ESSENTIAL

TM 11-2501

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

TEST SETS I-209-A AND I-209-B

DEPARTMENT OF THE ARMY • DECEMBER 1950

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TM 11–2501

This manual supersedes TM 11–2501, 6 October 1943

TEST SETS
I-209-A AND I-209-B

DEPARTMENT OF THE ARMY • DECEMBER 1950

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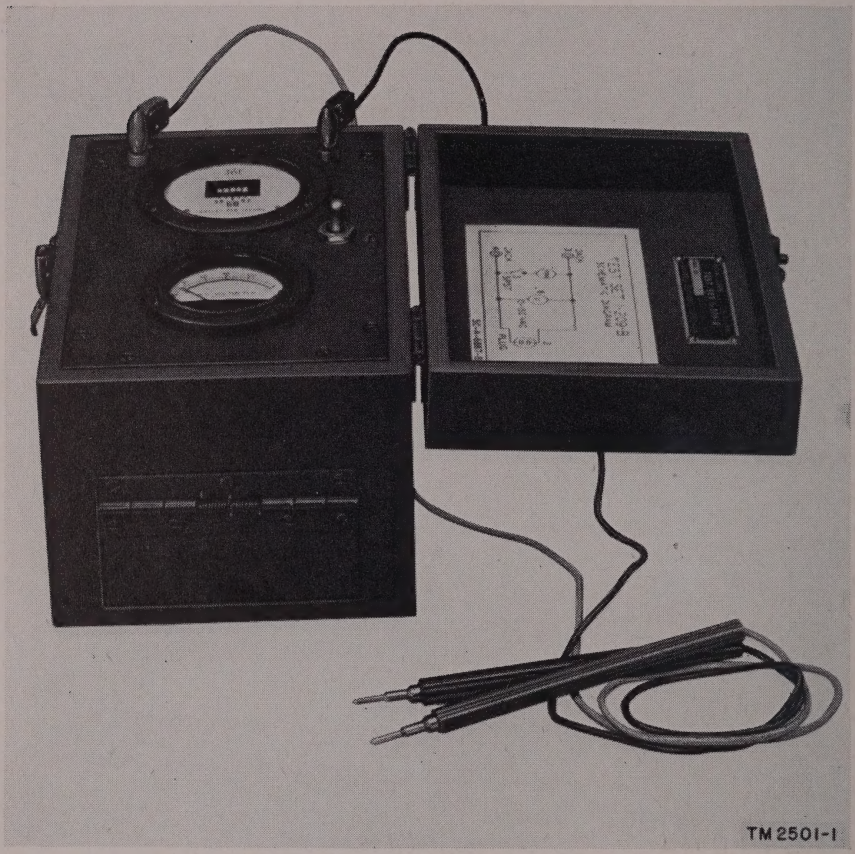


Figure 1. Test Set I–209–B.

This manual supersedes TM 11–2501, 6 October 1943

CHAPTER 1
INTRODUCTION

Section I. GENERAL

1. Scope

a. These instructions are published for the information of the personnel to whom the equipment is issued. They contain information on the operation, organizational maintenance, and field maintenance of the equipment as well as a discussion of theory of operation. They apply only to Test Sets I–209–A and I–209–B.

b. Appendix I contains a list of current references, including supply catalogs, technical manuals, and other available publications applicable to the equipment. Appendix II contains an identification table of parts.

2. Forms and Records

The following standard forms will be used for reporting unsatisfactory conditions of equipment, or improper preservation, packaging, packing, marking, loading, stowage, or handling thereof:

a. DD Form 6, Report of Damaged or Improper Shipment (Reports Control Symbols CS GLD–66), will be filled out and forwarded as prescribed in SR 745–45–5.

b. DA AGO Form 468, Unsatisfactory Equipment Report (Reports Control Symbol CS GLD–247), will be filled out and forwarded to the Office of the Chief Signal Officer as prescribed in SR 700–45–5.

c. Use other forms and records as authorized.

Section II. DESCRIPTION AND DATA

3. General Description

(fig 1)

Note. Basic nomenclature followed by (*) is used to indicate all models of the equipment covered in this manual. Thus, Test Set I–209–(*) represents Test Sets I–209–A and I–209–B.

