

TECHNICAL MANUAL

OPERATOR'S AND ORGANIZATIONAL MAINTENANCE MANUAL

INDICATORS, CHANNEL ALIGNMENT ID-1189/PR

(NSN 5820-00-930-9204)

AND

ID-1189 (XE-2)/PR (NSN 6625-00-181-1884)

This copy is a reprint which includes current pages from Changes 1 through 6. The title was changed to read as shown above by Change 6.

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**OPERATOR'S AND ORGANIZATIONAL MAINTENANCE MANUAL
 INDICATORS, CHANNEL ALIGNMENT ID-1189/PR
 (NSN 5820-00-930-9204)
 AND ID-1189(XE-2)/PR (NSN 6625-00-181-1884)**

	Paragraph	Page
CHAPTER 1. INTRODUCTION		
Section I. General		
Scope.....	1-1	1-1
Indexes of publications.....	1-2	1-1
Forms and records.....	1-3	1-1
Reporting of equipment publication improvement.....	1-3.1	1-1
Reporting equipment improvement recommendations (EIR).....	1-3.2	1-1
Administrative storage	1-3.3	1-1
Destruction of army electronic materiel	1-3.4	1-1
Hand receipt.....	1-3.5	1-1
Section II. Description and data		
Purpose and use.....	1-4	1-1
Technical characteristics.....	1-5	1-2
Components of Indicator, Channel Alignment ID-1189/PR.....	1-6	1-2
Description of Indicator, Channel Alignment ID-1189/PR.....	1-7	1-2
Description of minor components.....	1-8	1-3
Additional equipment required.....	1-9	1-3
CHAPTER 2. INSTALLATION		
Unpacking	2-1	2-1
Checking unpacked equipment.....	2-2	2-2
Installation of Battery BA-399/U.....	2-3	2-2
Section 3. OPERATING INSTRUCTIONS		
Indicator, Channel Alignment ID-1189/PR operating controls, indicator, and jacks.....	3-1	3-1
Types of operation.....	3-2	3-2
Battery testing.....	3-3	3-2
Preparation for alignment.....	3-4	3-3
Alignment of Receiving Set, Radio AN/PRR-9.....	3-5	3-4
Alignment chart, Receiving Set, Radio AN/PRR-9.....	3-6	3-8
Alignment of Transmitting Set, Radio AN/PRT-4.....	3-7	3-10
Alignment Chart, Transmitting Set, Radio AN/PRT-4.....	3-8	3-10
Indicator, Channel Alignment ID-1189/PR, stopping procedure.....	3-9	3-10
Section 4. ORGANIZATIONAL MAINTENANCE		
Scope of organizational maintenance.....	4-1	4-1
Preventive maintenance.....	4-2	4-1
Cleaning.....	4-3	4-3
Touchup painting.....	4-4	4-3
General troubleshooting information.....	4-5	4-3
Removal and replacement of knobs.....	4-3	4-3
Replacement of lid plate assembly.....	4-7	4-3
CHAPTER 5. SHIPMENT AND LIMITED STORAGE		
Disassembly of equipment.....	5-1	5-1
Repackaging for shipment of limited storage.....	5-2	5-1
APPENDIX A REFERENCES		A-1

***This manual supersedes that portion of TM 11-5820-549-12, 24 October 1966, as pertains to the operation of the ID-1189/PR and those portions of C1, 17 January 1967, that pertains to basic Issue Items, maintenance allocation, and organizational repair parts for the ID-1189/PR.**

		Page
APPENDIX B	COMPONENTS OF END ITEM LIST	
Section I.	Introduction.....	B-1
II.	Integral components of end item.....	B-2
III.	Basic issue items.....	B-3
APPENDIX C.	MAINTENANCE ALLOCATION	
Section I	Introduction.....	C-1
II.	Maintenance allocation chart	C-3
III.	Tool and test equipment requirements	C-5
IV.	Remarks	C-6
APPENDIX D.	ADDITIONAL AUTHORIZATION LIST	
SECTION I.	Introduction.....	D-1
II	Additional authorization list.....	D-2
APPENDIX E.	EXPENDABLE SUPPLIES AND MATERIALS LIST	
	(Not applicable)	

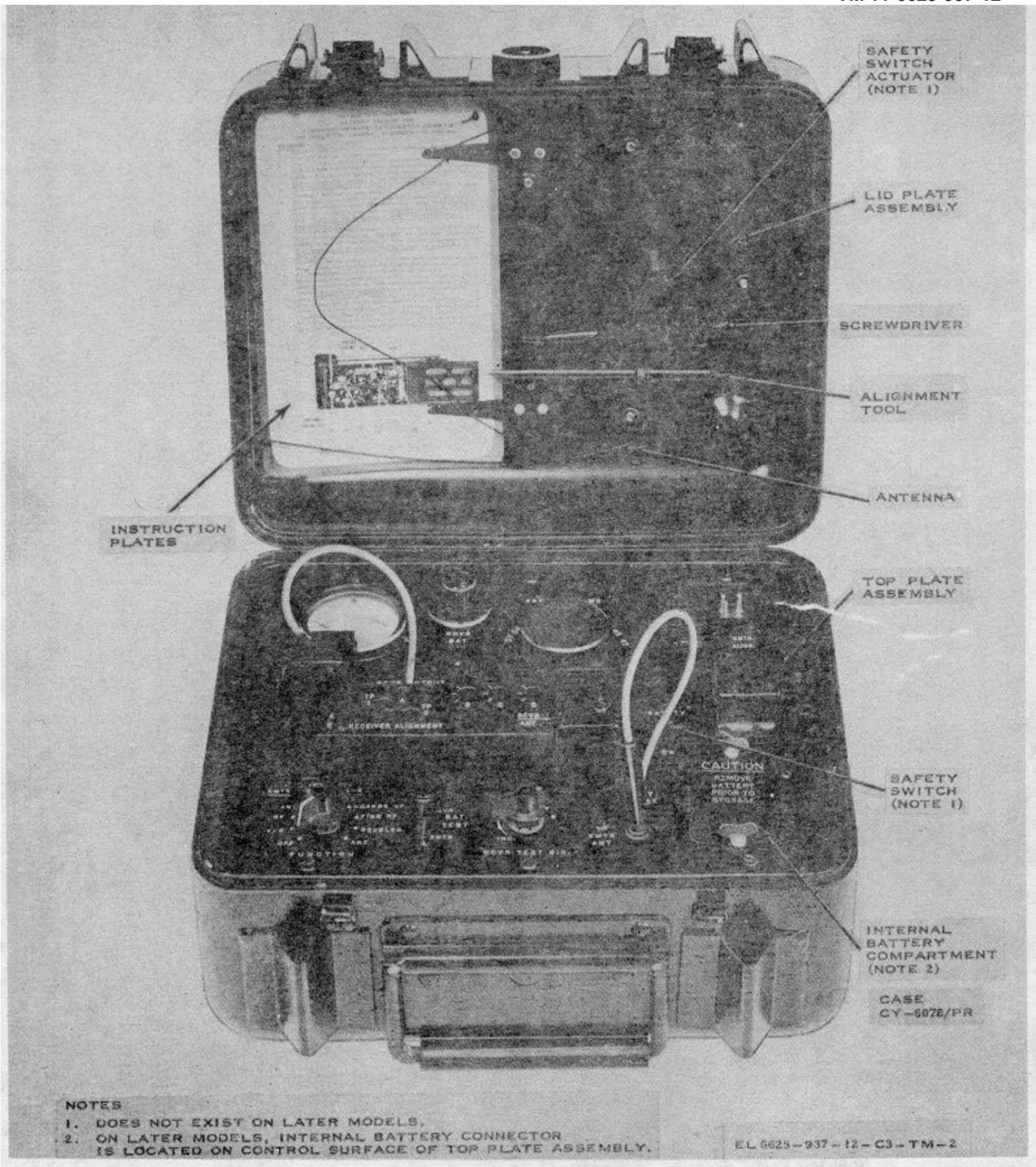


Figure 1-1. Indicator, Channel Alignment ID-1189/PR.

Change 3 1-0

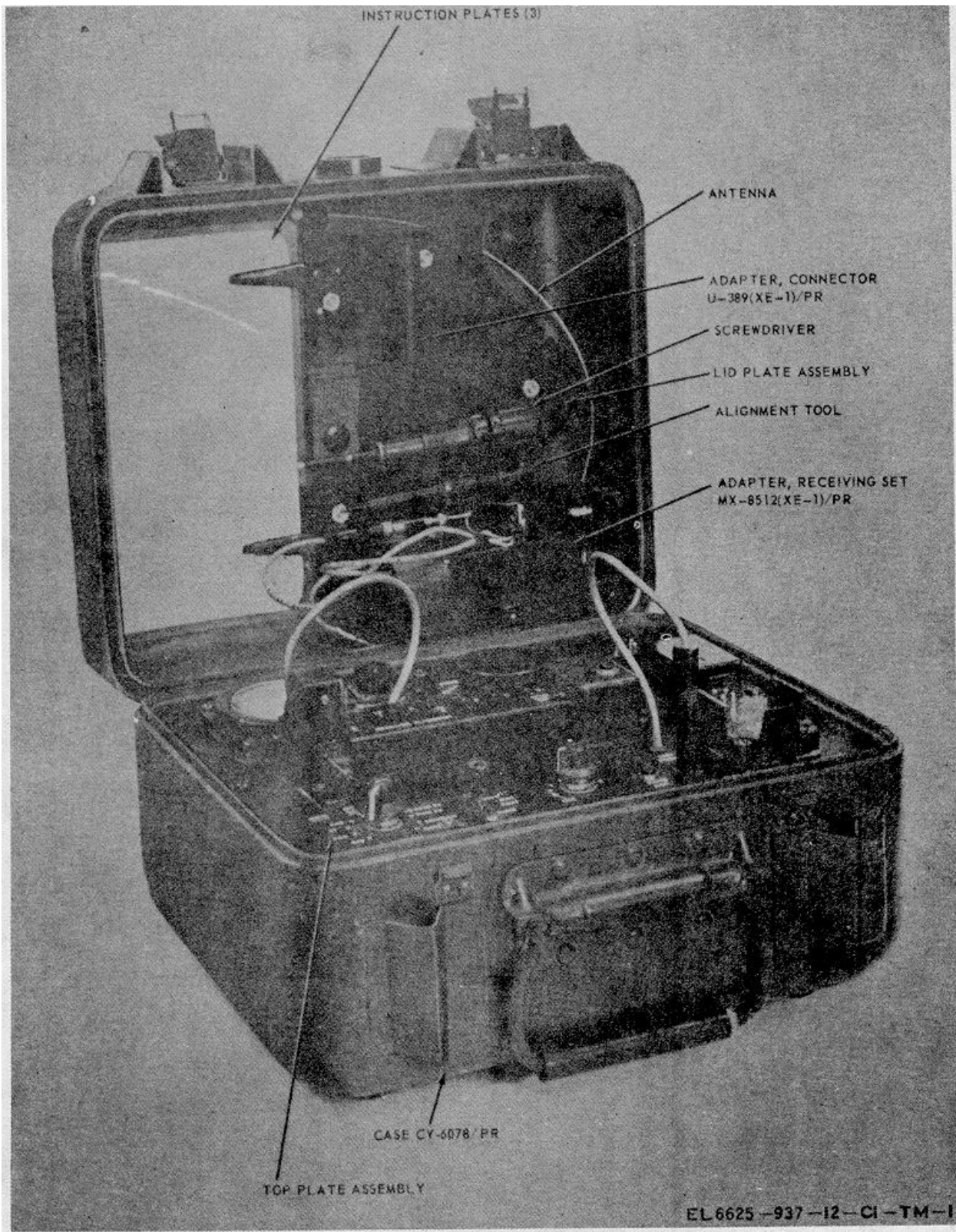


Figure 1-1.1 Indicator, Channel Alignment ID-1189(XE-2)/PR.

CHAPTER 1 INTRODUCTION

Section I. GENERAL

1-1. Scope

This manual describes Indicators, Channel Alignment ID-1189/PR (fig. 1-1) and ID-1189 (XE-2)/PR (fig. 1-1.1). Unless otherwise noted, all references to Indicator, Channel Alignment ID-1189/PR also apply to Indicator, Channel Alignment ID-1189(XE-2)/PR. All coverage of Transmitting Set, Radio AN/PRT-4 in this manual also apply to Transmitting Set, Radio AN/PRT-4A. This manual also provides instructions for installation, operation, operator and organizational maintenance. It includes instructions for cleaning-and inspection of the equipment, and replacement of parts available to the operator and organizational repair technician.

1-2. Indexes of Publications

a. *DA Pam 310-4.* Refer to DA Pam 310-4 to determine whether there are new editions, changes, or additional publications pertaining to the equipment.

b. *DA Pam 310-7.* Refer to DA Pam 310-7 to determine whether there are modification work orders (MWO's) pertaining to the equipment.

1-3. Forms and Records

a. *Reports of Maintenance and Unsatisfactory Equipment.* Maintenance forms, records, and reports which are to be used by maintenance personnel at all maintenance levels are listed in and prescribed by TM 38-750.

b. *Report of Packaging and Handling Deficiencies.* Fill out and forward DD Form 6 (Packaging Improvement Report) as prescribed in AR 700-58/NAVSUPINST 4030.29/AFR 71-13/MCO P4030.29A, and DLAR 4145.8.

c. *Discrepancy in Shipment Report (DISREP) (SF 361).* Fill out and forward Discrepancy in Shipment Report (DISREP) (SF 361) as prescribed in AR 55-38/NAVSUPINST 4610.33B/AFR 75-18/MCO P4610.19C and DLAR 4500.15.

1-3.1. Reporting of Equipment Publication Improvements

The reporting of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications and Blank Forms) and forwarded direct to Commander, US Army Communications and Electronics Materiel Readiness Command, ATTN: DRSEL-ME-MQ, Fort Monmouth, NJ 07703.

1-3.2. Reporting Equipment Improvement Recommendations (EIR)

EIR's will be prepared using Standard Form 368, Quality Deficiency Report. Instructions for preparing EIR's are provided in TM 38-750, The Army Maintenance Management System. EIR's should be mailed direct to Commander, US Army Communications and Electronics Materiel Readiness Command, ATTN: DRSEL-ME-MQ, Fort Monmouth, NJ 07703. A reply will be furnished direct to you.

1-3.3. Administrative Storage

a. An ID-1189/PR or ID-1189(XE-2)/PR which may not be used for 1 to 45 days may be put in administrative storage. This consists of performing the operator's and organizational preventive maintenance checks and services, removing the batteries, and storing the equipment on a shelf in a cool dry room.

b. To remove an ID-1189/PR or ID-1189(XE-2)/PR from administrative storage, reverse the procedure given in a above.

1-3.4. Destruction of Army Electronics Materiel

Destruction of Army electronics materiel to prevent enemy use shall be in accordance with TM 750-244-2.

1-3.5. Hand Receipt

Hand receipts for End Item/Components of End Item (COEI), Basic Issue Items (BII), and Additional Authorized List (AAL) items are published in a Hand Receipt Manual. The Hand Receipt Manual numerical designation is the same as the related Technical Manual with the letters HR added to the number. These manuals are published to aid in property accountability and are available through: Commander, US Army Adjutant General Publication Center, ATTN: AGDL-OD, 1655 Woodson Road, St. Louis, MO 63114.

Section II. DESCRIPTION AND DATA

1-4. Purpose and Use

(fig. 1-1)

a. Indicator, Channel Alignment ID-1189/PR is a self-contained, case-inclosed portable, and transistorized test equipment. It is used for aligning Transmitting Set, Radio AN/PRT-4 and Receiving Set, Radio AN/PRR-9 when channel crystals are changed or whenever misalignment is indicated. It is also used to test Batteries BA-399/U and BA-505/U. The ID-1189 (XE-2)/PR only, in addition, is used to align Receiving Set, Radio AN/PRR-9(XE-9) and to test Battery, Dry BA-4534/U.

b. All tools and the test antenna, required to perform alignment procedures, are within the ID-1189/PR case cover. Instruction plates, covering alignment and battery testing procedures, are also within the case cover. Power is obtained from a Battery BA-399/U (not supplied). The internal battery, for early models of the ID-1189/PR only, is mounted in a battery compartment and is accessible through a cover plate mounted on the ID-1189/PR control panel. Battery BA-339/U is also used to power the ID-1189 (XE-2)/PR, and is connected to an external connector located on the control panel of the ID-1189(XE-2)/PR and later models of the ID-1189/PR.

1-5. Technical Characteristics

Power supply.....	Battery BA-339/U (not supplied with equipment).
Maximum current drain (12 volt input).....	55 ma (COARSE RF and FINE RF).
Alignment positions (FUNCTION switch):	
Transmitter	3 positions.
Receiver	5 positions.
Battery test:	
Receiver, Transmitter, and internal.....	3 positions.
Meter, direct current.....	50 microamperes, full-scale deflection.
Alignment indication.....	Relative indication.
Battery indication	GOOD and BAD.
Number of transistors	4.
Number of diodes	11.
Internal oscillator frequency range.....	47 through 57 mc.
Frequency stability.....	Less than 10kc drift for any 10minute period.
Dial accuracy.....	±200 ks at room temperature.
Oscillator attenuator positions.....	6.
Maximum attenuation	45 db.
Attenuator input and output impedance.....	50 ohms.
Attenuator output voltage, maximum	1.0 mv at 52 ma
Voltage regulator stability.....	±0.15 vdc (40°F < temperature <131°F) (10vdc < input voltage <16.5 vdc).

1-6. Components and Dimensions

(fig. 1-1, 1-1.1)

a. *Components and dimensions of operable equipments.* The items in the chart below make up an operable Indicator, Channel Alignment ID-1189/PR or Indicator, Channel Alignment ID-1189(XE-2)/PR. One copy of TM 11-6625-937-12 is packed with each equipment.

NSN		Dimensions (in.)			Weight (lb)	
		Qty	Height	Depth		Width
6625-00-9264357	Indicator, Channel Alignment ID-1189/PR	1	8¼	11½	12	14.5
	Indicator, Channel Alignment ID-1189(XE-2)/PR	1	8¼	11½	12	14.7

- b. *Running Spares.* No running spares are provided with the equipment.
- c. *Battery, Dry BA-399/U.* The battery is required, but not furnished as part of the equipment. Refer to paragraph 1-9.

