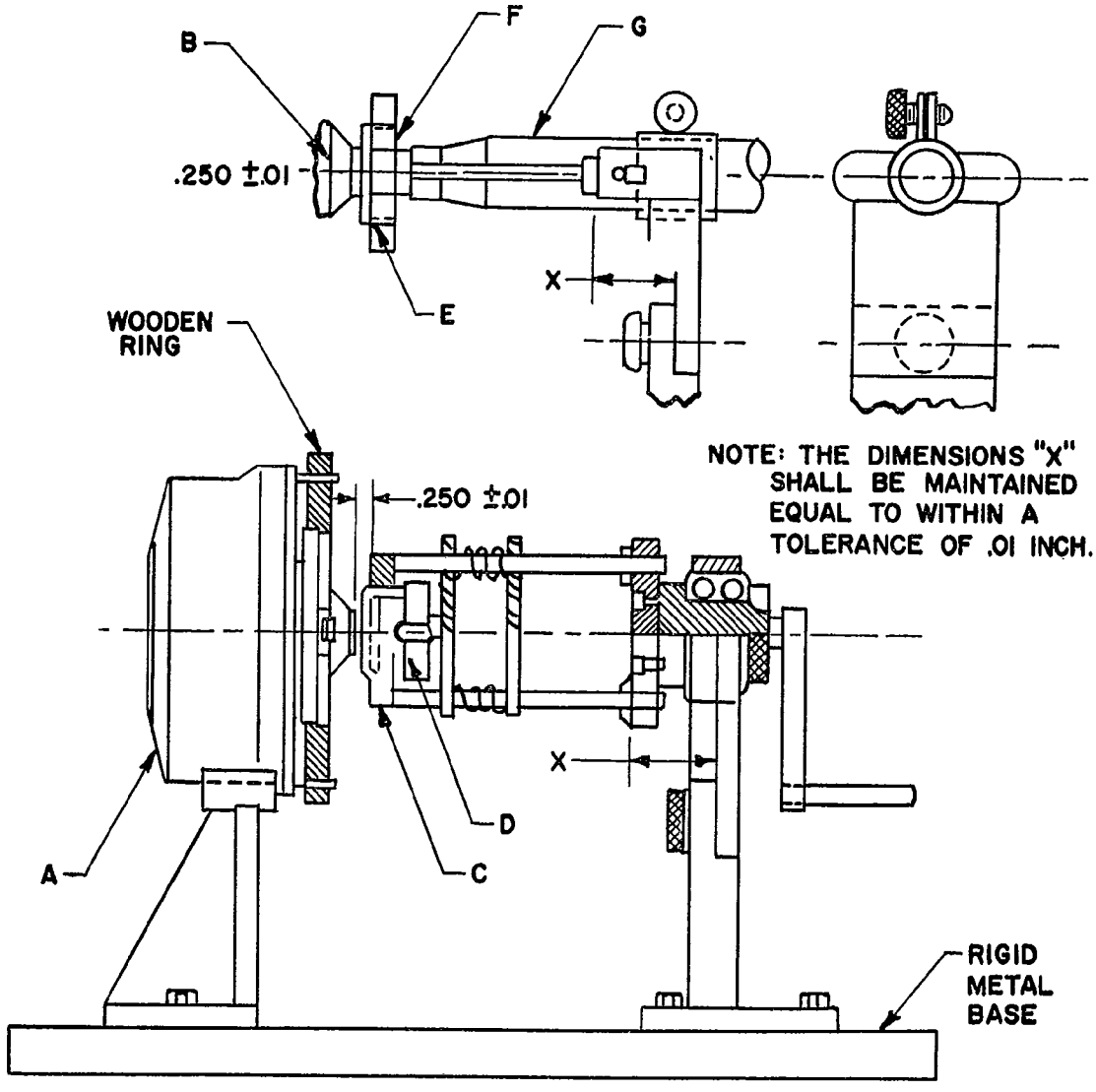


FIGURE 5. *Standard test circuit.*



A. W.E. 555 SPEAKER DRIVER, OR EQUIVALENT
B. MICROPHONE CALIBRATING COUPLER (FIG. 7)
C. MICROPHONE BAFFLE (FIG. 8)
D. MICROPHONE UNDER TEST
E. DUMMY MICROPHONE CASE FOR CALIBRATION (FIG. 9)
F. W.E. 640-A CONDENSER MICROPHONE WITH GRID, OR EQUIVALENT.
G. PRE-AMPLIFIER