Test Set I–209–(*) is portable test equipment. The equipment is used to test the voltage and frequency at any one of the power distribution outlets JB–104 and JB–105 of Cord Assembly RC–243 in Radio Direction Finder Central TC–8 (TM 11–248) and of Cord Assembly RC–244 in Radio Intercept Central TC–9 (TM 11–249), at the power supply line of Radiosonde Receptor AN/FMQ–1 or –1A (TM 11–2403), or at any other system whose voltage and frequency measure about 110 volts ac (alternating current), 60 cps (cycles per second).

4. Table of Components

Name of component	Quantity	Dimensions (in.)			Weight (lb)
		Height	Width	Length	
Test Set	1	5¾	6¼	8 15/16	4½
Test Lead Set CX–1331/U	1	------	------	52	------
Adapter connector	1	------	1½ dia	3	.125

Note. This list is for general information only. See appropriate publications for information pertaining to requisition of spare parts.

5. Component Parts

a. The test set is a self-contained equipment mounted in a wooden case provided with a hinged wooden cover and with a compartment in one of its sides. This compartment is closed by a spring-hinged cover. Mounted on a black bakelite front panel fastened inside the case (fig. 2) are the following:

(1) A-c voltmeter.
(2) Frequency meter.
(3) Toggle switch (*c* below).
(4) One red and one black pin jack (connectors).

b. A two-conductor, 4-foot long cord (fig. 2) terminating in a two-prong plug is connected permanently to the unit. When the cord is not in use, it is contained in the case compartment (fig. 5) with the test prods and leads (Test Lead Set CX–1331/U) and an adapter connector (fig. 2).

c. The only difference between Test Sets I–209–A and I–209–B is in the location of the toggle switch. On Test Set I–209–A the toggle switch is located on the left side of the panel. On Test Set I–209–B the toggle switch is located on the right side of the panel (fig. 2).

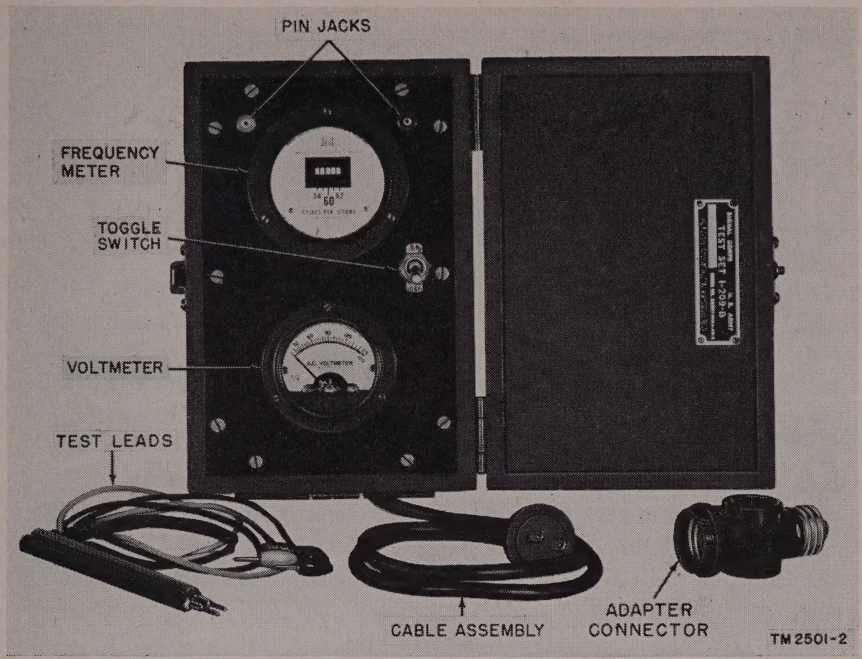


Figure 2. Test Set I–209–B, components.

6. Technical Characteristics

Voltage range	0 to 150 v ac.
Accuracy of voltmeter	± 2 percent full scale.
Frequency range	58 to 62 cps.
Accuracy of frequency meter	± .3 percent.

7. Packaging Data

(fig. 3)

Test Set I–209–(*) is packaged in one box. The test prods and adapter connector are packaged inside the case compartment (fig. 5). The test set is packaged in two corrugated paper cartons which are covered by a moisture-vaporproof barrier and a waterproof liner. Cushioning material and desiccant are packaged with the equipment. For export shipment, the equipment is packaged in a wooden shipping container 14 by 9 by 9 inches and weighs approximately 12 pounds.