1-7. Description of Indicator, Channel Alignment ID-1189/PR

The ID-1189/PR is inclosed in a ruggedized type constructed case. The case when closed is watertight and airtight and contains a breather valve which can be manually operated to equalize pressure between the inside and outside of the case. A screwdriver, an alignment tool, an antenna, and instruction plates are secured to the inside cover of the case. Two additional adapters are included inside the cover of ID-1189(XE-2)/PR case only. The ID-1189/PR circuits are contained within the body of the case and attached to and covered by a plate assembly. The top of the plate assembly is a control panel which contains the operating controls, jacks, and a meter. Units, such as battery type BA-399/U or BA-505/U, Receiving Set, Radio AN/PRR-9, or Transmitting Set, Radio AN/PRT4, when being tested or aligned, are plugged directly into the appropriate jack on the control panel. For the ID-1189 (XE-2)/PR only, the adapters are used between the appropriate control panel jack and the AN/PRR-9(XE-9) or BA-4534/U. The control panel meter indicates the results of tests or alignment. The meter face is worked on one scale to indicate relative center readings for alignment, and also contains a GOOD and BAD scale to indicate a battery condition. On the ID-1189(XE-2)/PR only, the meter glass contains an additional indicating scale that is used when testing the BA-4534/U.

1-8. Description of Minor Components

(fig. 1-1)

- a. The screwdriver has a wooden handle, and a 3/8-inch wide hardened steel blade. It is used for disassembling the AN/PRR-9, AN/PRR-(XE-9), and AN/PRT-4 for alignment purposes.
- b. The alignment tool is an insulated alignment tool with a hardened steel blade. The 1/4-inch blade tip fits all the capacitors, coils, and resistors adjusted during alignment of a receiver or transmitter.
- c. The antenna is a 17-inch long whip antenna with a phone tip at one end and a ball at the other. It is used during portions of the alignment procedures of a receiver or transmitter.
- d. Instruction plates, laminated cards in plastic, are contained within the cover of Case, Indicator CY-6078/PR. Two plates are provided; one contains detailed battery test and alignment information for the AN/PRT-4 and the other contains alignment information for the AN/PRR-9. A third plate, supplied with the ID-1189(XE-2)/PR only, contains alignment information for the AN/PRR-9(XE-9) and battery test information for the BA-4534/U. The plates are held to the case lid by a nylon cord.
- e. Adapter, Connector U-389(XE-1)/PR (battery adapter) contains a connector at the bottom end designed to fit the RCVR BAT. connector on the top plate assembly of the ID-1189(XE-2)/PR. The top of the adapter contains a two-conductor plug which fits the connector of Battery, Dry, BA-4534/U. When not in use, the adapter is stored in the lid of the ID-1189 (XE-2) /PR.
- f. Adapter, Receiving Set MX-8512(XE-1)/PR (RECEIVER ALIGNMENT adapter) is used for aligning Receiving Set, Radio AN/ PRR-9(XE-9). In use, it is installed over the RECEIVER ALIGNMENT receptacle of the ID-1189(XE-2)/PR. The adapter contains necessary electrical connectors and receptacles for connection to the ID-1189 (XE-2) /PR circuitry. When not in use, the adapter is stored in the case lid.

1-9. Additional Equipment Required

Battery, Dry BA-399/U is used as power for operation of the ID-1189/PR but-not furnished as part of the equipment. This is the same battery type used in the AN/PRT4. It contains two 7-1/2-volt sections connected in series.

1-10. Differences In Models

Indicator, Channel Alignment ID-1189 (XE-2)/PR differs from ID-1189/PR models as follows:

- a. Adapter, Connector U-389(XE-1)/PR is included in the ID-1189(XE-2)/PR only for testing Battery, Dry BA-4534/U. An additional indicating scale on the meter is used for showing the condition of this battery.
- b. Adapter, Receiving Set MX-851i(XE-4)/PR is included in the ID-1189(XE-2)/PR only for aligning Receiving Set, Radio AN/PRR-9 (XE-9).
- c. The safety switch and safety switch actuator are not installed in the ID-1189(XE-2)/PR or in later models of the ID-1189/PR.
- d. The internal battery connector is located on the surface of the top plate assembly of the ID-1189(XE-2)/ PR and later models of the ID-1189/PR.
- e. The ID-1189(XE-2)/PR only contains an instruction plate that covers procedures for aligning the AN/PRR-9 (XE-9) and testing Battery BA-4534/U.
- f. Provision has been made in the lid in the ID-1189(XE-2)/PR only for the storage of Adapter, Connector U-389(XE-1)/PR and Adapter, Receiving Set MX-8512(XE-1)/PR.
- g. Both models of the equipment can be used to align the AN/PRR-9 and AN/PRT-4 or test the BA-399/U and BA-505/U. The ID-1189 (XE-2) /PR only can be used to align the AN/ PRR-9(XE-9) or test the BA-4534/U.

CHAPTER 2
INSTALLATION

2-1. Unpacking
(fig. 2-1)

a. *Packaging Data.* When packed for shipment, Indicator, Channel Alignment ID-1189/PR is placed in an inner carton. A moisture vaporproof barrier is placed around the inner carton. This package is placed in an outer carton, and the outer carton is packed in a wooden box. A typical shipping box is shown in figure 2-1. The dimensions, volume, and contents of the shipping box are:

Box No.	Contents	Dimensions (in.)	Volume (cu ft)	Weight (lb)
1	Indicator Channel Alignment ID-1189/PR	15 $\frac{3}{4}$ x 15 $\frac{1}{8}$ x 11	1.5	27

b. *Removing Contents.*

(1) Cut and fold back the metal straps.

Caution: Do not attempt to pry off the top and side, equipment damage may result.

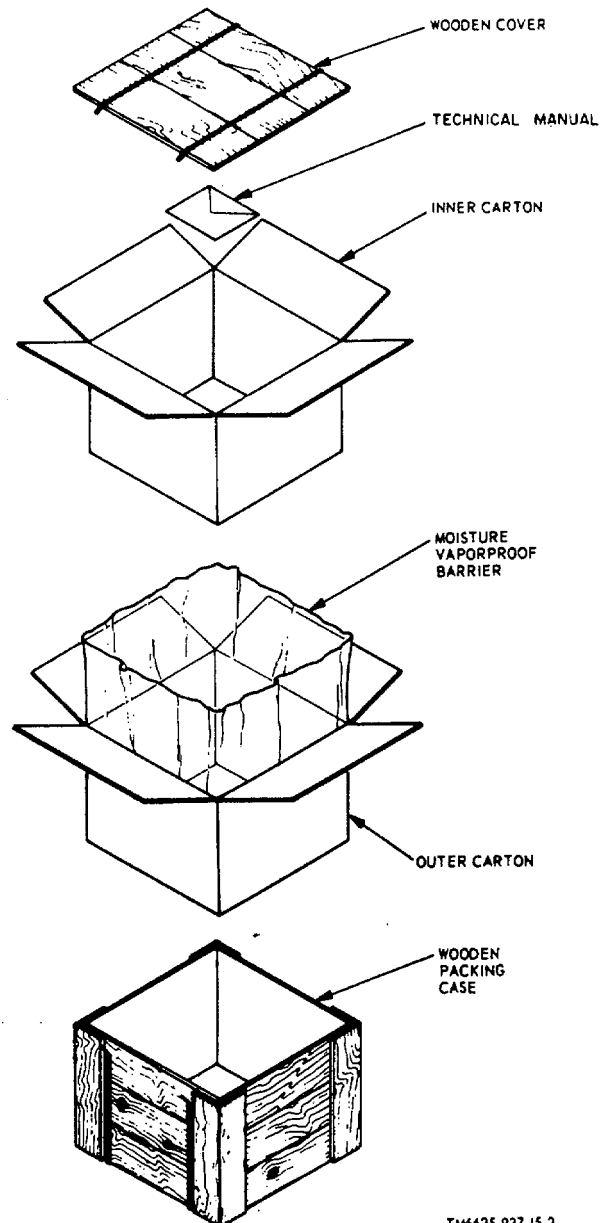
(2) Remove the nails from the top and one side of the wooden packing box with a nailpuller. Remove the top and side.

(3) Open the outer carton and the moisture-vaporproof bag.

(4) Remove the inner carton.

(5) Open the inner carton and remove the technical manual and the ID-1189/PR.

c. *Opening Case CY-6078/PR.* Place the ID1189/PR (fig. 2-2) on a firm, flat surface. The top of the case contains dimples. The bottom may be identified by four pressed-out feet. Depress the red core of the breather valve to equalize the pressure between the inside of the case and the outside air. Pull the top of the front and rear latches out and down as far as they



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Figure 2-1. Packaging of Indicator, Channel Alignment ID-1189/PR.

will go. Release the bottom of the front latches from their respective latch strikes and raise the cover upward and then toward the rear. The cover remains attached to the case by the rear latch hinges.

2-2. Checking Unpacked Equipment

a. Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on DD Form 6 (para 1-3b).

b. See that the equipment is complete as listed on the packing slip. If a packing slip is not available, check the equipment against the basic issue items list (app B). Report all discrepancies in accordance with TM 38-750. Shortage of a minor assembly or part that does not affect proper functioning of the equipment should not prevent use of the equipment.

c. If the equipment has been used or reconditioned, see whether it has been changed by a modification work order (MWO). If the equipment has been modified, the MWO number will appear on the case near the nomenclature plate. If modified, see that any operational instruction changes resulting from the modification have been entered in the equipment manual.

NOTE

Current MWO's applicable to the equipment are listed in DA Pam 310-7.

2-3. Installation of Battery BA-399/U

a. On early models of the ID-1189/PR the battery compartment is located beneath a cover-plate at the lower righthand corner of the topplate assembly (fig. 2-3). Release the two battery cover fasteners by turning them one-quarter turn counterclockwise, and remove the plate. The battery cover is connected to the battery compartment by a cloth tape. Pull the tape tight and place the BA-399/U, connector side down and toward the top of the top plate assembly, on top of this tape. Push the battery down, with the tape under it, and firmly seat the battery in the battery connector at the bottom of the battery compartment. Fold the remaining tape on top of the battery and replace the battery cover. Lock the two cover fasteners by turning them clockwise.

b. On the ID-1 189 (XE-2) /PR (fig. 3-11 and later models of the ID-1189/PR (fig. 3-19), the battery is connected to the INTERNAL BATTERY connector (fig. 3-11), and is located on the control panel. Make certain the battery jack connectors mate with the pins of the INTERNAL BATTERY connector, and firmly press the battery into a connected position.

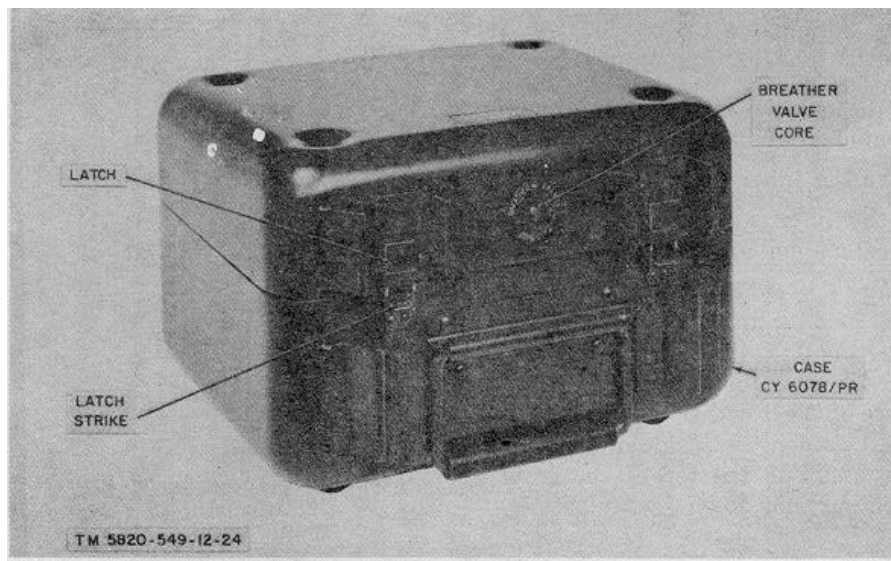


Figure 2-2. Indicator, Channel Alignment ID-1189/PR, case closed.

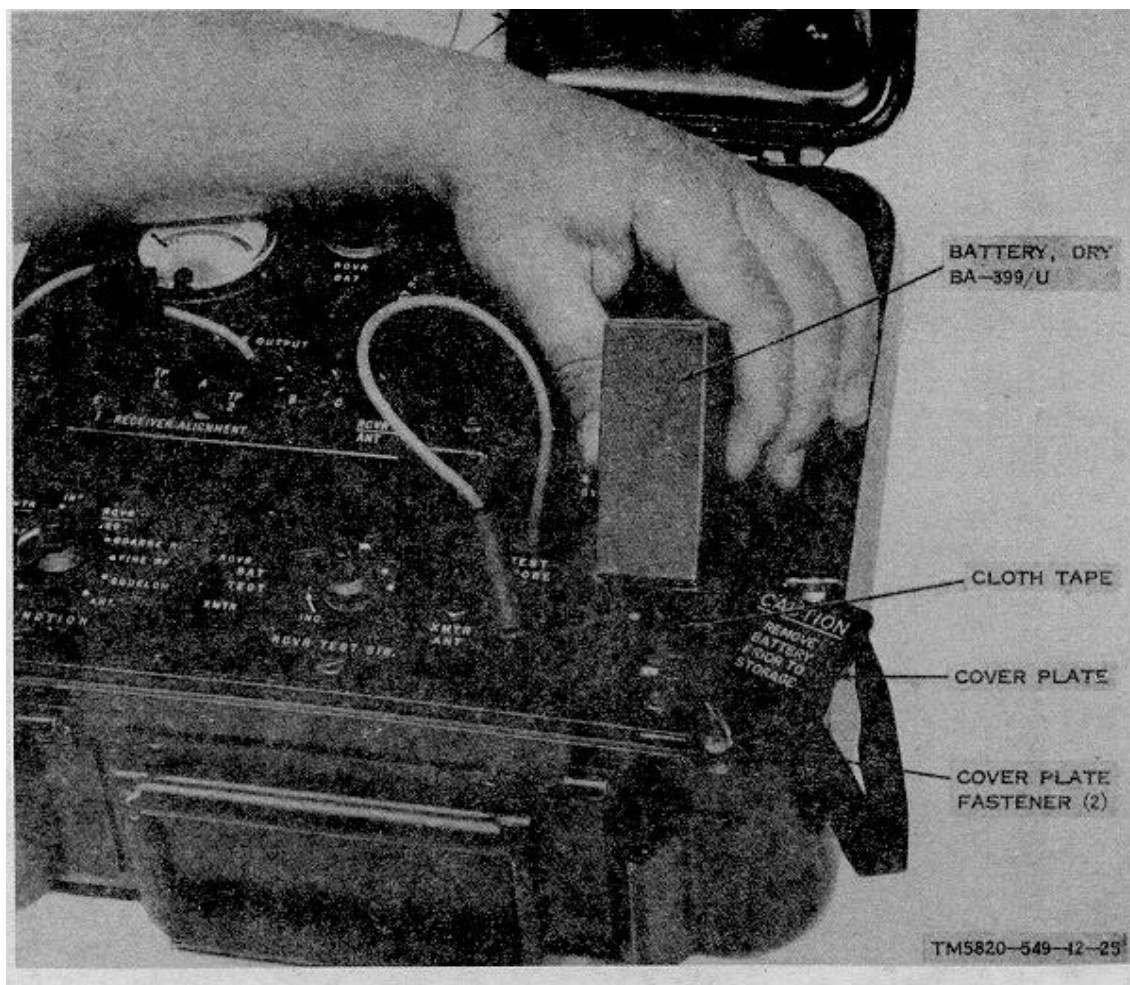


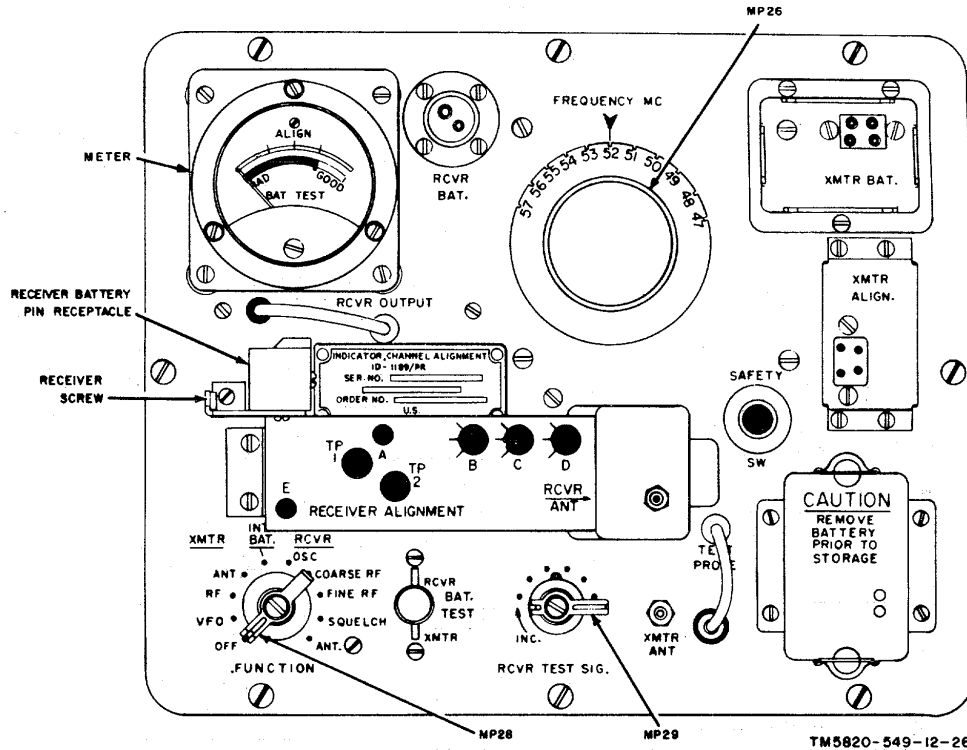
Figure 2-3. Indicator, Channel Alignment ID-1189/PR only, battery installation.