SH119

FIGURE 6. *Test base assembly.*

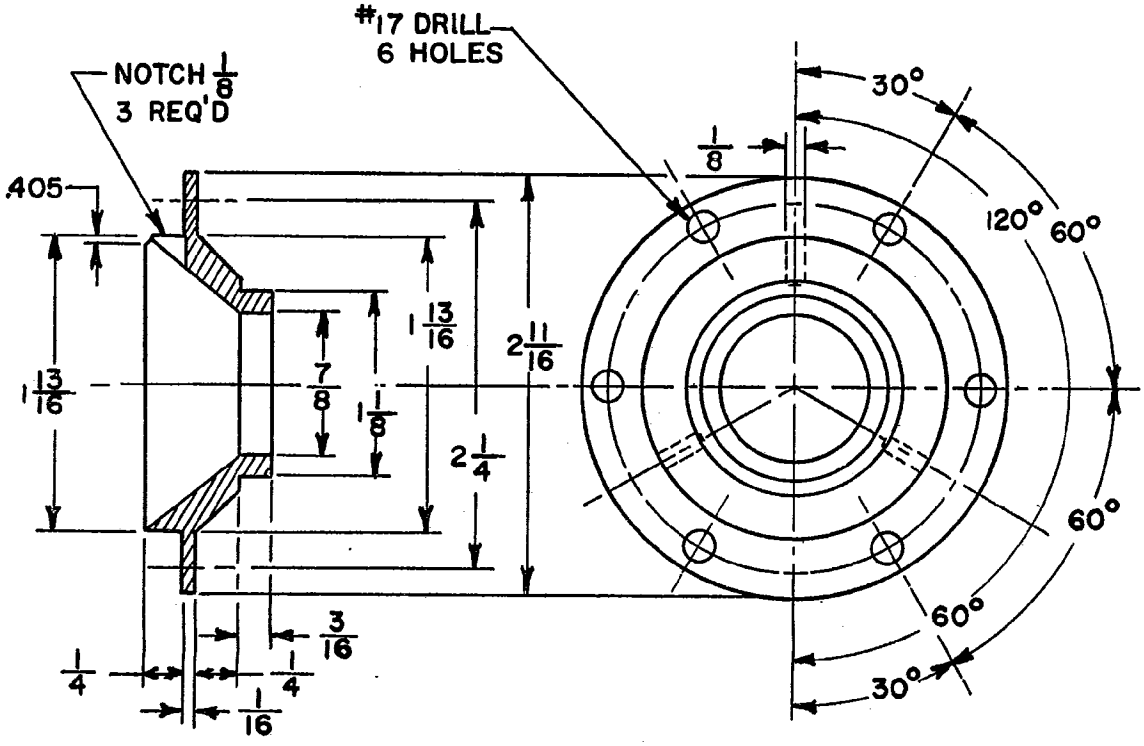


FIGURE 7. *Brass coupler.*

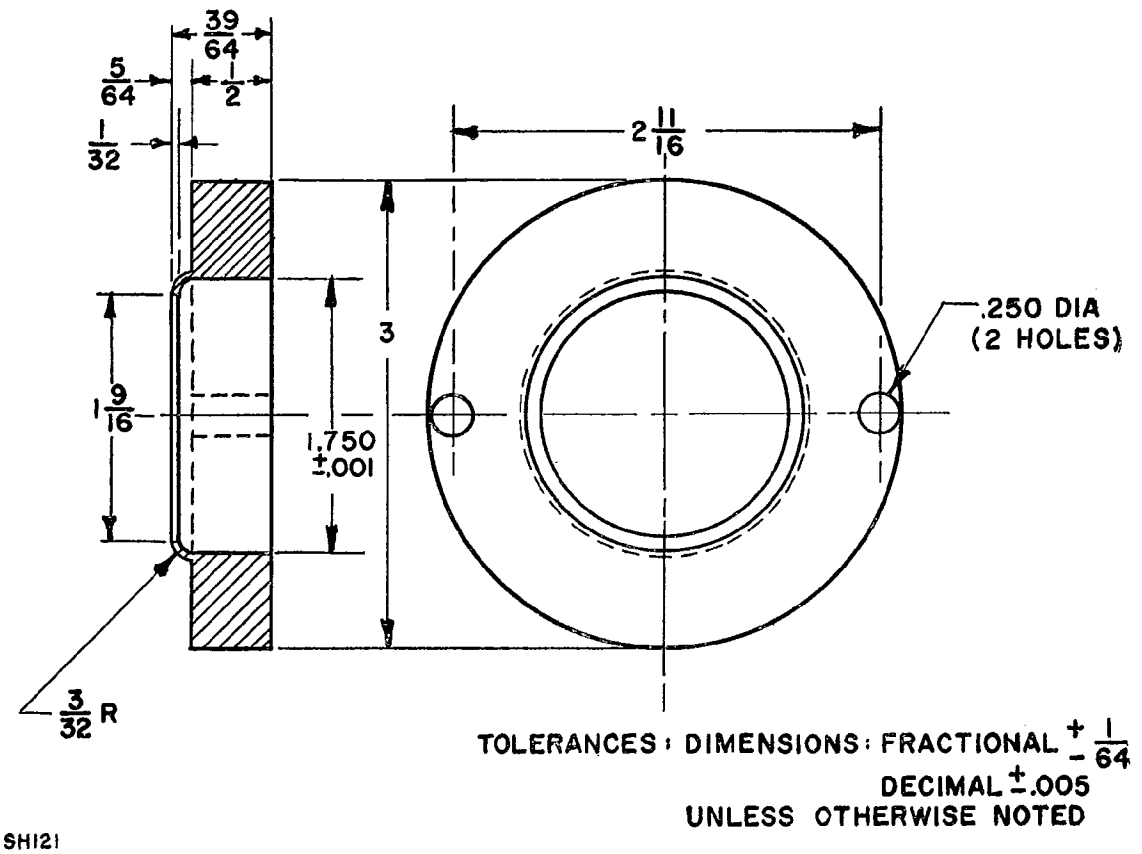
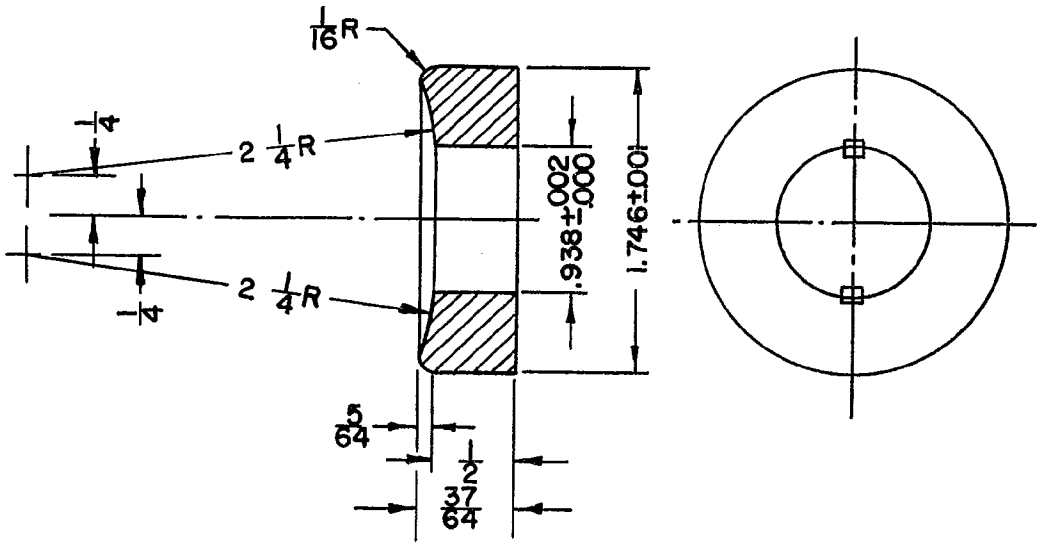