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CHAPTER 2

OPERATING INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF EQUIPMENT

8. Unpacking New Equipment

(fig. 3)

a. Cut the steel straps with a suitable cutting device or twist them with pliers until the straps break.

b. Remove nails with a nail puller. *Prying may damage the equipment.*

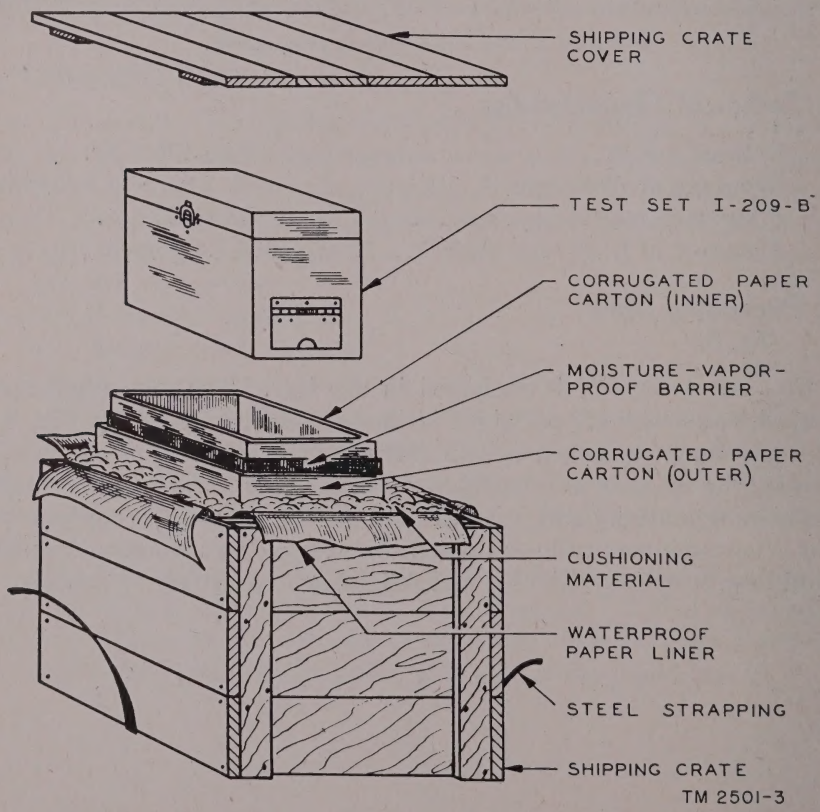


Figure 3. Test Set I–209–(*), packaging and packing diagram.

c. Carefully remove the top, sides, etc., of the shipping container.

d. Do not damage the packaging material any more than is absolutely necessary. Store the inside packaging materials in their respective shipping containers for re-use.

e. Remove all protective wrapping and pull out the carton containing the equipment.

f. Open the outer and inner cartons and barrier, and carefully lift Test Set I–209–(*) from the carton.

g. Inspect the unit thoroughly for possible damage. See that all parts are securely mounted. Check the zero-set adjustment of the voltmeter, tighten any loose screws, and examine glass face of meters to see that they are not broken.

h. Save all packaging material so that it may be re-used for reshipment or storage of the equipment.

Note. Repack the test set, when necessary, by reversing the packing instructions. Be sure to pack 2 pounds of desiccant inside the carton with the instrument.

9. Used or Reconditioned Equipment

Used or reconditioned equipment is packed in the same manner as new equipment. To unpack, follow the procedure outlined in paragraph 8. All information in this manual pertains equally to new or reconditioned equipment.

Section II. CONTROLS AND INSTRUMENTS

10. Controls and Meters

(fig. 2)

a. Frequency Meter (M1). Frequency meter (M1) is a vibrating reed type instrument calibrated from 58 to 62 cps. The frequency meter can be used on a-c systems having voltages from 100 to 150 volts. Higher voltages will damage the meter.

b. Voltmeter (M2). Voltmeter (M2) is a single scale, fixed range, dynamometer type instrument designed to measure any a-c voltage up to 150 volts. Higher voltages will damage the meter.

c. Toggle Switch (S1). Switch (S1) is a single-pole, single-throw, toggle type switch used to cut the frequency meter in and out of the circuit being checked. The switch prevents excessive wear on the frequency meter as the voltage is checked more often than the frequency.

11. Panel Connections

(fig. 2)

a. Pin Jacks. Two pin jacks, J1 (black) and J2 (red), are used to receive the test prods when the test prods are needed. The red

test lead is connected to the red pin jack and the black test lead is connected to the black pin jack.

b. Cable Assembly (W1). The cable assembly (W1) is used for testing when the test prods are not used.