CHAPTER 3

OPERATING INSTRUCTIONS

3-1. Indicator, Channel Alignment ID-1189/PR, Operating Controls, Indicator, and Jacks
(fig. 3-1,3-11, 3-19)

Controls, indicator, and jacks	Function
Meter-----	Top scale ALIGN. Used as an indicator during AN/PRR-9 and AN/PRT-4 alignment procedures. Bottom scale BAT. TEST, GOOD-BAD. Use as an indicator during battery testing procedures. ^a BA4534 scale indication used to test BA-4534/U.
RCVR BAT. Receptacle----- FREQUENCY MC control-----	Receptacle for testing the BA-505/U. Sets internal oscillator to desired frequency for aligning the AN/PRR-9.
XMTR BAT. Receptacle----- RCVR OUTPUT cord and plug-----	Receptacle for testing AN/PRT-4 Battery BA-399/U. Plugs into AN/PRR-9 headset jack for output measurement during AN/PRR-9 alignment.
SAFETY SW Switch (spring-loaded) (Early ID-1189/PR models only.)	Turns off power in alignment indicator when case cover is closed. <i>Not used in testing or alignment procedures.</i>
XMTR ALIGN. Receptacle-----	Holds AN/PRT-4 during part of alignment procedure.
RECEIVER ALIGNMENT receptacle-----	Holds AN/PRR-9 electronic assembly during part of alignment procedure.
RCVR ANT jack-----	Receptacle for ID-1189/PR antenna for AN/PRR-9 alignment.
FUNCTION switch-----	<p><i>Position</i></p> <p>XMTR Selects applicable circuit when aligning related section of AN/PRT-4.</p> <p>OFF Turns ID-1189/PR power off.</p> <p>VFO Vco circuit tuning.</p> <p>RF Rf circuit tuning.</p> <p>ANT Antenna loading coil tuning.</p> <p>INT BAT. Selects circuit for testing ID-1189/PR battery.</p> <p>RCVR Selects applicable circuit when aligning related section of AN/PRR-9.</p> <p>OSC Oscillator tuning.</p> <p>COARSE RF Rf circuit tuning.</p> <p>FINE RF Rf circuit tuning.</p> <p>SQUELCH Squelch circuit adjustment.</p> <p>ANT. Antenna loading coil adjustment.</p>
BAT. TEST switch (spring-loaded, push to activate)--	RCVR Used to test receiver battery. XMTR Used to test AN/PRT-4 Battery BA-399/U.
RCVR TEST SIG. Rotary switch-----	Controls signal level to AN/PRR-9 during AN/PRR-9 alignment.
XMTR ANT jack-----	Receptacle for ID-1189/PR antenna when tuning AN/PRT-4 antenna loading coil.
TEST PROBE -----	Connects to various test points for AN/PRT-4 and AN/PRR-9 alignment.
^a RECEIVER ALIGNMENT adapter.....	Holds AN/PRR-9(XE-9) during part of alignment procedure.
^a Battery adapter.....	Plug-in receptacle for testing BA-4534/U.
^a SQUELCH ON switch.....	Used to test tone squelch circuit of AN/PRR-9(XE-9).



Figures 3-1. Indicator, Channel Alignment ID-1189/PR (earlier models), operating controls, indicators and jacks.

3-2. Types of Operation

a. The ID-1189/PR is used to align Receiving Set, Radio AN/PRR-9 and Transmitting Set, Radio AN/PRT-4 whenever the operating frequencies in these sets are changed or when misalignment is indicated. It is also used to test the batteries of these radio sets as well as its own internal battery.

b. The following specific types of operations may be performed with the ID-1189/PR.

(1) *Battery testing.*

- (a) AN/PRR-9 Battery BA-505/U (para 3-3a).
- (b) AN/PRT-4 Battery BA-399/U (para 3-3b).
- (c) ID-1189/PR internal Battery BA-399/U (para 3-3c).

(2) *Alignment.*

- (a) Receiving Set, Radio AN/PRR-9 (para 3-5).
- (b) Transmitting Set, Radio AN/PRT-4 (para 3-7).

c. In addition to types of operation in b above, the ID-1189 (XE-2) /PR only can be used to test AN/PRR-9 (XE-9) Battery, Dry BA-4534/U (para 3-3d) and align Receiving Set, Radio AN/ PRR-9 (XE-9) (para 3-6.1).

3-3. Battery Testing

The ID-1189/PR internal battery should be tested each time a receiver or transmitter is to be aligned. The internal battery is not used during external battery test procedures. External or internal battery condition is indicated on the meter (fig. 3-1) GOOD or BAD sections of the BAT TEST scale. The GOOD section is colored green and the BAD section is colored red. A narrow yellow colored section separates the GOOD and BAD sections.

a. *Testing AN/PRR-9 Battery BA-505/U (fig. 3-2).*

- (1) Remove the battery from the AN/PRR-9 (TM 11-5820-54912) and place the battery in the RCVR BAT. receptacle.
- (2) Turn the FUNCTION switch to OFF.
- (3) Push the BAT. TEST switch to RCVR and read the meter. If the meter indicates in the green portion of the BAT TEST scale, battery is usable. If the meter indicates in the yellow portion of the BAT TEST scale, battery has a very limited life. If the meter indicates in the red portion of the BAT TEST scale, battery must be replaced, and a new battery should be obtained and tested.



Figure 3-2. Indicator, channel alignment ID-1189/PR, AN/PRR-9 battery BA-505/U test.

b. *Testing ANIPRT-4 Batter BA-4991U (fig. 3-3).*

- (1) Remove the battery from the AN/PRT4 (TM 11-5820-459-12) and place the battery in the XMTR BAT. receptacle.
- (2) Turn the FUNCTION switch to OFF.
- (3) Push the BAT. TEST switch to XMTR and read the meter. If the meter indicates in the green portion of the BAT TEST scale, battery is usable. If the meter indicates in the yellow portion of the BAT TEST scale, battery has a very limited life. If the meter indicates in the red portion of the BAT TEST scale, battery must be replaced, and a new battery should be obtained and tested.

c. *Testing ID-1189/PR Internal Battery BA-399/U.*

- (1) Turn the FUNCTION switch to INT BAT.
- (2) Read the meter. If the meter indicates in the yellow or green portion of the BAT TEST scale, the battery is usable. If the meter reads in the red portion of the BAT TEST scale, a new battery must be installed (para 2-3) and tested.
- (3) To remove the old battery (ID-1189/PR only), release the two battery cover fasteners (fig. 2-3) by turning them one quarter turn counterclockwise. Remove the cover plate and pull up on the cloth tape. This will pull the battery from the battery. compartment. To insert a new battery, follow the procedures given in paragraph 2-3.

d. *Testing AN/PRR(XE9) Batter, Dry BA-4584/U Using ID-1189(XE-2)IPR (fig. 3-12).*

- (1) Remove battery adapter from clip located inside .ID-1189(XE-2)/PR cover case.
- (2) Plug the battery adapter into RCVR BAT. receptacle of the ID-1189(XE-2)/PR.
- (3) Remove the battery from the AN/PRR-9(XE-9) (TM 11-5820-549-12-1) and connect it to the battery adapter (fig. 3-12).
- (4) Push the BAT. TEST switch to RCVR and read the meter.
- (5) If the meter indicates at the arrow line marked BA4534 or to the right of the line, the battery is usable. If the meter indicates to the left of the arrow line, the battery must be replaced. If the battery is to be replaced, test the new battery.

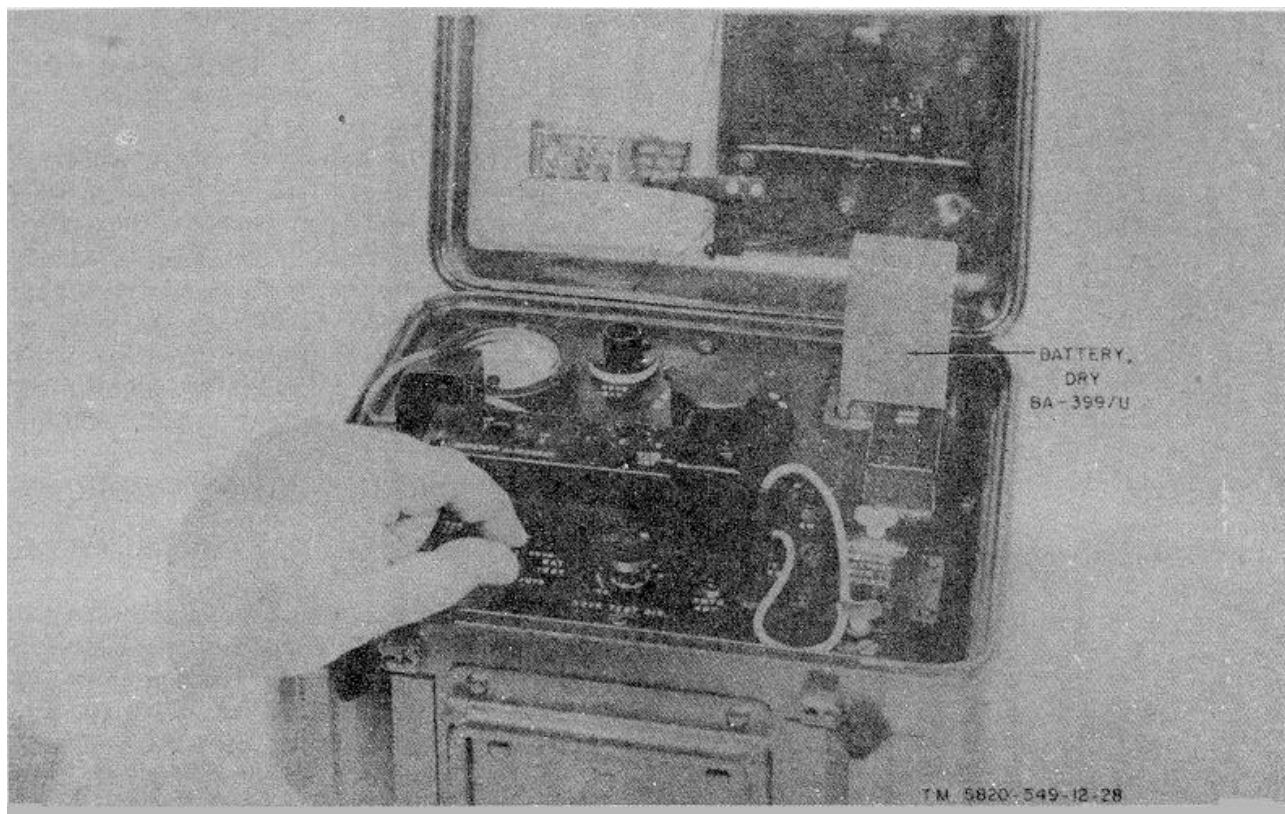


Figure 3-3. Indicator, channel alignment ID-1189/PR, AN/PRT-4 battery BA-399/U.

3-4. Preparation for Alignment

CAUTION

Never use the alignment tool to loosen retaining screws or an a common screwdriver; this may damage the alignment tool blade.

a. Tools. All tools necessary for removal of parts and alignment adjustments are contained in the lid of the ID-1189/PR (Figs. 1-1 and 1-1.1). The screwdriver with the wood handle is used to remove screws retaining the AN/PRR-9 electronic assembly (AN/PRR-9(XE-9), and the AN/PRT-4 cover plate (TM 11-5820-549-12 and TM 11-5820-549-12-1). The alignment tool has a short metal blade and a long handle, and is used for turning all adjustment screws during alignment. The alignment tool or screwdriver is removed from the holding clip by pressing the tops of the pair of prongs toward the top of the individual prong with one hand while sliding the tool sideways out of its clipped position.

b. Preparing AN/PRR-9 for Alignment. Remove the AN/PRR-9 electronic assembly from its case (TM 11-5820-549-12). Slide the AN/PRR-9 electronic assembly, component side up, into the ID-1189/PR RECEIVER ALIGNMENT receptacle (fig. 3-4). Guide the battery pins of the AN/PRR-9 electronic assembly into the receptacle at the top left part of the RECEIVER ALIGNMENT receptacle. The AN/PRR-9 adjustments and test points are then accessible through the holes in the top plate of the RECEIVER ALIGNMENT receptacle. Tighten the receiver screw (fig. 3-1) under the electronic assembly headset jack so that the electronic assembly is held firmly in the RECEIVER ALIGNMENT receptacle.

c. Preparing ANIPRT-4 for Alignment. Remove the AN/PRT-4 antenna, battery, battery case, and cover plate (TM 11-5820-549-12). Insert a BA-399/U into the XMTR BAT. receptacle and test the battery (para 3-3b). A BA-399/U that tests GOOD must remain in-

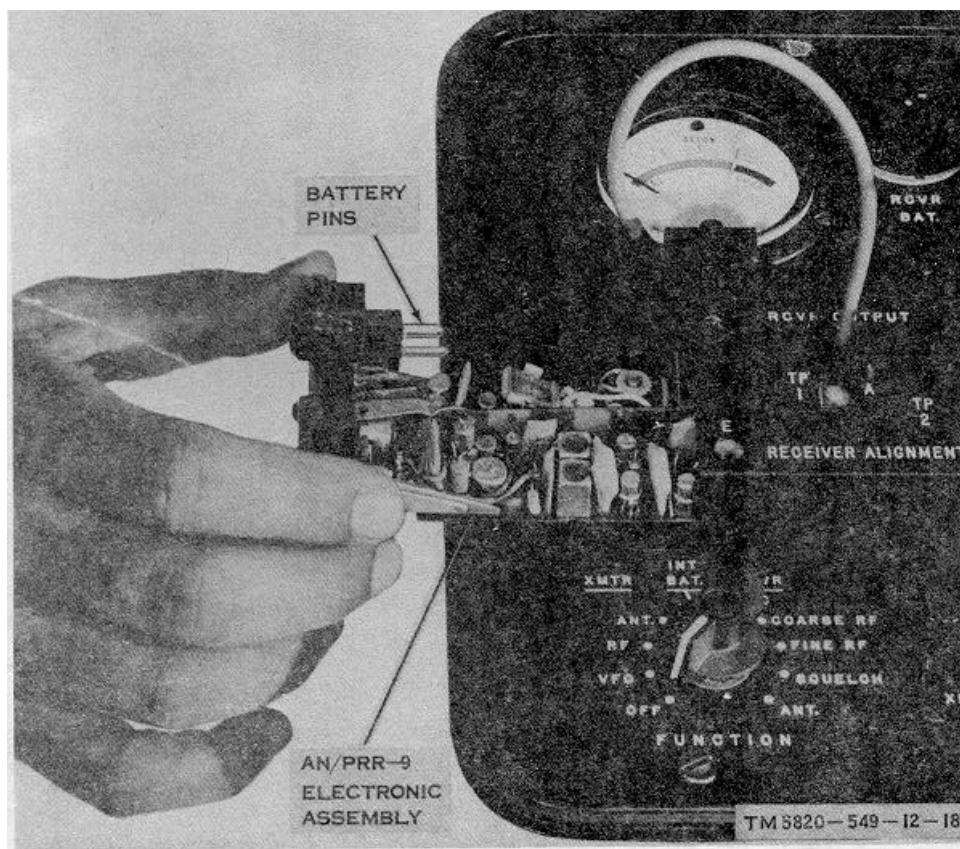


Figure 3-4. Indicator, Channel alignment ID-1189/PR-9 alignment position.

serted in the XMTR BAT. receptacle while aligning the AN/PRT-4. Plug the AN/PRT-4 into the XMTR ALIGN. receptacle (fig. 3-5).

d. *Preparing AN/PRR-9(XE-9) for Alignment.* Follow procedures in paragraph 3-6.1.

3-5. Alignment of Receiving Set, Radio AN/PRR-9 (figs. 3-1, 3-6, and 3-7)

NOTE

Any transmitter generating a strong signal of a like, or near like, frequency in the vicinity of the AN/PRR-9 being aligned, may cause faulty alignment or difficulty in alignment.

- a. Perform preparatory procedures given in paragraph 3-b.
- b. Check the condition of the ID-1189/PR internal battery (para 3-3c). Replace battery if necessary.
- c. Use the alignment tool from the ID-1189/PR lid to set the AN/PRR-9 capacitors through holes B, C, and D in the RECEIVER ALIGNMENT receptacle, according to the approximate settings for 47 megacycles (mc), 51 mc, or 57 mc shown in figure 3-7. For channel frequencies not shown, approximate the settings proportionately between those shown.
- d. Turn the AN/PRR-9 receiver control (TM 11-5820-549-12) about one-half turn clockwise from the OFF position.
- e. Turn the ID-1189/PR FUNCTION switch (fig. 3-1) to RCVR-OSC. Insert the ID-1189/PR TEST PROBE into the AN/PRR-9 TP 1 jack (fig. 3-6) through hole TP 1 in the RECEIVER ALIGNMENT receptacle.