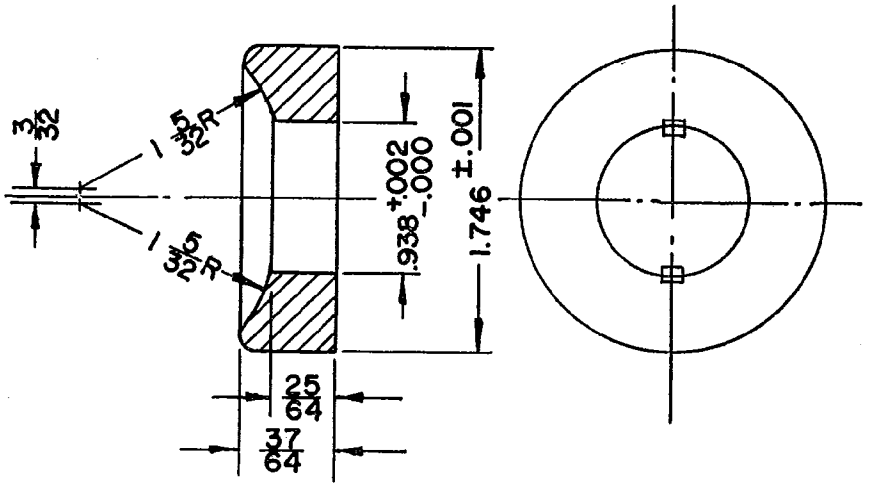


FIGURE 8. *Microphone baffle.*



CTE DUMMY MICROPHONE CASE



CVA DUMMY MICROPHONE CASE

MATERIAL: BAKELITE

SH122

FIGURE 9. *Dummy microphone cases.*