Caution: Never have the test prods inserted in the pin jacks while the cable assembly is plugged in a circuit. The test leads and the cable assembly are each connected in parallel with the voltmeter and the frequency meter (fig. 4), and touching the test leads together when the cable assembly is connected to a circuit would result in a short-circuit.

Section III. OPERATION UNDER USUAL CONDITIONS

12. Preliminary Procedure

a. Place the set on a dry, level surface.

b. Release the latch and open the hinged cover.

c. Open the compartment in the case by lifting up the spring-hinged cover (fig. 5), remove the test leads and the adapter connector from the compartment and pull out the cord assembly.

13. Precautions During Use

a. Voltages measured by the test set may be dangerous to life, especially if the operator's hands are wet, or if the operator is standing on wet ground or is in contact with a pipe or a large metal object.

b. When handling test leads, or when in the vicinity of power lines or terminals, stand on dry ground, a board, or a mat.

c. When using the cable assembly, pull the test leads out of the pin jacks. When using the test leads, roll up the cable assembly and place it in the case compartment (fig. 5). *Never use the test prods and cable assembly at the same time* (*see caution in paragraph 11b*).

d. The test set may be damaged, a fuse may be blown, or the operator may get a severe electrical burn if the test prods are shorted while the cable is connected to an a-c supply. A short circuit may occur if, while the test leads are being used, the prongs of the plug on the cable assembly are allowed to touch the ground.

e. Do not use a-c voltages higher than 150 volts, a d-c (direct-current) supply, or any a-c supply with a nominal frequency other than 60 cps; otherwise the meters may be damaged.

14. Operation

a. Plug the cable assembly (fig. 2) into any a-c receptacle of the shelters of the TC–8 or the TC–9 (par. 3), or into any receptacle of a 110-volt ac, 60-cps power supply. The voltmeter will immediately read approximately 110 volts if the outlet is in operating condition.

If there is no power receptacle available to receive the cable assembly, use the test leads to check the power supply.

b. Now throw the toggle switch (fig. 2) to ON and the frequency meter reeds will vibrate. The actual frequency will be indicated by the reed which shows the longest white line (par. 20*b*). When not reading the frequency, throw the toggle switch to OFF.

c. To check the power supply of Radiosonde Receptor AN/FMQ–1 or –1A, remove the left heater lamp from its socket in the receptor. Screw the adapter connector (fig. 2) into this socket, and place the heater lamp in the adapter connector. Insert the cord assembly plug into the receptacle of the adapter connector. Check the voltage and frequency as described in *a* and *b* above.

15. Equipment Performance Checklist

a. General. The equipment performance checklist (*e* below) will help the operator to determine whether the test set is operating properly. The checklist gives the item to be checked, the conditions under which the item is checked, the normal indications, and corrective measures that the operator can take.

b. Action or Condition. The information given under the *Action or condition* column represents, in the case of some items, the control setting at which the item is to be checked. In other items, it represents an action that must be taken in order to check the normal indication given in the column titled *Normal indication.*

c. Normal Indication. The normal indications listed include the visible signs that the operator will observe when he checks the items. If the indications in the equipment are not normal, the operator should apply the recommended corrective measures.

d. Corrective Measure. The corrective measures listed are those that the operator can make without turning the equipment in for repairs. If the equipment will not operate, or if the recommended corrective measures do not yield results, trouble-shooting is necessary.

e. Checklist.

	Item No.	Item	Action or condition	Normal indication	Corrective measure
PREPARATORY	1	Pin jacks (only if test leads are to be used).	Insert test leads in pin jacks if test leads are to be used.		
	2	Voltmeter	Observe meter pointer	Pointer should rest at zero	If pointer does not rest at zero, replace meter (par. 23*a*).
	3	Toggle switch	Throw switch to OFF position.		
OPERATION	4	Test leads or cable assembly.	Test power supply of equipment under test with test leads or cable assembly.	A meter reading of approximately 110 volts will be obtained.	
	5	Toggle switch	Throw switch to ON position	Frequency meter will indicate	Check meter, switch, and connections.
STOP	6	Toggle switch	Throw switch to OFF position	Frequency meter will not indicate.	Replace meter.
	7	Test leads or cable assembly	Disconnect test leads or pull out cable assembly.	No indication on the voltmeter.	

CHAPTER 3
MAINTENANCE INSTRUCTIONS

Section I. ORGANIZATIONAL TOOLS AND EQUIPMENT

16. Preventive Maintenance Tools and Materials

Preventive maintenance of Test Set I–209–(*) requires the following tools and materials:

Common hand tools.
Clean cloth.
Soldering iron.
Solvent, dry-cleaning (SD).