Change 2 3-5

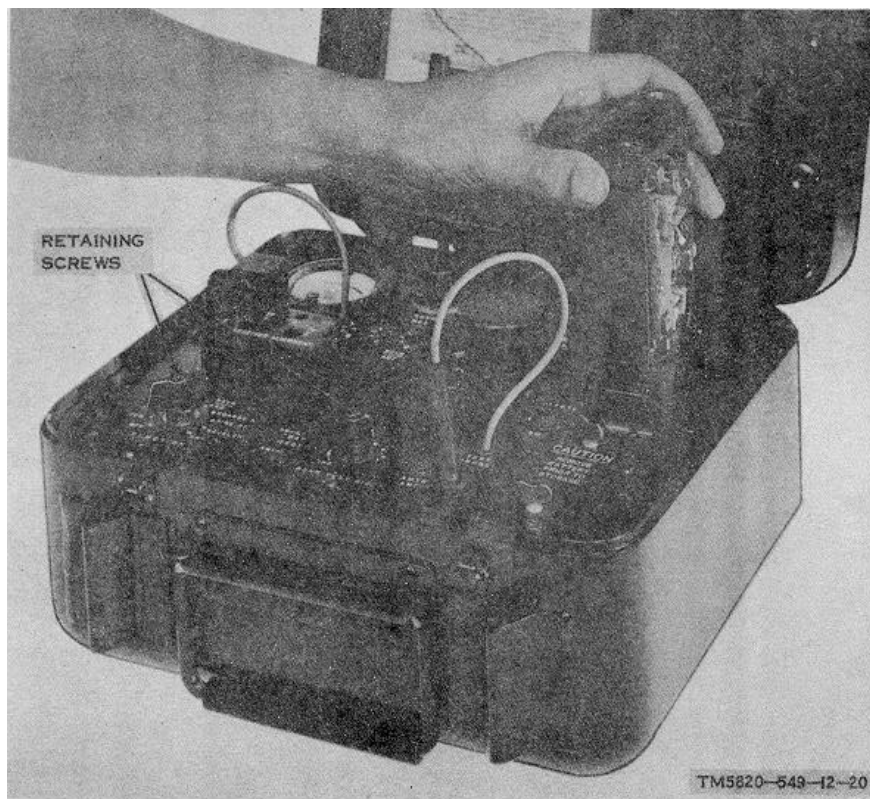


Figure 3-5. Indicator, Channel Alignment ID-1189/PR, AN/PRT-4 alignment position.

f. Use the alignment tool to adjust C7 (hole A) for a maximum meter indication. Adjustment of C7 (hole A) is clockwise if new frequency is lower than old frequency, or counterclockwise if new frequency is higher. One turn gives approximately 1-mc change. If the meter indication is greater than three-fourths of full-scale deflection, the probe is grounded or the AN/PRR-9 receiver control has not been turned on.

g. Turn the ID-1189/PR FUNCTION switch to RCVR-COARSE RF. Turn the RCVR TEST SIG. rotary switch maximum clockwise. Place the TEST PROBE through TP 2 hole into TP 2 jack (fig. 3-6) in the AN/PRR-9 electronic assembly.

h. Adjust the ID-1189/PR FREQUENCY MC control to the new desired AN/PRR-9 operating frequency (not the crystal frequency). Rotate the FREQUENCY MC control for a maximum indication on the meter. If the meter indicates off-scale deflection, reduce the signal level by turning the RCVR TEST SIG. switch counterclockwise one or more steps. Readjust the FREQUENCY MC control for a maximum meter indication.

CAUTION

Do not change the adjustment of the FREQUENCY MC control for the remainder of the AN/PRR-9 alignment.

i. Use the alignment tool to adjust the capacitors through holes B, C, and D in the RECEIVER ALIGNMENT receptacle for a maximum meter indication. Repeat this procedure until no further increase in meter indication is obtained.

j. Repeat *e* and *f* above, and then remove the test probe from TP 1 hole.

k. Turn the AN/PRR-9 receiver control to fully clockwise.

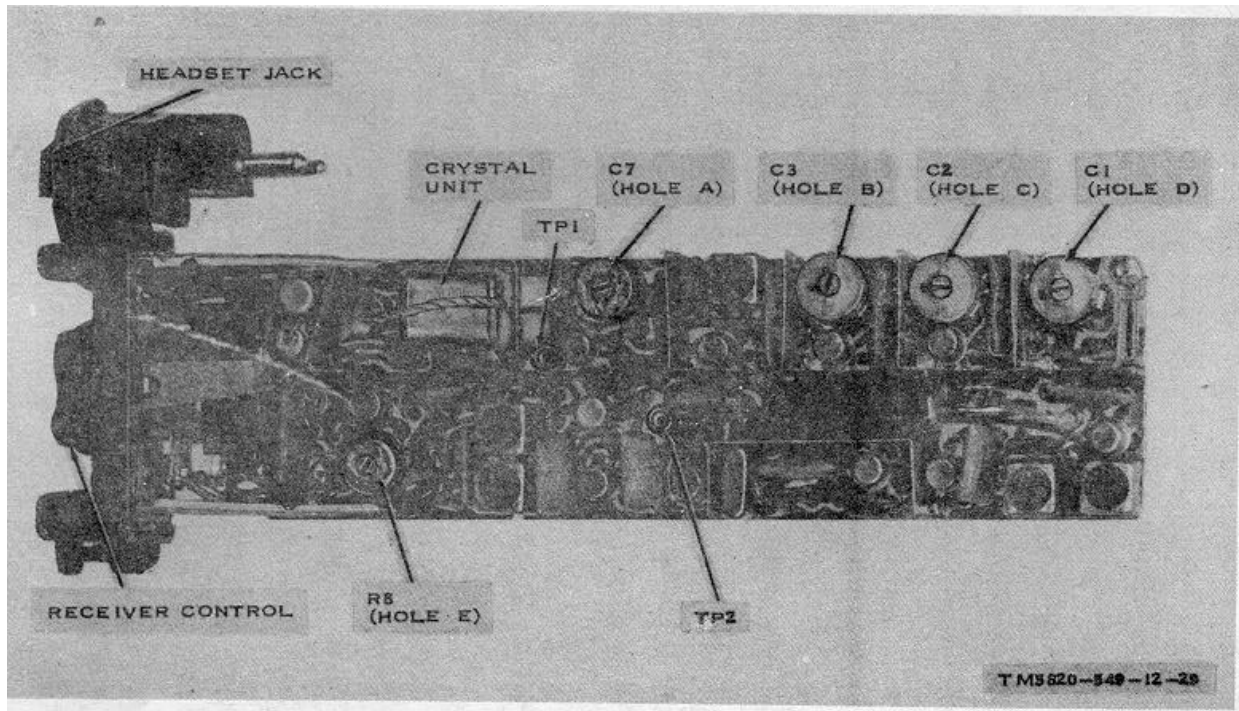


Figure 3-6. Receiving Set, Radio AN/PRR-9, alignment adjustments.

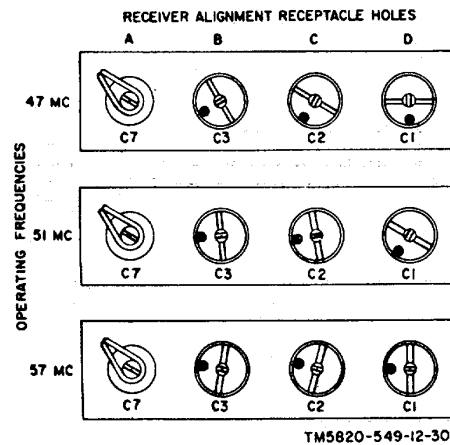


Figure 3-7. Receiving Set, Radio AN/PRR-9, approximate trimmer capacitor settings for alignment.

l. Turn the ID-1189/PR FUNCTION switch to RCVR-FINE RF. Turn the RCVR TEST SIG. rotary switch to its maximum counter-clockwise position. Place the RCVR OUTPUT plug in the headset jack of the AN/PRR-9 electronic assembly (fig. 36). Adjust AN/PRR-9 capacitor C1 under hole D for a minimum indication on the meter.

m. Turn the AN/PRR-9 receiver control OFF and then turn it slowly clockwise to a position equal to one-half of full rotation, to adjust the receiver for squelch operation. Turn the ID-1189/PR FUNCTION switch to RCVR-SQUELCH. Leave the RCVR OUTPUT plug in the headset jack. Turn the adjustment screw under hole E fully counterclockwise. Turn the adjustment screw under hole E clockwise until the meter indication drops to zero; continue to turn the adjustment screw clockwise an additional one-eighth turn. Turn the FUNCTION switch repeatedly from RCVR-ANT. to RCVR-SQUELCH and carefully observe the swing of the meter needle. Turn the adjustment screw under hole E until repeated turning of the FUNCTION switch from RCVR-ANT. to RCVR-SQUELCH produces a rapid swing of the meter needle to midscale followed by a drop-off to zero. Counterclockwise rotation of the adjustment screw in hole E will increase the meter swing.

n. Remove the ID-1189/PR RCVR OUT- PUT plug from the AN/PRR-9 electronic assembly headset jack. Turn the AN/PRR-9 receiver control fully counterclockwise to OFF. Loosen the receiver screw holding the receiver electronic assembly to the RECEIVER ALIGN- MENT receptacle (fig. 3-1). Remove the AN/ PRR-9 electronic assembly from the RE- CEIVER ALIGNMENT receptacle by carefully pulling it straight out.

o. Replace the AN/PRR-9 electronic assembly into its case. Carefully engage the horn transducer contact pins in the receptacle of the receiver electronic assembly (TM 11-5820 549-12). Replace and tighten the one retaining screw holding the horn transducer to the AN/ PRR-9 electronic assembly. Tighten the two retaining screws on the front plate holding the AN/PRR-9 electronic assembly to the case. Replace the AN/PRR-9 Battery BA405/U. Attach the AN/PRR-9 to a helmet and place the helmet on an operator's head. The antenna should be vertical with respect to ground. Turn the AN/PRR-9 receiver control fully clockwise, and then counterclockwise, to a comfortable listening level.

p. Insert the ID-1189/PR antenna into the ID-1189/PR RCVR ANT jack (fig. 3-1). Set the ID-1189/PR FUNCTION switch to RCVR- ANT.

q. Position the operator, with helmet-mounted AN/PRR-4, 3 to 4 feet from the ID-1189/ PR. Set the ID-1189/PR RCVR TEST SIG. rotary switch so that noise is heard in the receiver horn transducer.

r. Adjust the AN/PRR-9 antenna loading coil (fig. 3-8) for *minimum* noise. Vary the distance of the AN/PRR-9 from the ID-1189/ PR, or adjust the ID-1189/PR RECVR TEST SIG. rotary switch to maintain some noise in the AN/PRR-9. Repeat the AN/PRR-9 antenna loading coil adjustment until no further reduction of noise can be obtained.

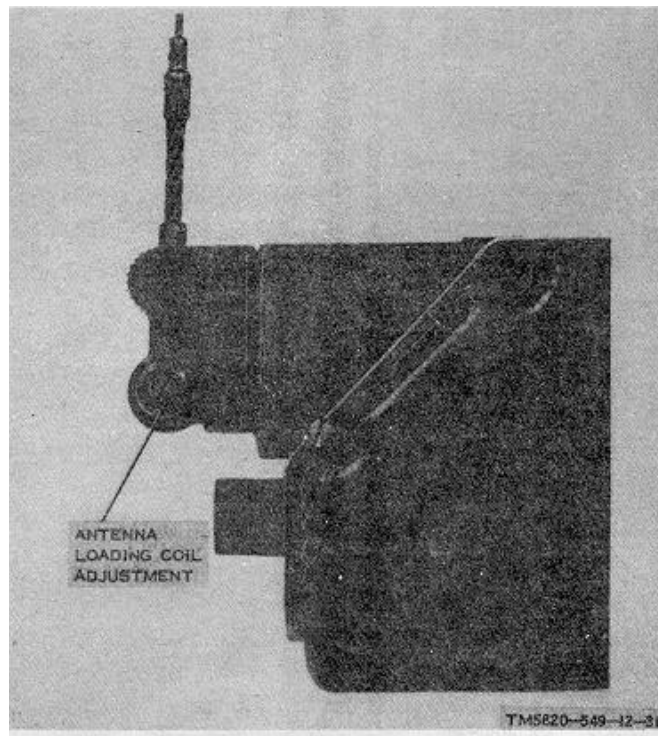


Figure 3-8. Receiving Set, Radio AN/PRR-9, antenna loading coil adjustment.

s. Remove the AN/PRR-9 from the helmet, turn the receiver control to OFF, and mark the AN/PRR-9 operating frequency in the space provided on the side of the AN/PRR-9 identification plate. This completes the alignment procedure and the AN/PRR-9 is now ready for use on the selected channel frequency. .

3-6. Alignment Chart, Receiving Set, Radio AN/PRR-9

After becoming familiar with the procedures in paragraph 3-5, the following alignment chart may be used to permit more rapid AN/ PRR-9 alignment:

Alignment Chart, Receiving Set, Radio AN/PRR9

Step No.	Control settings of ID-1189/PR		FREQUENCY MC	TEST PROBE 3,4	RECVR OUTPUT plug	Setting of AN/PRR-9 control ^a	Adjustments ^a (figs. 3-6 and 3-8)	Adjust for ^a
	FUNCTION	RECVR TEST SIG. ^a						
1	-----	-----	-----	-----	-----		Holes B, C, D	Per fig. 3-7 Max meter indication. Preset FREQUENCY MC to approximate new operating frequency, and then make fine adjustment for maximum meter indication.
2	OSC-----	-----	-----	TP1	-----	½ cw	Hole A -----	
3	COARSE RF	Max cw	Approx. new operating frequency	TP 2	-----	½ cw	FREQUENCY MC.	

Do not change the setting of the FREQUENCY MC control after step No. 3

4	COARSE RF.	Max cw	-----	TP2	-----	½cw	Holes B, C, D	Max meter indication. Reduce RCVR TEST SIG. ccf to keep meter pointer on-scale. Max meter indication.
5	OSC -----	-----	-----	TP 1	-----	½ cw	Hole A -----	
6	FINE RF---	Max ccw	-----	Remove from TP 1.	Headset jack	¾cw	Hole D -----	
7	SQUELCH -	----	----	-----	Headset jack	¾ cw	Hole E max ccw.	Max meter indication. Zero meter indication, and then plus 1/8 turn cw. Meter pointer should swing to midscale and back to zero.
8	SQUELCH--	-----	-----	-----	Headset jack	¾ cw	Hole E cw --	
9	Back and forth from ANT to SQUELCH	-----	-----	-----	Headset	¾ cw jack	Hole E -----	

Remove AN/PRR-9 from ID-1189/PR, assemble and attach to helmet. Place on head 3 to 4 feet from ID-1189/PR. Plug ID-1189/PR antenna into RECVR ANT jack.

10	ANT.	Position where some noise is heard in AN/PRR-9.	-----	-----	Max cw, and	AN/PRR-9 antenna then back to listening level.	Minimum noise. loading coil.
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^aCW Indicate clockwise. CCW indicate counterclockwise

3-6.1 Alignment Preparation for AN/PRR-9(XE-9)

The AN/PRR-9(XE-9) can be aligned only in the ID-1189 (XE-2) /PR, using the RECEIVER ALIGNMENT adapter.

a. Installing RECEIVER ALIGNMENT Adapter.

- (1) Remove the RECEIVER ALIGNMENT adapter (fig. 3-13) from the inside of the ID-1189(XE-2)/PR case cover.
- (2) Guide bottom side of RECEIVER ALIGNMENT adapter (fig. 3-13) along the top of the RECEIVER ALIGNMENT receptacle (fig. 3-14) of the ID-1189(XE-2)/PR so that power connector P11 (fig. 3-1°) fits into the two-pin receptacle (fig. 3-12) at the top left part of the RECEIVER ALIGNMENT receptacle.
- (3) Tighten the captive screw in the adapter to the RECEIVER ALIGNMENT receptacle (fig. 3-15).
- (4) Loop the longer portion of the retaining strap -(fig. 3-13) underneath the RECEIVER ALIGNMENT receptacle (fig. 3-15). Firmly pull the longer portion of the remaining strap and overlap the two ends of the retaining strap on top of the RECEIVER ALIGNMENT adapter to make as much of the pile and hook areas contact as possible. Press the pile and hook areas together.
- (5) Place receiver antenna connector P12 (fig. 3-13) into the RCVR ANT. receptacle (fig.3-12).
- (6) Insert the TEST PROBE of the ID- 1189(XE-2)/PR into the top receptacle (fig. 3-14) of the RECEIVER ALIGNMENT adapter.
- (7) Insert the RCVR OUTPUT plug of the ID-1189(XE-2)/PR into the bottom receptacle (fig. 3-14) of the RECEIVER ALIGNMENT adapter.
- (8) Turn the RECEIVER ALIGNMENT adapter SQUELCH ON switch to off.

CAUTION

Never use the alignment tool to loosen retaining screws or as a common screwdriver; this may damage the alignment tool blade.

b. Tools. All tools necessary for removal of parts and alignment adjustment are contained in the lid of the ID-1189(XE-2)/PR (fig. 1-1.1). The screwdriver with the wood handle is used to remove screws that retain the AN/ PRR-9(XE-9) electronic unit assembly (TM 11-5820-549-12-1). The alignment tool has a short metal blade and a long handle and is used for turning all adjustment screws during alignment. The alignment tool or screwdriver is removed from the holding clips in the lid by pressing the tops of the pair of prongs toward the top of the individual prong with one hand while sliding the tool sideways out of its clipped position.

c. Preparing AN/PRR-9(XE-9) for Alignment. Remove the AN/PRR-9(XE-9) electronic unit assembly from its case (TM 11- 5820-549-12-1). Slide the AN/PRR-9(XE-9) electronic unit assembly, component side up, into the opening at the left end of the RE- CEIVER ALIGNMENT adapter (fig. 3-16). Guide the battery plugs into the battery plug receptacle' (fig. 3-15) at the left end of the RECEIVER ALIGNMENT adapter. Receiver capacitors C1 (hole D), C3 (hole C), C7 (hole B) and C15 (hole A) (fig. 3-17) are adjustable through the openings in the top of the RE- CEIVER ALIGNMENT adapter when the receiver is properly installed in the RECEIVER ALIGNMENT adapter.

3-6.2 Alignment of Receiving Set, Radio AN/PRR(XE-9)

NOTE

Any transmitter generating a strong signal of a like, or near like, frequency in the vicinity of the AN/PRR-9 (XE- 9) being aligned may cause faulty alignment or cause difficulty in alignment.

- a. Perform preparatory procedures given in paragraph 3-6.1.
- b. Install battery (para 2-3b) and check the condition of the ID-1189(XE-2)/PR battery (para 3-3c). Replace battery if necessary.
- c. Use alignment tool to set AN/PRR-9 (XE-9) capacitors through holes B, C, and D of the

RECEIVER ALIGNMENT adapter, according to approximate settings for 47 megahertz (MHz), 47 megacycles, 51 MHz, or 57 MHz shown in figure 3-18. For channel frequencies not shown, approximate the settings proportionately between those shown.

d. Turn the AN/PRR-9(XE-9) receiver control about one-half turn clockwise from the OFF position (TM 11-5820-549-12-1).

e. Place the ID-1189(XE-2)/PR FUNCTION switch (fig. 3-11) to RCVR-OSC position. Insert the P8A test probe (fig. 3-13) in the AN/PRR-9 (XE-9) TP1 test receptacle (fig. 317) through hole TP1 in the RECEIVER ALIGNMENT adapter. Adjust C15 (hole A) for maximum meter indication. Adjustment of C15 should be clockwise if the new frequency is lower than the previous frequency, or counterclockwise if the new frequency is higher. A one-quarter turn of C15 gives approximately a 1-MHz change.

f. Turn the ID-1189(XE-2)/PR FUNCTION switch to RCVR-COARSE RF. Turn RCVR TEST SIG. rotary switch fully clockwise. Place P8A test probe (fig. 3-13) through hole TP2 of the RECEIVER ALIGNMENT adapter into the TP2 receptacle (fig. 3-17) of the AN/PRR-9 (XE-9) electronic unit assembly. Adjust the ID-1189(XE-2)/PR FREQUENCY MC control for the desired operating frequency. Rotate the FREQUENCY MC dial for maximum indication on the meter. If the meter indication shows off-scale deflection, reduce the signal level by turning the RCVR TEST SIG. switch counterclockwise one or more steps. Readjust the FREQUENCY MC control for maximum meter indication.

CAUTION

Do not change the adjustment of the FREQUENCY MC control for the remainder of the AN/PRR-9 (XE-9) alignment.

g. Use the adjustment tool to adjust capacitors through holes B, C, and D of the RECEIVER ALIGNMENT adapter for a peak meter reading. Readjust the RCVR TEST SIG. switch, if necessary, to maintain one-half scale or less meter indication. Repeat adjustment of capacitors through holes B, C, and D. h. Repeat e above, then remove the P8A test probe from the TP1 hole.

i. Turn AN/PRR-9(XE-9) receiver control fully clockwise which sets the receiver for unsquelched operation.

j. Set the ID-1189(XE-2)/PR FUNCTION switch to RCVR-FINE RF. Turn RCVR TEST SIG. rotary switch fully counterclockwise (minimum signal). Place the P5A receiver output connector (fig. 3-11) in the headset jack (fig. 3-16) of the AN/PRR-9 (XE-9) electronic unit assembly.

k. Adjust capacitor C3 through hole C of the RECEIVER ALIGNMENT adapter for minimum meter reading.

l. Turn AN/PRR-9(XE-9) receiver control to OFF and then clockwise, not more than three-fourths turn to set receiver for squelched operation (TM 11-5820-549-12-1).

m. Set ID-1189(XE-2)/PR FUNCTION switch to RCVR-SQUELCH. Leave P5A receiver output connector in headset jack of receiver. Place RECEIVER ALIGNMENT adapter P8A test probe through hole TP1 into TP1 receptacle of AN/PRR-9(XE-9) (fig. 3-17.). Turn R5 through hole E of the RECEIVER ALIGNMENT adapter fully counterclockwise. Place SQUELCH switch of RECEIVER ALIGNMENT adapter (fig. 3-11) to ON. Slowly turn R5 clockwise through hole E until the meter indicating needle swings up-scale. Leave R5 in this position. Turn RECEIVER ALIGNMENT adapter SQUELCH switch to its off position. Meter indicating needle should swing downscale. The meter indicating needle should swing upscale when RECEIVER ALIGNMENT adapter SQUELCH switch is ON, and downscale when SQUELCH switch is in the off position. Remove P8A test probe from TP1.

n. Remove the RECEIVER ALIGNMENT adapter P5A receiver output connector from the headset jack of AN/PRR-9(XE-9). Turn AN/PRR-9 (XE-9) receiver control fully counterclockwise to OFF. Remove the AN/PRR-9 (XE-9) electronic unit assembly from the RECEIVER ALIGNMENT adapter.

o. Replace the AN/PRR-9 (XE-9) electronic assembly in its case (TM 11-5820-549-12-1). Tighten the two retaining screws on the AN/ PRR-9(XE-9) front plate and install the screw holding the horn transducer to the AN/PRR- 9(XE-9) electronic unit assembly. Replace the AN/PRR-9(XE-9) Battery BA4534/U. Attach the AN/PRR-9(XE-9) to a helmet and place the helmet on the operators head. The antenna should be vertical with respect to the ground. Turn the AN/PRR-9(XE-9) receiver control fully clockwise, for unsquelched opera- tion then counterclockwise for a comfortable listening level.

p. Remove the P12 receiver antenna connector (fig. 313) from the ID-1189(XE-2)/PR RCVR ANT. receptacle (fig. 3-12). Remove the test antenna (fig. 1-1.1) from the ID-1189 (XE-2)/PR lid and plug it into the ID-1189 (XE-2)/PR RCVR ANT. receptacle. Set the ID-1189 (XE-2) /PR FUNCTION switch to RCVR ANT.

q. Position the operator with the helmet mounted AN/PRR-9(XE-9) from 3 to 4 feet from the ID-1189(XE-2)/PR. Set the ID-1189 (XE-2)/PR RCVR TEST SIG. rotary switch so that noise is heard in the receiver horn transducer.

r. Adjust the AN/PRR-9(XE-9) antenna loading coil (fig. 3-8) for *minimum* noise. Vary the distance of the AN/PRR-9(XE-9) from the ID-1189(XE-2)/PR or adjust the RCVR TEST SIG. rotary switch to maintain some noise in the AN/PRR-9(XE-9). Repeat the adjustment of the antenna loading coil until no further reduction of noise can be obtained.

s. Remove the AN/PRR-9(XE-9) from the helmet, turn the receiver control to OFF, and mark the operating frequency in the space provided on the AN/PRR-9(XE-9) identification plate.

t. Set the ID-1189(XE-2)/PR FUNCTION switch to OFF. This action completes the alignment procedure and the AN/PRR-9(XE-9) is now ready for use on the selected channel fre- quency.

3-6.3 Alignment Chart, Receiving Set, Radio AN/PRR-9(XE-9)

After becoming familiar with the procedures in paragraph S6.2, the following alignment chart may be used to permit more rapid AN/PRR-9(XE-9) alignment. Preliminary procedures require connecting receiver antenna P12 to RCVR ANT receptacle, TEST PROBE to RECEIVER ALIGNMENT adapter top receptacle, and RCVR OUTPUT plug to RE- CEIVER ALIGNMENT adapter bottom receptacle.

Step No.	Control settings of ID-1189(XE-2)/PR			P8A TEST PROBE	P5A RECVR OUTPUT	Receiver control	Adjustments ^a (figs. 3-17 and 3-18)	Adjust for ^a
	FUNCTION	RECVR TEST SIG. ^a	FREQUENCY MC					
1	-----	-----	-----	-----	-----	-----	Holes B, C, D	Per fig. 3-18
2	OSC ^c	-----	-----	TP 1	-----	1/2 cw	Hole A	Max meter indication.
3	COARSE RF. ^c	Max cw	Approx. new operating frequency.	TP 2	-----	1/2 cw	FREQUENCY MC.	Preset FREQUENCY MC to approximate new operating frequency, and then make fine adjustment for maximum meter indication.
	Do not change the setting of the FREQUENCY MC control after step No. 3.							
4	COARSE RF. ^c	Max cw	-----	Removed	Headset	Clockwise	Hole C-----	Min meter indication. Reduce RCVR TEST SIG. ccw to keep meter pointer on-scale.
5	OSC ^c -----	-----	-----	TP1	-----	1/2 cw	Hole A-----	Max meter indication.
6	FINE RF. ^c	Max ccw	-----	Removed from	Headset jack	Clockwise unquelched	Hole C-----	Min. Meter indication.
7	SQUELCH ^b	-----	-----	TP1	Headset jack	3/4 cw Squelched.	Hole E max ccw, then slowly cw until indication.	Upscale meter indication
8	SQUELCH ^c	-----	-----	TP1	Headset jack.	3/4 cw (No change from 7).	(No change From 7).	Meter pointer should swing downscale.

Step No.	Control settings of ID-1189(XE-2)/PR			P8A TEST PROBE	P5A RECVR OUTPUT	Receiver control	Adjustments ^a (figs. 3-17 and 3-18)	Adjust for ^a
	FUNCTION	RECVR TEST SIG. ^a	FREQUENCY MC					
	Reassemble AN/PRR-9(XE-9) electronic unit assembly into its case and attach to helmet. Place on head and stand 3 to 4 feet from ID-1189(XE-2)/PR. Plug ID-1189(XE-2)/PR antenna into RECVR ANT. receptacle							
9	ANT	Position where some noise is heard in AN /PRR-9(XE-9).				Max cw then back to listening level.	AN/PRR-9 (XW9) antenna loading coil.	Min. Noise

^a cw indicates clockwise. ccw indicates counterclockwise.

^b Set RECEIVER ALIGNMENT adapter SQUELCH switch to ON.

^c Set RECEIVER ALIGNMENT adapter SQUELCH switch to off position.

3-7. Alignment of Transmitting Set, Radio AN/PRT-4

(figs. 3-9 and 310)

- a. Perform preparatory procedures given in paragraph 34c.
- b. Check condition of the ID-1189/PR internal battery (para 33c). Replace battery if necessary.
- c. Set the ID-1189/PR FUNCTION switch to XMTR-VFO. Set the AN/PRT4 CH-1-CH-2 switch to CH-1.
- d. Plug the ID-1189/PR TEST PROBE into AN/PRT-4 test point TP 1 (fig. 3-9) and press the AN/PRT-4 TONE-VOICE switch in the direction of the VOICE arrow. All AN/PRT4 alignment procedures are accomplished with the TONE-VOICE switch pressed in the direction of the VOICE arrow.
- e. Using the alignment tool, adjust AN/ PRT-4 C27 (fig. 3-9) for a center of ALIGN scale meter indication on the ID-1189/PR. Adjust C27 clockwise if the new channel frequency is lower than the old frequency, or counterclockwise if the new channel frequency is higher than the old frequency. One turn gives approximately a 1-megacycle change. At the proper setting, a slight back and forth adjustment of C27 will cause the meter pointer to deflect back and forth between the calibration marks on each side of the center of the ALIGN scale mark.
- f. Set the AN/PRT4 CH-1-CH-2 switch to CH-2 and hold the TONE-VOICE switch in the direction of the VOICE arrow. Adjust R36 (fig. 3-9) for a center of ALIGN scale meter indication in the same manner as the C27 adjustment in e above.
- g. Set the AN/PRT4 CH-1-CH-2 switch to CH-1. Remove the TEST PROBE from TP 1.
- h. Set the ID-1189/PR FUNCTION switch to XMTR-RF. Continue to hold the TONE- VOICE switch in the direction of the VOICE arrow. Adjust AN/PRT4 C43 (fig. 3-9) for a maximum meter indication, and then turn C43 clockwise to reduce meter indication to three-fourths of the maximum indication.
- i. Adjust AN/PRT4 C45 (fig. 89) for a maximum meter indication.
- j. Adjust AN/PRT4 C51 (fig. 89) for a minimum meter indication.
- k. Adjust C43 for a maximum meter indication. Do not adjust C45 or C51 after this final adjustment of C43.
- l. Repeat c through f above, and then proceed to m below.
- m. Remove the AN/PRT-i from the ID-1189/PR XMTR ALIGN receptacle and reassemble the AN/PRT-4. Replace the cover plate, antenna, battery, and battery case (TM 11-5820-549-12). Use the same battery that was plugged into the ID-1189/PR XMTR BAT. receptacle.
- n. Plug the ID-1189/PR antenna into the XMTR ANT jack (fig. 3-1). Fully extend the AN/PRT-4 antenna. Place the AN/PRT4 CH-1-CH-2 switch to CH-1. Hold the AN/ PRT-4 1 to 2 feet from the ID-1189/PR antenna.
- o. Set the ID-1189/PR FUNCTION switch to XMTR-ANT. Press the AN/PRT4 TONE- VOICE switch in the direction of the VOICE arrow. Move the AN/PRT4 away or toward the ID-1189/PR to obtain at least a midscale meter indication on the ID-1189/PR. Adjust an AN/PRT-4 loading coil (fig. 310) for a maximum indication on the ID-1189/PR meter.
- p. Release the AN/PRT-4 TONE-VOICE switch and lower the AN/PRT4 antenna. This completes the alignment of new channels 1 and 2 of the AN/PRT-4. Write the new operating frequencies (not crystal frequencies) in the respective blocks above the AN/PRT-4 paneled- marked positions of the CH-1-CH-2 selector switch.

3-8. Alignment Chart, Transmitting Set, Radio AN/PRT-4

After becoming familiar with the procedures in paragraph 3-7, the following alignment chart may be used to permit more rapid AN/ PRT4 alignment.

NOTE

Be sure a good BA-399/U is used in XMTR BAT. receptacle.

NOTE

Be sure a good BA-399/U is used in XMTR BAT. receptacle.

Step	Control settings				Adjustment figs. 3-9 and 3-10	Adjust for
	ID-1189/PR	AN/PRT-4				
No.	FUNCTION	TEST PROBE	TONE-VOICE	CH-1, CH/2		
1	VFO	TP 1	VOICE	CH-1	C27	Midscale meter indication. Slight back and forth adjustment of C27 should cause meter pointer to deflect back and forth between calibration marks each side of center mark.
2	VFO	TP 1	VOICE	CH-2	R36	Midscale meter indication. Slight back and forth adjustment of R36 should cause meter pointer to deflect back and forth between calibration marks each side of center mark.
3	RF	Remove from TP 1	VOICE	CH-1	C43	Maximum meter indication. Turn C43 clock wise to reduce reading to % of its maximum indication
4	RF	-----	VOICE	CH-1	C45	Maximum meter indication.
5	RF	-----	VOICE	CH-1	C51	Minimum meter indication.
6	RF	-----	VOICE	CH-5	C43	Maximum meter indication.
7	Repeat steps 1 and 2, and then proceed to step 8					
8	Reassemble AN/PRT-4. Plug alignment indicator antenna into XMTR ANT jack. Place AN/PRT-4 1 to 2 feet from alignment indicator antenna with AN/PRT-4 antenna fully extended.					
9	XMTRANTJ	-----	VOICE	CH-1	Loading coil.	Maximum meter indication.

**39. Indicator, Channel Alignment
ID-1189/PR, Stopping Procedure**

- a. Turn the FUNCTION switch to OFF.
- b. Replace the instruction plates under their respective clips in the ID-1189/PR case cover.
- c. Replace the screwdriver and alignment tool in their respective clips in the cover.
- d. Replace the ID-1189/PR antenna in the case cover. The top of the antenna fits under the top clip. Coil the antenna around the side of the cover and place the bottom of the antenna under the bottom retaining clip.
- e. If the ID-1189/PR will not be used for 1 day or more, remove the battery (para 3-3c). For ID-1189(XE-2)/PR, the battery must be removed to close the case.
- f. Place the TEST PROBE in its retaining rubber grommet.
- g. Place the RECVR OUTPUT plug in its retaining jack. For the ID-1189(XE-2)/PR, the battery adapter and the RECEIVER ALIGNMENT adapter may be left installed or placed in their respective positions in the case lid (fig. 3-1.1).
- h. Swing the case cover down and center it over the bottom portion of the case. Place the bottom of each front latch under its respective latch strike (fig. 2-2).
- i. Close the front latches by pushing up and against the lid. Close the rear latches in the same manner.

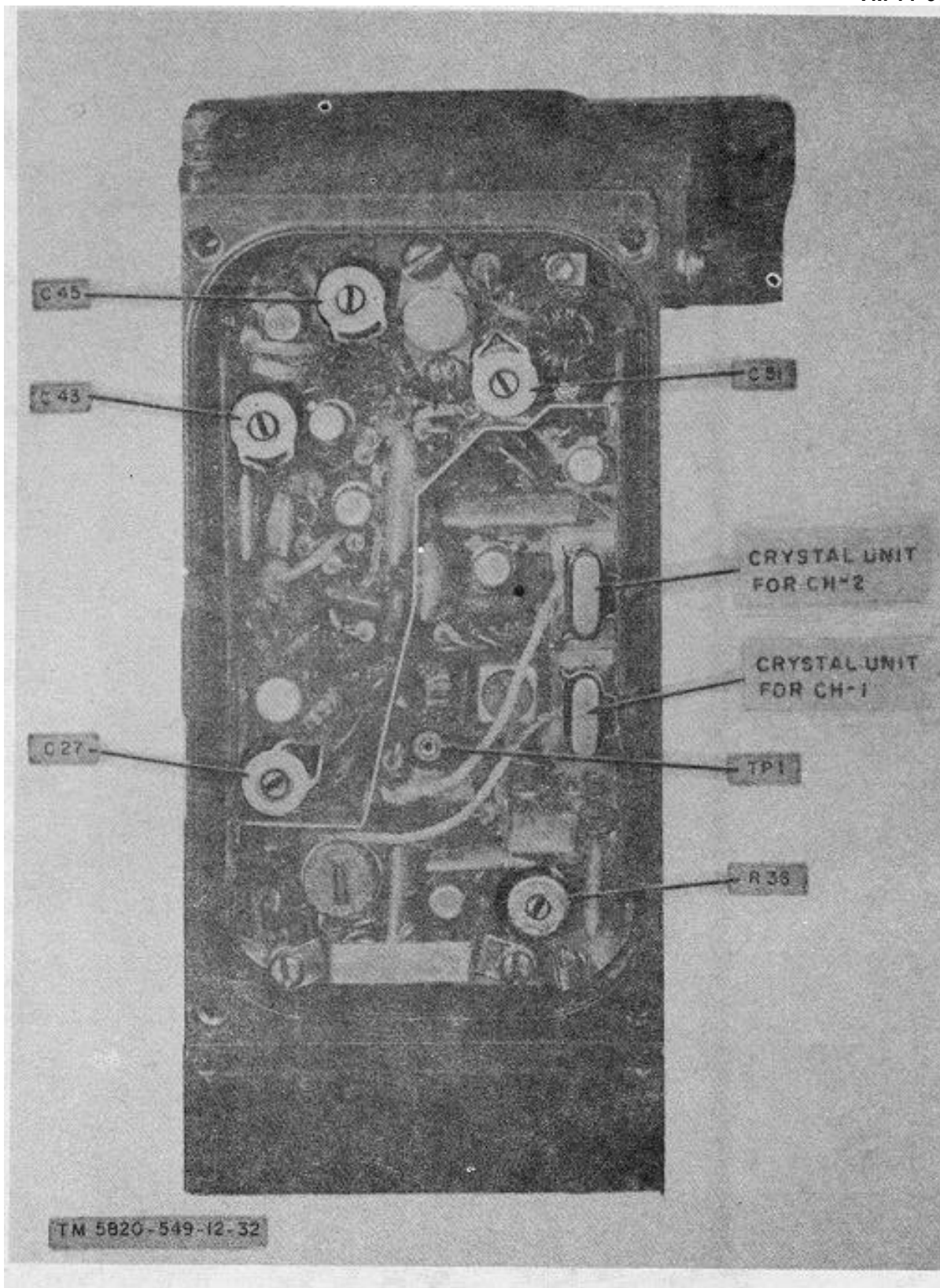


Figure 3-9. Transmitting Set, Radio AN/PRT-4, alignment adjustments.