17. Weatherproofing

a. General. Test Set I–209–(*), when operated under severe climatic conditions, such as prevail in tropical, Arctic, and desert regions, requires special treatment and maintenance. Fungus growth, insects, dust, corrosion, salt spray, excessive moisture, and extreme temperatures are harmful to most materials used in the construction of the equipment.

b. Tropical Maintenance. A special moistureproofing and fungiproofing treatment has been devised which, if properly applied, provides a reasonable degree of protection. Test Set I–209-B has been tropicalized during manufacture. This treatment is fully explained in TB SIG 13 and TB SIG 72.

c. Winter Maintenance. Special precautions necessary to prevent poor performance or total operational failure in extremely low temperatures are fully explained in TB SIG 66.

d. Desert Maintenance. Special precautions necessary to prevent equipment failure in areas subject to extremely high temperatures, low humidity, and excessive sand and dust are fully explained in TB SIG 75.

Section II. PREVENTIVE MAINTENANCE SERVICES

18. Definition and Importance of Preventive Maintenance

a. Definition. Preventive maintenance is work performed on equipment, usually when it is not in use, to keep it in good working

condition so that break-downs and needless interruptions in service will be kept at a minimum. The object of preventive maintenance is to eliminate the need for trouble shooting and repair.

b. IMPORTANCE. Since the failure or inefficient operation of even one component may cause the break-down of the entire equipment, the importance of preventive maintenance is obvious. Operators must maintain equipment placed in their charge in such condition that it will work at top efficiency at all times.

19. Preventive Maintenance Checklist

The checklist below shows preventive maintenance procedures for Test Set I–209–(*). The list contains information on what to check, when to check, how to check, and precautions to be taken before, during, and after checking.

Item No.	What to check	When to check	How to check	Precautions
1	Exterior (general) (fig. 2).	Daily	Inspect for damaged panel, chipped cabinet, broken or chipped meter glass, dirt, dust, corrosion, loose or missing screws, loose or broken pin jacks, and loose switch.	Tighten screws and nuts snugly, but do not use force. Replace any screws or nuts that are missing.
			Clean with a dry cloth slightly moistened with solvent (SD) to remove oil, grease, or foreign matter; wipe dry with a clean cloth.	Remove all traces of lint.
2	Interior (general) (fig. 5).	Monthly	Inspect for dust, dirt, fungus growth, corrosion, and loose or missing parts.	Tighten screws snugly, but do not use force.
			Inspect connection for corrosion and looseness	Tighten or solder all loose connections.
			Clean with a dry cloth slightly moistened with solvent (SD). Use compressed air, if available, to blow out all foreign matter.	

CHAPTER 4

FIELD MAINTENANCE INSTRUCTIONS

Note. The repair instructions that follow are to be used by field maintenance personnel in the location and repair of troubles that develop in Test Set I–209–(*). The scope of repairs that may be performed by any unit having field maintenance responsibility is limited only by the tools and test equipment available, and by the skill of assigned personnel.

Section I. THEORY OF OPERATION

20. General Functioning of Test Set I–209–(*)
(fig. 4)

a. Test Set I–209–(*) consists essentially of a frequency meter (M1) and a voltmeter (M2) connected in parallel. In parallel with the two meters are two inputs: the cable assembly (W1) and jacks J1 and J2. A single-pole, single-throw switch (S1) is in series with the frequency meter. When the switch is in its OFF position, the frequency meter is disconnected from the circuit.

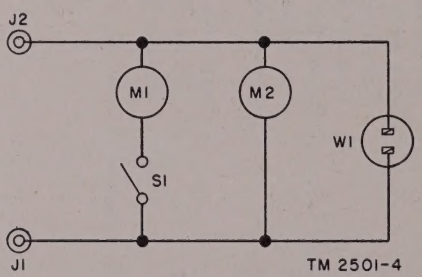


Figure 4. Test Set I–209–(*), schematic diagram.

b. When either input (*a* above) is connected to the a-c power supply under test, the voltmeter will indicate the voltage of the power supply. The frequency meter will give no indication if the toggle switch is in its OFF position, but will indicate the frequency of the power supply if the switch is thrown to its ON position. The frequency meter consists of several vibrating reeds placed inside a coil carrying current of an unknown frequency. The reeds are mechanically tuned to vibrate at predetermined frequencies. The meter has five reeds with white L-shaped ends. The scale opposite three of these reeds is marked 58, 60, and 62. The two unmarked reeds represent 59

and 61, respectively. The reed corresponding to the impressed frequency vibrates. If the frequency is midway between two reeds, both will vibrate.