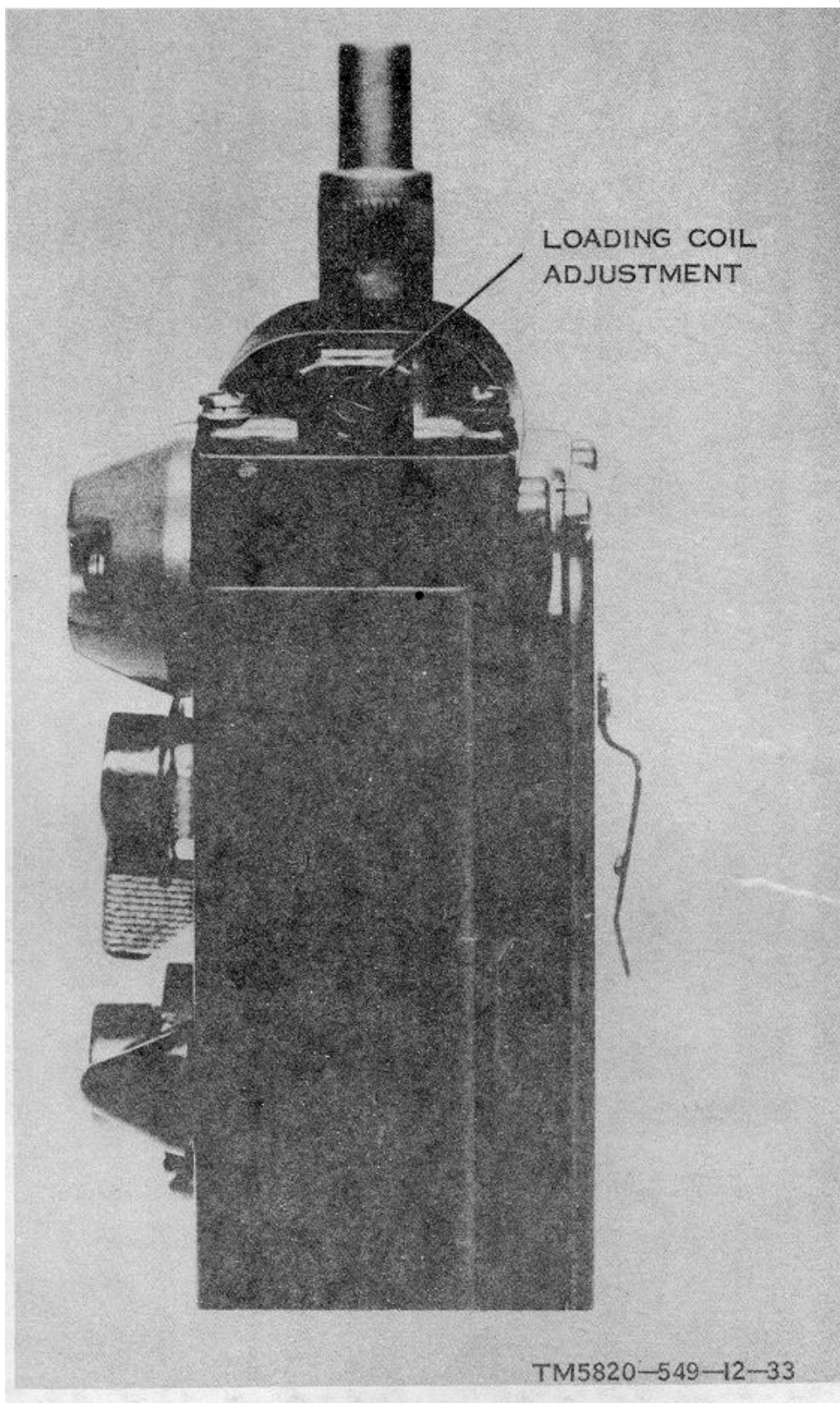
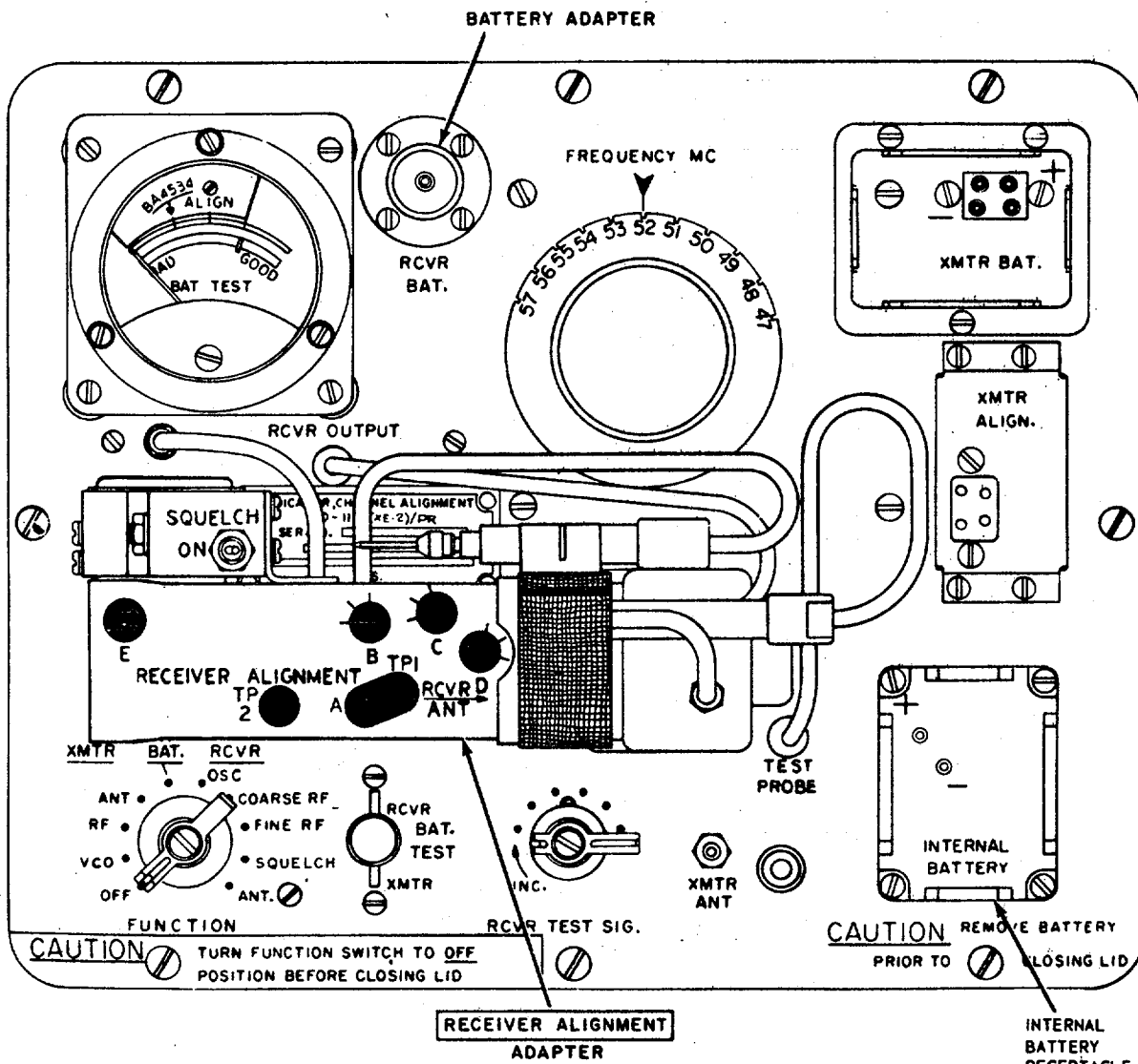


Figure 3-10. Transmitting Set, Radio AN/PRT-4, loading coil adjustment.



TM6625-937-12-C1-2

Figure 3-11. Indicator, Channel Alignment ID-1189 (XE-1)/PR, operating controls, indicators, jacks and adapters.

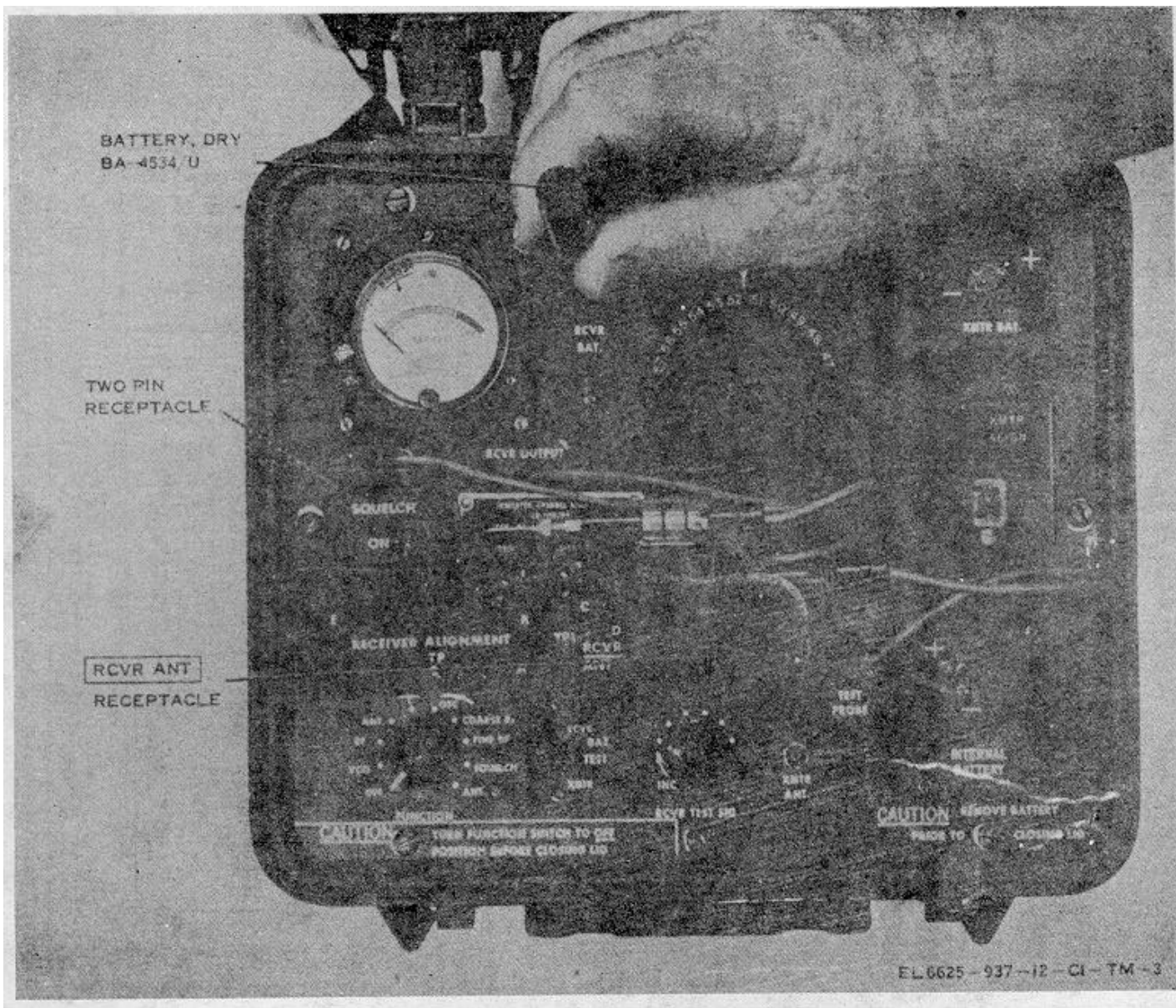


Figure 3-12. Battery, Dry BA-4534/U, connected to battery adapter in ID-1189 (XE-2)/PR.

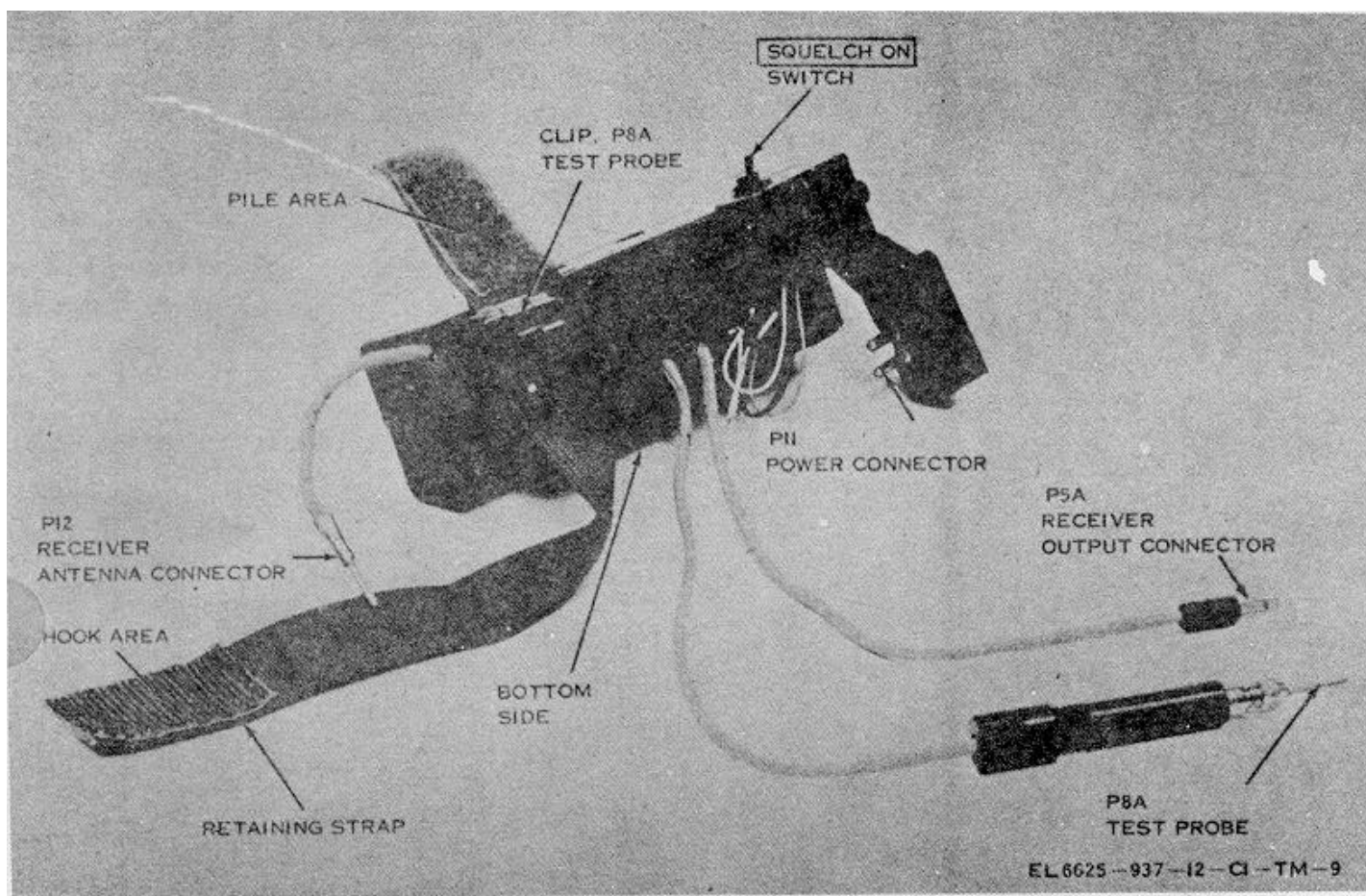


Figure 3-13. RECEIVER ALIGNMENT adapter, oblique view.

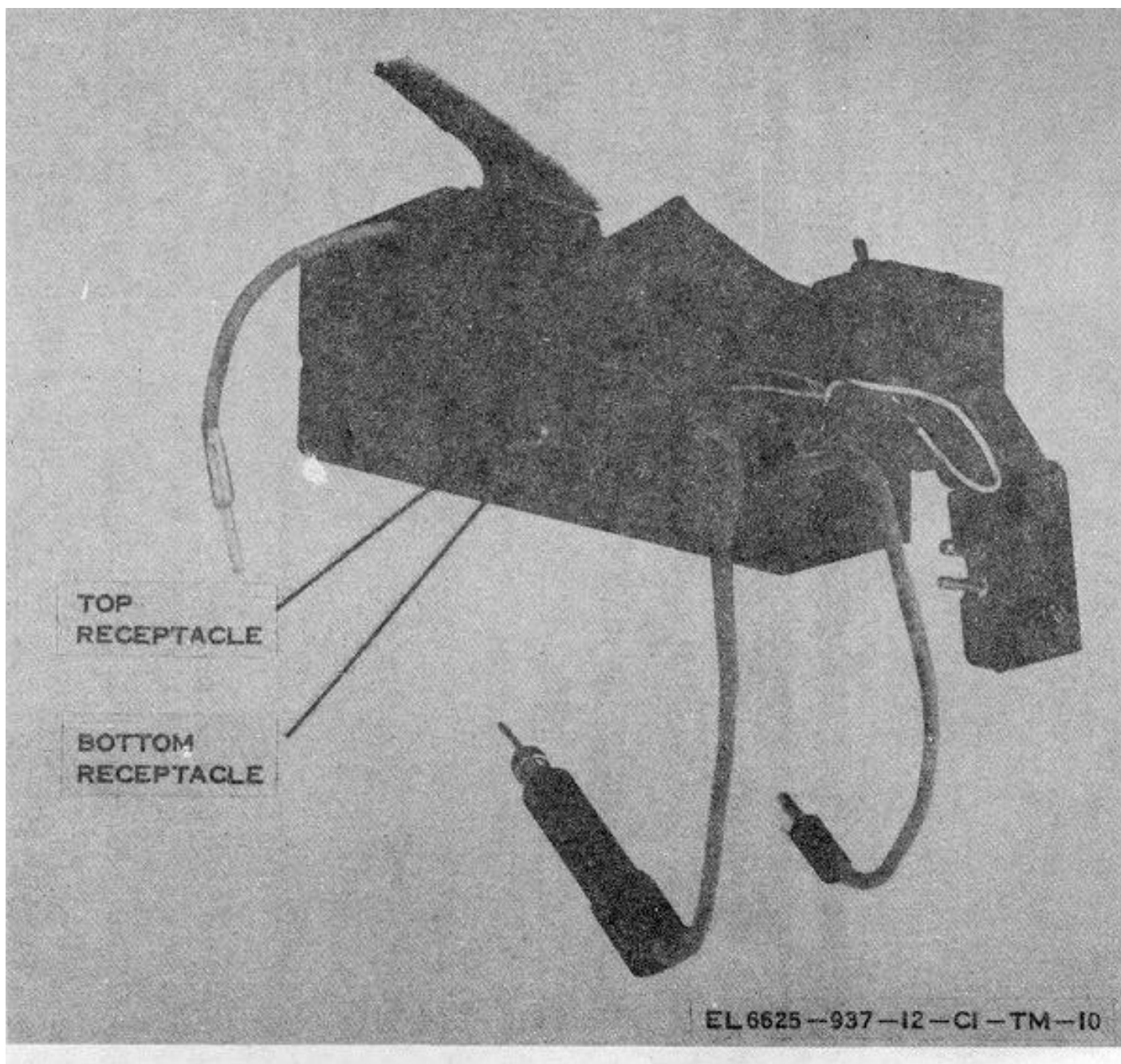


Figure 3-14. RECEIVER ALIGNMENT adapter, end view.

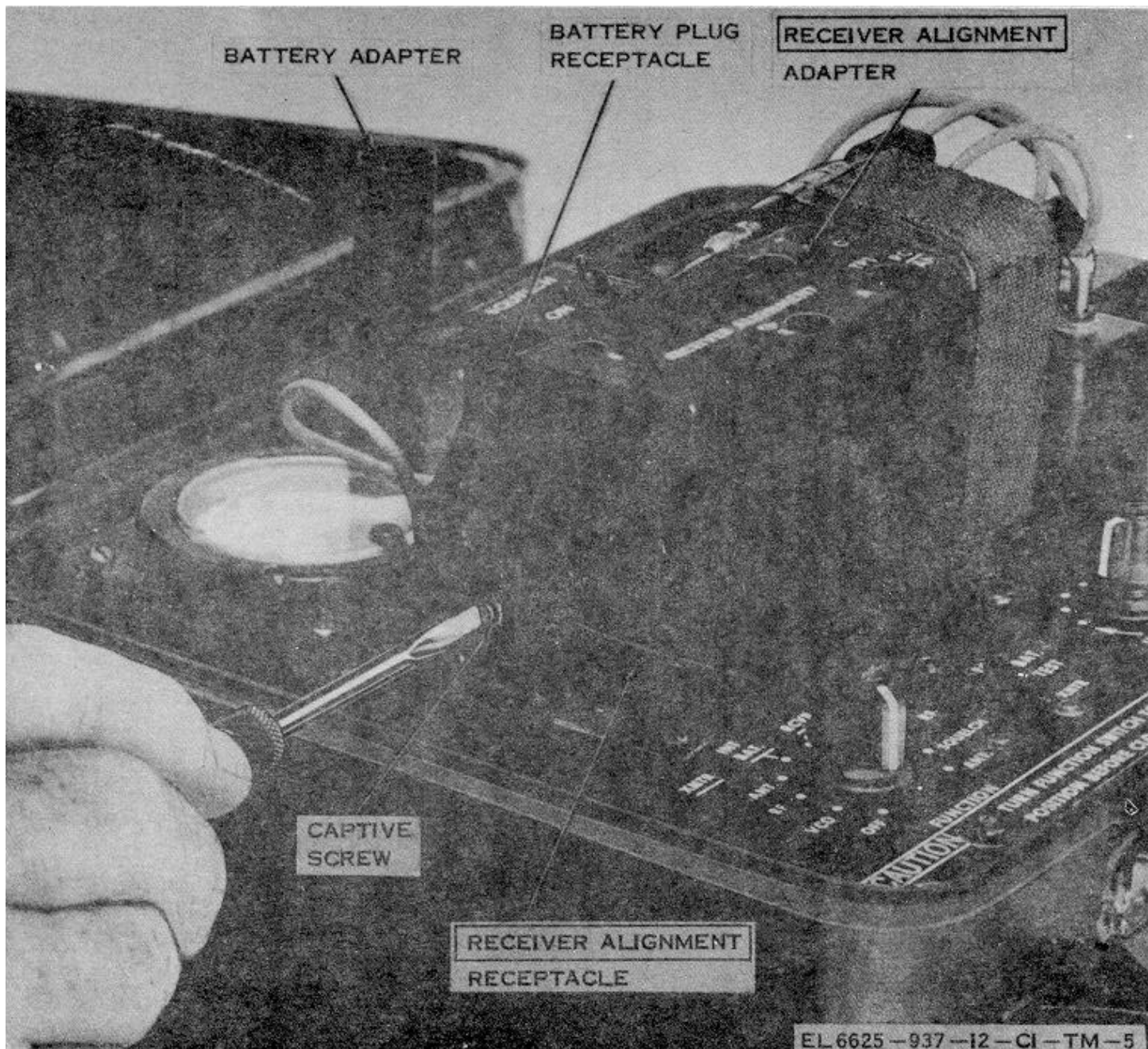


Figure 3-15. RECEIVER ALIGNMENT adapter connected to ID-1189 (XE-2)/PR.

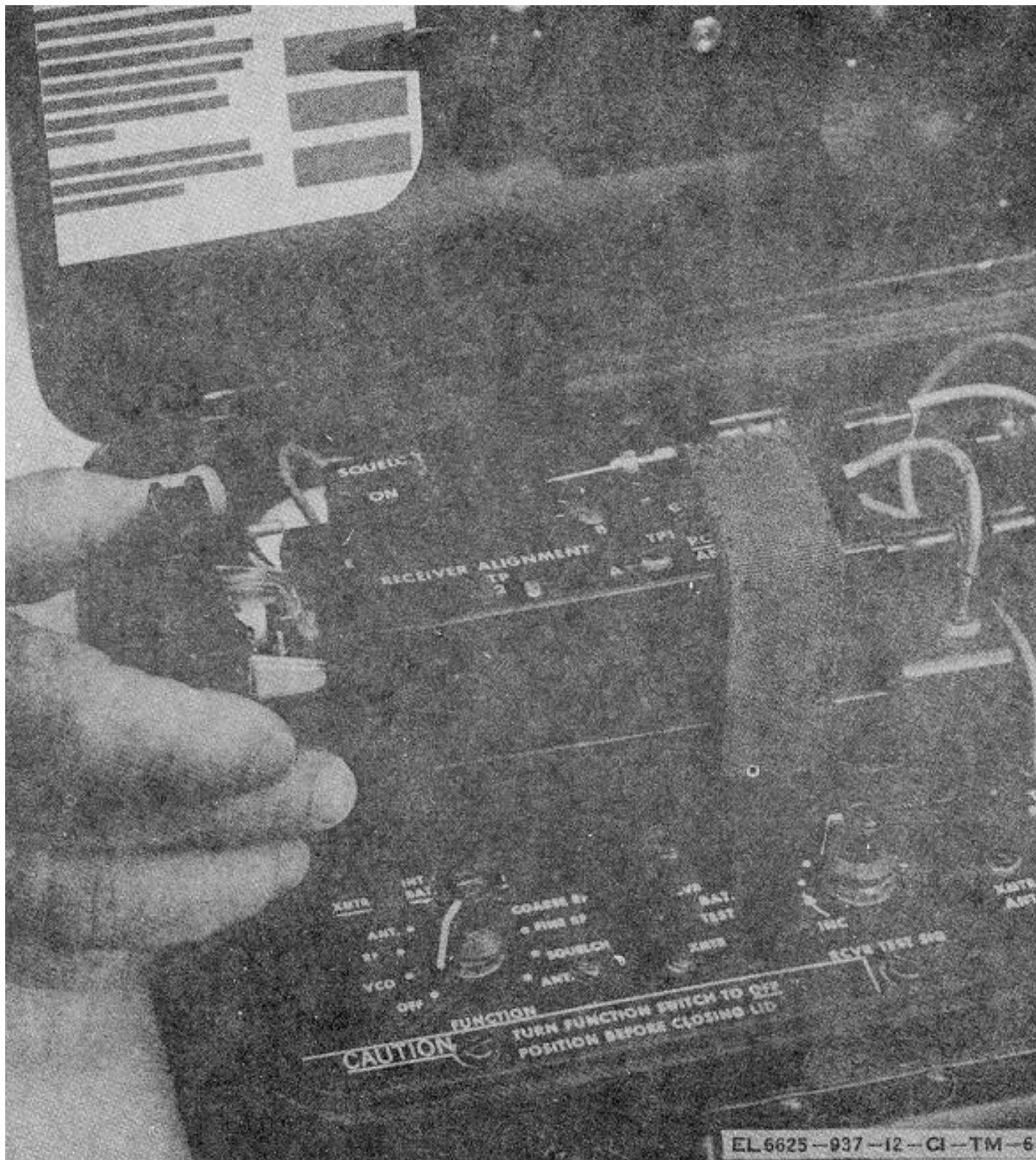


Figure 3-16. Positioning AN/PRR-9 (XE-9) for alignment procedures.

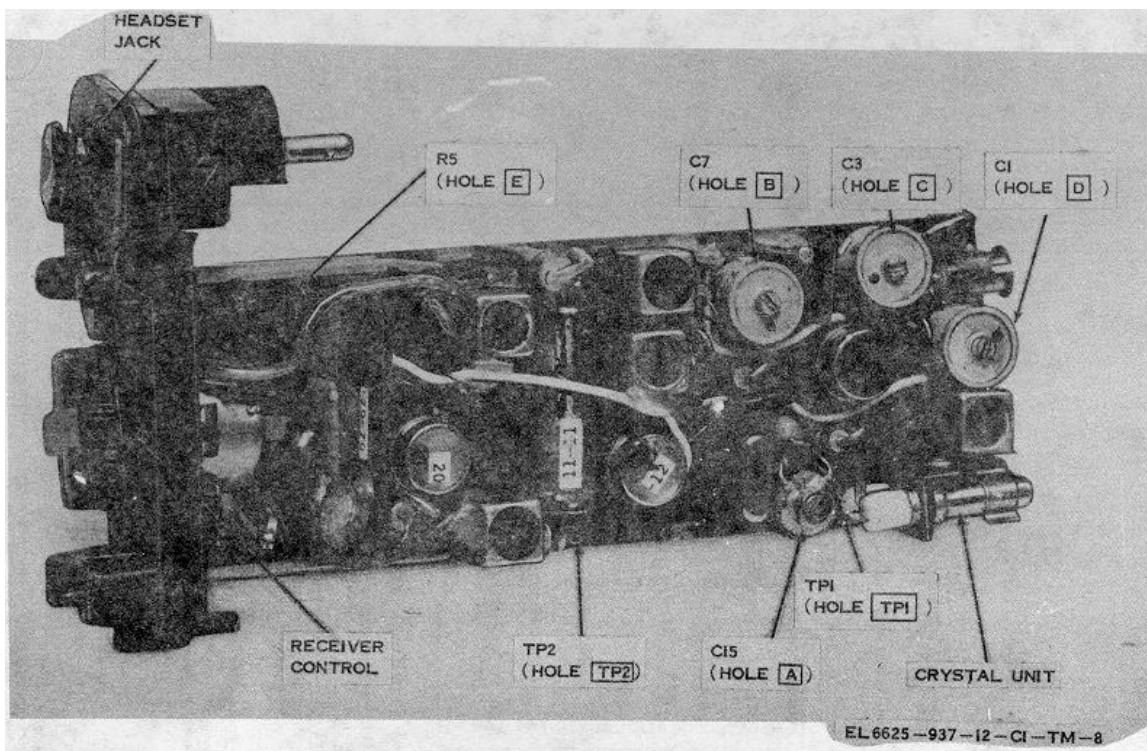


Figure 3-17. Receiving Set, Radio AN/PRR-9 (XE-9) alignment adjustments.

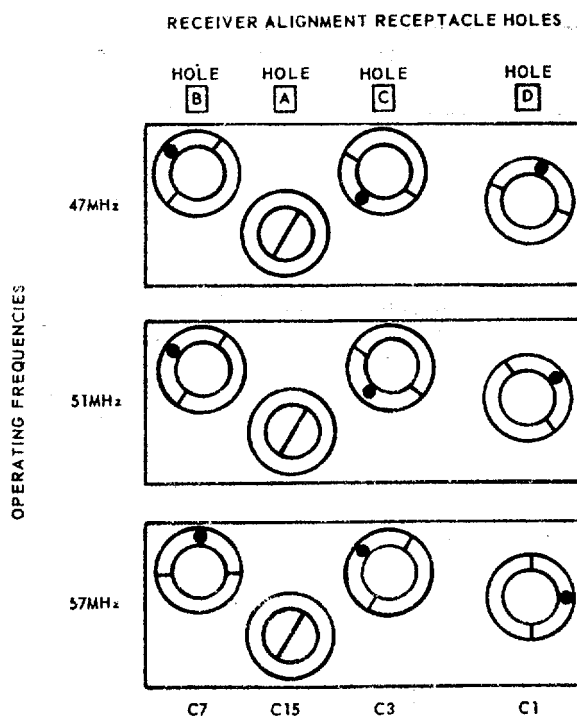


Figure 3-18. Receiving Set, Radio AN/PRR-9 (XE-9), approximate trimmer capacitor settings for alignment.

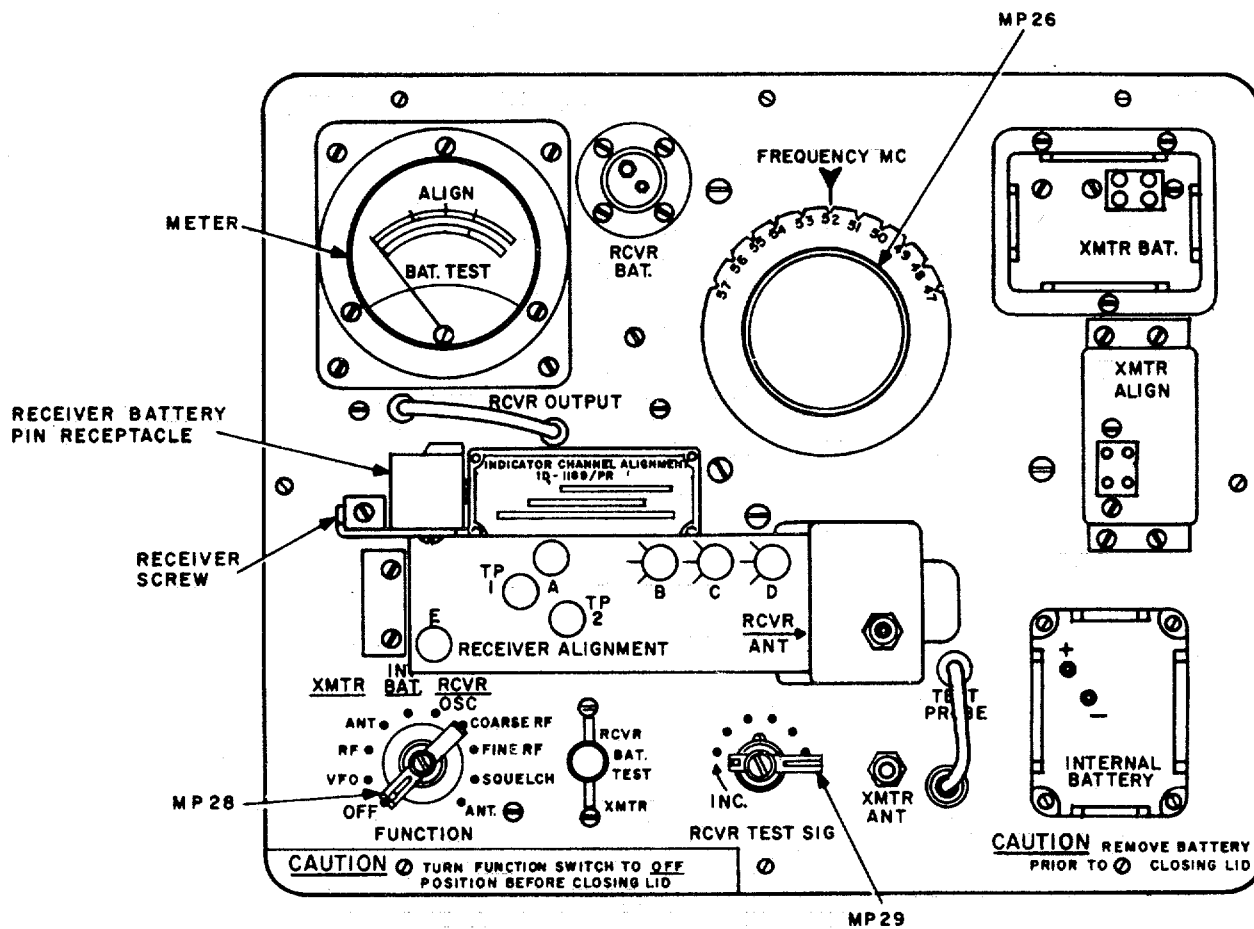


Figure 3-19. Indicator, Channel Alignment ID-1189/pr (later models) operating controls, indicators, and jacks.

**CHAPTER 4
ORGANIZATIONAL MAINTENANCE**

4-1. Scope of Organizational Maintenance

The organizational duties are listed below together with a reference to the paragraphs covering the specific maintenance function. The only tool equipment required is Tool Kit, Electronic Equipment TX-101/G. No special tools or test equipment is required.

- a. Daily preventive maintenance checks and services (table 4-1).
- b. Monthly preventive maintenance checks and services (table 4-2).
- c. Cleaning (para 4-3).
- d. Touchup painting (para 4-4).
- e. Troubleshooting (para 4-5).
- f. Removal and replacement of knobs (para 4-6).
- g. Replacement of lid plate assembly (para 4-7).