21. Test and Repair Equipment

Tool or test equipment	Stock No.	Use
Screw driver TL–458/U	6R15811	Tighten panel screws, hinge screws, catch screws, and meter screws.
Soldering iron TL–117, 100 w	6R24617	Make connection on meters, jacks, and switch.
Wrench TL–111, 6″ adj	6R55006	Tighten meter terminal nuts, jack nuts, meter mounting nuts, cable clamp nut, and switch nut.
Meter Test Equipment AN/GSM–1.	3F3941–1	Voltmeter and frequency meter check.

Section II. INSPECTING, STRIPPING, AND CLEANING

22. Preliminary Inspection

(figs. 2 and 5)

A visual and manual inspection of Test Set I–209–(*) will indicate the general condition of the instrument and locate any broken or frayed leads and any loose connections or mountings. Proceed as follows:

a. Unscrew the 10 screws holding the front panel to the wooden case.
b. Lift the panel from the case.
c. Inspect the leads and connections by sight and touch.

23. Stripping

(fig. 5)

This paragraph contains instructions for disassembling and reassembling Test Set I–209–(*) for repair or replacement of components.

a. Voltmeter.
(1) Unsolder the leads.
(2) Unscrew the three mounting screws.
(3) Lift the meter from the top of the panel.
(4) To reassemble, reverse the above procedure.

b. Frequency Meter.
(1) Unscrew the terminal nuts, and remove the leads.
(2) Unscrew the three mounting screws.
(3) Lift the meter from the top of the panel.
(4) To reassemble, reverse the above procedure.

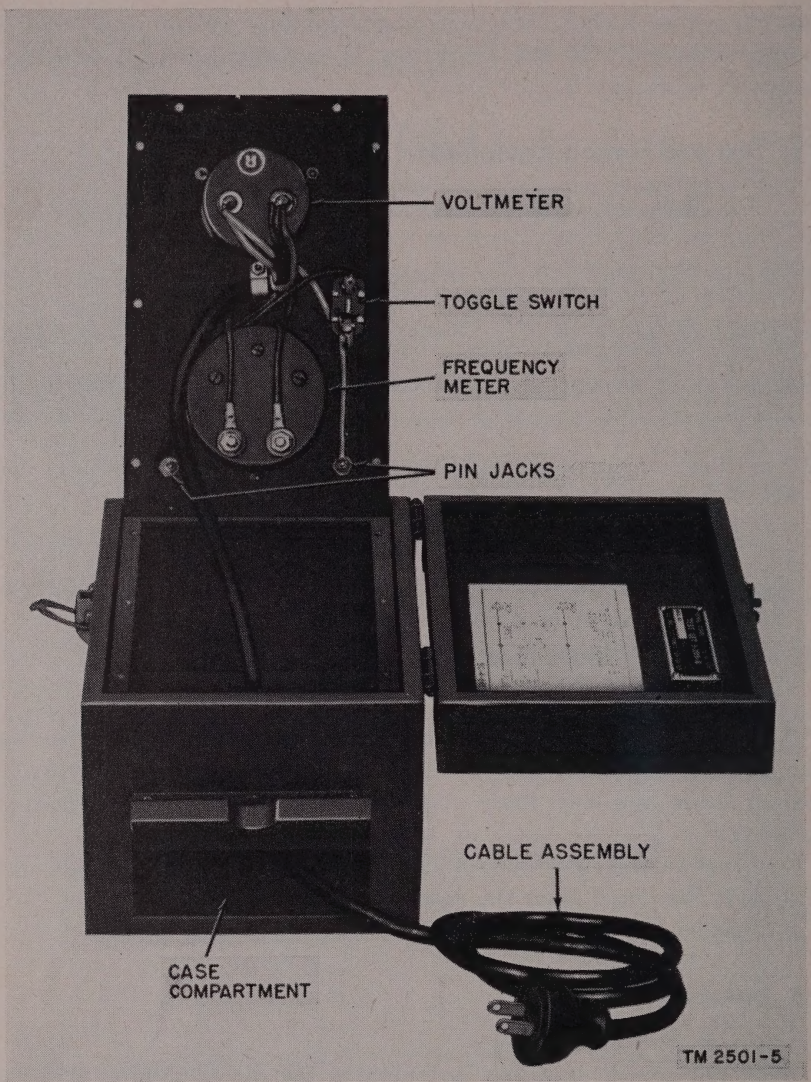


Figure 5. Bottom view of panel.

c. Pin Jacks.
(1) Unsolder the connections to the pin jacks.
(2) Unscrew the mounting nuts.
(3) Remove the pin jacks from the top of the panel.
(4) To reassemble, reverse the above procedure.

d. Switch.
(1) Unsolder the connections to the switch.
(2) Unscrew the mounting nut.
(3) Remove the switch from the top of the panel.
(4) To reassemble, reverse the above procedure.

24. Cleaning

To clean Test Set I–209–(*), proceed as follows:

a. Remove the panel from the case (par. 22).

b. Clean dirt, dust, and corrosion from all terminals and components with a clean dry cloth.

c. Remove oil and grease with a clean cloth slightly moistened with solvent (SD).

d. Use compressed air to blow out all foreign matter.

Section III. TROUBLE LOCATION

Note. Inspect interior of Test Set I–209–(*) (par. 22) visually to locate short or open circuits.

25. Trouble-Shooting Steps

a. Throw the switch to OFF position.

b. Insert the test leads into the pin jacks, and connect them to Meter Test Equipment AN/GSM–1. Set the multimeter for the 250-volts a-c scale.

c. Connect the cord assembly to a 115-volts, 60-cps, a-c power supply, using the AN/GSM–1 (voltage regulator component) inserted between Test Set I–209–(*) and the power supply.

d. Compare the reading of the voltmeter (fig. 2) and the multimeter. Both readings should be the same. If the voltmeter shows no indication or an indication different from that on the multimeter, the voltmeter is likely to be defective and must be replaced (par. 23*a*).

e. Adjust Meter Test Equipment AN/GSM–1 for a voltage between 100 and 150 volts as indicated on the multimeter.

f. Throw the switch to its ON position. The frequency meter (fig. 2) should indicate a frequency of 60-cps. If there is no frequency indication or if a different frequency is indicated, the frequency meter is defective and must be replaced (par. 23*b*).

26. Trouble-Shooting Chart

Symptoms	Probable location of trouble	Procedure
Voltmeter shows no indication.	Loose connections	Tighten connections.
	Broken leads	Replace leads.
	Defective voltmeter	Check voltmeter (par. 25*a*, *b*, *c*, *d*).
Frequency meter shows no indication.	Loose connections	Tighten connections.
	Broken leads	Replace leads.
	Defective switch	Replace switch (par. 23*d*).
	Defective frequency meter.	Check frequency meter (par. 25*c*, *e*, *f*).

27. Preservative Applications

a. Exterior. The exterior of the equipment should be protected by a light application of weatherproofing and fungiproofing varnish, expecially in humid locations, where excessive moisture may damage the case.

b. Interior. Moistureproof and fungiproof the interior of the equipment in accordance with TB SIG 13.

CHAPTER 5
DEMOLITION TO PREVENT ENEMY USE

28. Methods of Demolition

a. SMASH. Use sledges, axes, handaxes, pickaxes, hammers, crowbars, heavy tools.

b. CUT. Use handaxes, axes, machetes.

c. BURN. Use gasoline, kerosene, oil, flame throwers, incendiary grenades.

d. EXPLODE. Use firearms, grenades, TNT.

e. DISPOSE. Bury in slit trenches, fox holes, other holes. Throw in streams. Scatter.

Note. Use anything immediately available for destruction of this equipment.

29. Destruction of Components

When ordered by the commander, destroy all equipment to prevent its being used or salvaged by the enemy.

a. Smash the panel, cabinet, meters, switch, etc.

b. Cut all wiring.

c. Burn all instruction books, circuit diagrams, insulation, etc.

d. Bury or scatter all remaining parts of the equipment.

e. Destroy everything.

APPENDIX I

REFERENCES

Note. For availability of items listed, check SR 310–20–3 for field manuals, training circulars, training aids, Army training programs, JANAP's, Tables of Organization and Equipments (T/O & E's), Tables of Allowances (T/A's), and Tables of Basic Allowances (T/BA's). Check SR 310–20–4 for technical manuals, technical bulletins, supply bulletins, modification work orders, and changes. Check Department of the Army Supply Catalog SIG 1 for supply catalogs on signal equipment.

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1. Technical Manuals

TM 11–248	Preliminary Instructions for Radio Direction Finder Central TC–8.
TM 11–249	Radio Intercept Central TC–9.
TM 11–2403	Radiosonde Receptors AN/FMQ–1 and AN/FMQ–1A.
TM 38–650	Basic Maintenance Manual.

2. Army Regulations

AR 380–5	Safeguarding Military Information.

3. Supply Publications

SB 11–47	Preparation and Submission of Requisitions for Signal Corps Supplies.
SB 11–64	Maintenance Equipment Replenishment.
SB 11–76	Signal Corps Kit and Materials for Moisture- and Fungi-Resistant Treatment.

4. Painting and Preserving

TB SIG 13	Moistureproofing and Fungiproofing Signal Corps Equipment.
TB SIG 66	Winter Maintenance of Signal Equipment.
TB SIG 75	Desert Maintenance of Ground Signal Equipment.
TB SIG 123	Preventive Maintenance Practices for Ground Signal Equipment.

5. Packaging and Packing Instructions

a. Joint Army-Navy Packaging Instructions.

JAN–D–169	Desiccant, Activated.
JAN–P–100	General Specifications.
JAN–P–106A	Boxes, Wood, Nailed.
JAN–P–116	Preservation, Methods of.
JAN–P–125	Barrier Materials, Waterproof, Flexible.
JAN–P–131	Barrier Material, Moisture-Vaporproof, Flexible.

b. U. S. Army Specifications.

100–2E	Marking Shipments by Contractors (and Signal Corps Supplement thereto).

c. Signal Corps Instructions.

720–7	Standard Pack.
726–15	Interior Marking.

APPENDIX II
IDENTIFICATION TABLE OF PARTS

Note. The fact that a part is listed in this table is not sufficient basis for requisitioning the item. Requisitions must cite a T/O & E, T/A, T/BA, SIG 7–8, SIG 10, list of allowances of expendable material, or another authorized supply basis. The Department of the Army Supply Catalog applicable to the equipment covered in this manual is SIG 7 & 8–I–209. For an index of available supply catalogs in the Signal portion of the Department of the Army Supply Catalog, see the latest issue of SIG 1, Introduction and Index.

Ref symbol	Name of part and description	Function of part	Signal Corps stock No.
	TEST SETS I–209–A, I–209–B: $8\frac{15}{16}$'' lg x $5\frac{3}{4}$'' h x $6\frac{1}{4}$'' wd; contains one frequency meter and one voltmeter connected in parallel; one toggle switch, two tip jacks, cord with two prong plug.	Used for testing a-c voltage and frequency	3F4190–209B
	ADAPTER, meter: JAN type 1A25R	Increases the mounting dimensions of a small meter	3F2–22.6
W1	CABLE POWER: general purpose portable installation; 2 conductor #18 AWG, stranded tinned copper wire; ea conductor, 41 strands #34 AWG; 4 ft lg.	Connects test unit with equipment being tested	1B818.14
	CLIP: alligator; approx ½'' max jaw opening	Facilitates connection of test unit with equipment being tested.	3Z1087
	CONNECTOR, adapter: 1 end med screw base male; other end med screw base female; 2 parallel blade female cont at sides; straight type.	Connects medium screw base lamp to medium screw socket, and provides two 2 pole parallel female receptacles for attachment of extension cords.	6Z7571
	CONNECTOR, plug: 2 flat parallel baldes, male cont; straight type.	Connects power cable to power source	6Z7565
J1	CONNECTOR, receptacle: single round female cont; straight type; black plastic.	Receives black test lead	2Z5991–2
J2	CONNECTOR, receptacle: single round female cont; straight type; red plastic.	Receives red test lead	2Z5991–3
	LABEL: schematic diagram; 5'' lg x 3'' wd	Shows schematic of test set	6D16779–1
	LEAD, test: $45\frac{1}{8}$'' lg, excluding terminations; Sig Cable WS–17/U.	Facilitates connection of test unit with equipment being tested.	3E8000–53
	LEAD, test: $45\frac{1}{8}$'' lg, excluding terminations; Sig Cable WS–16/U.	Facilitates connection of test unit with equipment being tested.	3E8000–53.1
M1	METER, frequency indicator: ac range 58 to 62 cps	Measures 58 to 62 cps	3F2745
M2	METER, voltmeter: ac, 25–125 cps; range 0–150 vac; JAN type MR26W150ACVV.	Measures up to 150 volts	3F8150–129
S1	SWITCH, toggle: spst; JAN type ST42A	Switches the frequency meter in and out of circuit being tested.	3Z9863–42A

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