4-2. Preventive Maintenance

Preventive maintenance is the systematic care, servicing, and inspection of equipment to prevent the occurrence of trouble, to reduce downtime, and to assure that the equipment is serviceable.

a. *Systematic Care.* The procedures given in tables 4-1, 4-2, and paragraphs 4-3 cover routine systematic care and cleaning essential to proper upkeep and operation of the equipment.

b. *Preventive Maintenance Checks and Services.* The preventive maintenance checks and services tables 4-1 and 4-2 outline functions to be performed at specific intervals. These checks and services are to maintain Army electronic equipment in a combat serviceable condition; that is, in good general (physical) condition and in good operating condition. To assist operators in maintaining combat serviceability, the table indicates what to check, how to check, and the normal conditions. If a defect cannot be remedied by the organizational personnel, a higher category of maintenance of repair is required, Records and reports on these checks and services must be made in accordance with requirements, set forth in TM 38-750.

c. *Preventive Maintenance Checks and Service Periods.* Preventive maintenance checks and services of the ID-1189/PR or ID-1189(XE-2)/PR are required daily and monthly. Table 4-1 specifies checks and services that must be accomplished daily. Table 4-2 specifies checks and services that must be accomplished monthly.

NOTE

The Item No. column in tables 4-1, and 4-2 shall be used as a source of item numbers for the TM Number column on DA Form 2404 (Equipment Inspection and Maintenance Worksheet) in recording results of PMCS.

Table 4-1. Daily Preventive Maintenance Checks and Services.

Sequence No	Item to be inspected	Procedure
1	ID-1189/PR	Check external surfaces to see that equipment is clean, dry, and free of dirt, grease, and fungus.
2	Controls and indicator	<ul style="list-style-type: none"> a. Operate FREQUENCY MC control RCVR TEST SIG. rotary switch, and BAT. TEST switch; observe that the mechanical action is smooth and free of external or internal binding and no excessive looseness is apparent. b. While making operating checks (items 3, 4, and 5), check FUNCTION switch and SAFETY SW switch for the same mechanical action as in a above. Also check meter for sticking or bent pointer.

Table 4-1. Daily Preventive Maintenance Checks and Services. - Continued

Sequence No	Item to be inspected	Procedure
3	FUNCTION switch.....	Set to INT BAT. Meter indication is in GOOD area of BAT TEST scale (para 3-3c).
4	SAFETY SW switch (ID-1189/PR only)	With FUNCTION switch set to INT BAT., press SAFETY SW switch and note that meter pointer moves to no indication. Return FUNCTION switch to OFF.
5	Safety switch actuator (ID-1189/PR only).....	Check actuator for positive spring action.
6	Battery and RECEIVER ALIGNMENT adapters.	Check external surfaces to see that the adapters are clean, dry and free of dirt. Operate SQUELCH ON switch to be certain action is positive.

Table 4-2. Monthly Preventive Maintenance Checks and Services.

Sequence No	Item to be inspected	Procedure
1	Breather valve core.....	Press button for positive action (para 2-1c).
2	Rear and forward case latches.....	Check for positive locking and unlocking action (para 2-1c).
3	ID1189/PR	See that equipment is complete.
4	Meter glass	Check to see that glass has no cracks.
5	TEST, PROBE, and RCVR OUTPUT cables and plugs.....	Check to see that cables are free of cracks, and plugs are not bent or damaged.
6	XMTR, BAT, and RCVR BAT. receptacles.....	Check to see that receptacle pins are not bent or damaged
7	Internal battery compartment (ID-1189/PR only).....	Remove internal battery and check compartment to see that it is clean and dry and that the cloth tape is not frayed or broken (para 2-3).
8	Screwdriver and alignment tool	Check blades to see that they are straight and square.
9	Instruction plates.....	Check to see that plates are free of cracks and readable.
10	RECEIVER ALIGNMENT adapter	Examine to be sure connector probes are clean, straight, and all cables are free of cracks.
11	Publications.....	See that all publications are complete, serviceable, and current.
12	Modifications.....	Check DA Pam 310-7 to determine if new applicable MWO's have been published. All URGENT MWO's must be applied immediately. All NORMAL MWO's must be scheduled.

4-3. Cleaning

Inspect the exterior surfaces of the ID-1189/PR, including the case, inside the lid, and the top plate assembly.
 a. Remove dust and loose dirt with a soft, clean cloth or a soft brush.

WARNING

The fumes of TRICHLOROETHANE are toxic. Provide thorough ventilation whenever it is used. Avoid prolonged or repeated breathing of vapor. Do not use near an open flame or hot surface, trichloroethane is nonflammable but heat converts the fumes to a highly toxic phosgene gas the inhalation of which could result in serious injury or death. Prolonged or repeated skin contact with trichloroethane can cause skin inflammation. When necessary,

use gloves, sleeves and aprons which the solvent cannot penetrate.

- b. Remove grease, fungus, and ground-in dirt from the case; use a cloth dampened (not wet) with trichloroethane.
- c. Remove dust or dirt from plugs, jacks, alignment receptacles, and battery compartment with a brush.

CAUTION

Be extremely careful in cleaning the meter face. It is plastic and may be easily damaged by pressing, forceful rubbing, or the use of cleaning compound. Use a brush or a soft cloth dampened (not wet) with water on the ID-1189/PR only. The ID-1189(XE-2)/PR has an addition on the meter glass. DO NOT clean the addition with any liquid. Use only a soft brush.

d. Clean the top plate assembly panel, meters, and control knobs; use a soft, clean cloth. If dirt is difficult to remove, dampen the cloth with water; use mild soap if necessary.

e. Remove alignment tools, antenna, and instructions from the cover and clean each with a soft cloth. Cleaning compound may be used on the screwdriver, alignment tool blades, and the antenna. Use only a soft cloth, dampened with water, if necessary, to clean the instruction plates. Use only a dry cloth or brush to clean a battery adapter or RECEIVER ALIGNMENT adapter.

f. Clean out dust and dirt from the lid plate assembly before replacing alignment tools, antenna, and instruction plates.

4-4. Touchup Painting

Remove rust and corrosion from metal surfaces by lightly sanding them with fine sandpaper. Brush two coats of paint on the bare metal to protect it from further corrosion. For detailed cleaning and refinishing practices, refer to TB 43-011&

4-5. General Troubleshooting Information

Troubleshooting this equipment is based upon the operational check obtained in the organizational daily preventive maintenance checks and services table 4-1, items 3, 4, and 5. Abnormal conditions will usually be caused by a defective or weak internal battery. If the battery gives an indication in the BAD portion of the meter BAT TEST scale during the test in item 3 of table 4-1, replace the battery and test again. If the equipment fails to perform satisfactorily during the internal battery test with a known good battery installed, a higher category of maintenance is required. ID-1189(XE-2)/PR faulty operation may be caused by a faulty battery or RECEIVER ALIGNMENT adapter. Substitution by use of a known good adapter will help to determine whether an adapter is faulty.

4-6 Removal and Replacement of Knobs

a. FREQUENCY MC knob. Use an Allen wrench -for a number 6 setscrew to loosen the two setscrews in the side of the knob. Remove the knob from the shaft by pulling straight up. Place a new knob on the shaft and secure set screws firmly with the Allen wrench.

b. FUNCTION and RCVR TEST SIG. Knobs. Use a-screwdriver to unscrew the knob retaining screw (fig. 3-5) while holding the knob firmly with one hand. Remove the screw and lift the knob straight up off the shaft, noting the position of the knob. Place a new knob on the shaft in the same position as the old knob and secure it with the retaining screw. Note that the new knob can erroneously be placed on the shaft 1800 out of proper position.

4-7. Replacement of Lid Plate Assembly

a. Remove all components from the case lid (figs. 1-1 and 1-1.1).

b. With a socket wrench for a -3/-inch nut, remove the five nuts and lockwashers securing the lid plate assembly to the lid. Remove the assembly.

c. Untie the cord holding instruction plates to the lid plate assembly.

d. From the bottom of the lid plate, remove one screw and lockwasher holding the safety switch actuator assembly to the lid plate assembly (early ID-1189/PR models only).

e. Assemble the safety switch actuator assembly (early ID-1189/PR models only) and instruction plate cord to the new lid plate.

f. Clean out any dust, dirt, and corrosion which may have been lodged inside the lid under the lid plate assembly. Replace the lid plate assembly and tighten the five nuts. Replace all components.

**CHAPTER 5
SHIPMENT AND LIMITED STORAGE**

5-1. Disassembly of Equipment

To prepare the ID-1189/PR for shipment and storage, proceed as follows:

- a. Place the TEST PROBE and RECEIVER OUTPUT plugs in their retaining sockets.
- b. Remove the internal BA-399/U and replace and secure battery compartment cover.
- c. Turn the FUNCTION switch to OFF.
- d. Check to be sure tools, antenna, and instruction plates and adapters for the ID-1189 (XE-2)/PR, are secure in their holders in the case cover (figs. 1-1 and 1-1.1).
- e. Close the case and secure the latches.

5-2. Repackaging for Shipment or Limited Storage

The exact procedure for repackaging depends upon the material available and the conditions under which the equipment is to be shipped or stored. Adapt the procedures outlined below whenever circumstances permit. The information concerning the original packaging(para 2-1) will also be helpful.

- a. Materials Required. The following materials are required for packagingIndicator, Channel Alignment ID-1189/PR. For stock number of materials, refer to SB 38-100.

Material	Quantity
Waterproof paper.....	40 sq ft
Waterproof pressure sensitive tape.....	20 ft
Corrugated cardboard.....	20 sq ft
Excelsior	5 lb
Gummed paper tape.....	30 ft

- b. Packaging. Package the ID-1189/PR as follows:
 - (1) Line the bottom of a corrugated carton, large enough to hold the ID-1189/PR, with corrugated filler and place the ID-1189/PR within the carton.
 - (2) Cushion the ID-1189/PR on all sides with corugated cardboard filler pads. Wrap the technical manuals in waterproof paper and, after sealing with waterproof pressure-sensitive tape, place the manuals on top of the ID-1189/PR.
 - (3) Seal the entire enclosure with gummed paper tape and blunt all corners of the carton. Wrap the carton with waterproof paper and seal with waterproof pressure-sensitive-tape.
 - (4) Place the carton in a wooden packing case so that the carton is surrounded by a 2 inch thickness of packed-tight excelsior. Nail down the wooden cover. Mark the wooden packaging case with the identification of the equipment.
 - (5) Strap the wooden packing case in accordance with approved specifications when oversea shipment is expected.

**APPENDIX A
REFERENCES**

The following is a list of references available to the operator and organizational personnel of Indicator, Channel Alignment ID-1189/PR, and ID-1189(XE-2)/PR:

DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 7, 8, and 9), Supply Bulletins, and Lubrication Orders.
DA Pam 310-7 SB 3&100	Military Publications: Index of Modification Work Orders. Preservation, Packaging, Packing and Marking Materials, Supplies and Equipment Used by the Army.
TB 43-0118	Field Instructions for Painting and Preserving Electronics Command Equipment Including Camouflage Pattern Painting of Electrical Equipment Shelters.
TM 11-5820-549-12	Operator and Organizational Maintenance Manual: Receiving Set, Radio AN/PRR-9 and Transmitting Sets, Radio AN/PRT-4 and AN/PRT-4A.
TM 11-6625937-20P	Organizational Maintenance Repair Parts and Special Tools Lists for Indicators, Channel Alignment ID-1189/PR (NSN 5820-00-930-9204) and ID-1189(XE-2)/PR (NSN 6625-00-181-1884).
TM 38-750	The Army Maintenance Management System (TAMMS).
TM 750-244-2	Procedures for Destruction of Electronics Materiel to Prevent Enemy Use (Electronic Command).

APPENDIX B COMPONENTS OF END ITEM LIST

Section I. INTRODUCTION

B-1. Scope

This appendix lists integral components of and basic issue items for the ID-1189/PR and the ID-1189(XE-2) PR to help you inventory items required for safe and efficient operation.

B-2. General

This Components of End Item List is divided into the following sections:

a. Section II. Integral Components of the End Item. These items, when assembled, comprise the ID-1189/PR and the ID-1189 (XE-2)/PR and must accompany it whenever it is transferred or turned in. The illustrations will help you identify these items.

b. Section III. Basic Issue Items. These are the minimum essential items required to place the ID-1189/PR and the ID-1189(XE-2)/PR in operation, to operate it, and to perform emergency repairs. Although shipped separately packed they must accompany the ID-1189/PR and the ID-1189(XE-2)/PR during operation and whenever it is transferred between accountable officers. The illustrations will assist you with hard-to-identify items. This manual is your authority to requisition replacement BII, based on TOE/MTOE authorization of the end item.

B-3. Explanation of Columns

a. Illustration. This column is divided as follows:

(1) Figure number. Indicates the figure number of the illustration on which the item is shown.

(2) Item number. The number used to identify item called out in the illustration.

b. National Stock Number. Indicates the National stock number assigned to the item and which will be used for requisitioning.

c. Description. Indicates the Federal item name and, if required, a minimum description to identify the item. The part number indicates the primary number used by the manufacturer, which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items. Following the part number, the Federal Supply Code for Manufacturers (FSCM) is shown in parentheses.

d. Location. The physical location of each item listed is given in this column. The lists are designed to inventory all items in one area of the major item before moving on to an adjacent area.

e. Usable on Code. "USABLE ON" codes are included to help you identify which component items are used on the different models. Identification of the codes used in these lists are:

Code	Used on
1	ID1189/PR
2	ID-1189(XE-2)/PR

f. Quantity Required (Qty Reqd). This column lists the quantity of each item required for a complete major item.

g. Quantity. This column is left blank for use during an inventory. Under the Rcvd column, list the quantity you actually receive on your major item. The Date columns are for your use when you inventory the major item.

B-4. Special Information

National stock numbers that are missing from section III have been applied for and will be added to this TM by future Change/Revision when they are entered in The Army Master Data File (AMDF). Until the NSN's are established and published, submit exception requisition to: Commander, US Army Communications and Electronics Materiel Readiness Command, ATTN: DRSEL-MM, Fort Monmouth, NJ 07703 for the part required to support your equipment.

(Next printed page is B-3)

SECTION II INTEGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION		(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY	
A FIG NO	B ITEM NO						RCVD	DATE
			PART NUMBER (FSCM)					
1-1 1-1.1		5820-00-930-9204	CHANNEL ALIGNMENT INDICATOR ID-1189/PR		1	1		
1-1 1-1.1		6625-00-181-1884	CHANNEL ALIGNMENT INDICATOR D189E2FR		2	1		
1-1		5985-00-997-2503	ANTENNA ASSEMBLY SM-C-23588 (80063)		1	1		

SECTION III BASIC ISSUE ITEMS

(1) ILLUSTRATION		(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION		(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY	
A FIG NO	B ITEM NO							RCVD	DATE
			PART NUMBER	(FSCM)					
1-1 1-1.1		5120-00-935-0810	ALIGNMENT TOOL SM-C-523591	(80063)	LID OF ID-1189/PR	1 2	1		
1-1 1-1.1		5950-00-728-0819	CASE CY-6078/PR	(80058)		1 2	1		
1-1		5120-00-937-0066	SCREWDRIVER SM-B-523590	(80063)	LID OF ID-1189/PR	1 2	1		
		6625-00-016-0228	CARD ASSEMBLY - INSTRUCTION, (RCVR) SM-C-523622	(80063)		1 2	1		
		6625-00-016-0128	CARD ASSEMBLY - INSTRUCTION, XKT SM-C-523592	(80063)		1 2	1		
			ADAPTER, RECEIVING SET MX-8512(XE-1)/PR (ID-1189(XE-2)/PR) SM-D-523730						
			ADAPTER, CONNECTOR U-389(XE-1)/PR (ID-1189(XE-2)/PR) SM-C-523720						
			<u>PUBLICATIONS</u> TM 11-6625-937-12						

APPENDIX C MAINTENANCE ALLOCATION

Section I. INTRODUCTION

C-1. General

This appendix provides a summary of the maintenance operations for ID-1189/PR and ID-1189(XE-2)/PR. It authorizes categories of maintenance for specific maintenance functions on repairable items and components and the tools and equipment required to perform each function. This appendix may be used as an aid in planning maintenance operations.

C-2. Maintenance Function

Maintenance functions will be limited to and defined as follows:

- a. *Inspect.* To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination.
- b. *Test.* To verify serviceability and to detect incipient failure by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.
- c. *Service.* Operations required periodically to keep an item in proper operating condition, i.e., to clean (decontaminate), to preserve, to drain, to paint, or to replenish fuel, lubricants, hydraulic fluids, or compressed air supplies.
- d. *Adjust.* To maintain, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to the specified parameters.
- e. *Align.* To adjust specified variable elements of an item to bring about optimum or desired performance.
- f. *Calibrate.* To determine and cause corrections to be made or to be adjusted on instruments or test measuring and diagnostic equipments used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.
- g. *Install.* The act of emplacing, seating, or fixing into position an item, part, module (component or assembly) in a manner to allow the proper functioning of the equipment or system.
- h. *Replace.* The act of substituting a serviceable like type part, subassembly, or module (component or assembly) for an unserviceable counterpart.
- i. *Repair.* The application of maintenance services (inspect, test, service, adjust, align, calibrate, replace) or other maintenance actions (welding, grinding, riveting, straightening, facing, remmachining, or resurfacing) to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, nodule (component or assembly), end item, or system. This function does not include the trial and error replacement of running spare type items such as fuses, lamps, or electron tubes.
- j. *Overhaul.* That maintenance effort (service/action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards (i.e., DMWR) in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.
- k. *Rebuild.* Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours, miles, etc.) considered in classifying Army equipments components.

C-3. Column Entries

- a. *Column 1, Group Number.* Column 1 lists group numbers, the purpose of which is to identify components, assemblies, subassemblies, and modules with the next higher assembly.
- b. *Column 2, Component/Assembly.* Column 2 contains the noun names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. *Column 3, Maintenance Functions.* Column 3 lists the functions to be performed on the item listed in column 2. When items are listed without maintenance functions, it is solely for purpose of having the group numbers in the MAC and RPSTL coincide.

d. *Column 4, Maintenance Category.* Column 4 specifies, by the listing of a "work time" figure in the appropriate subcolumn(s), the lowest level of maintenance authorized to perform the function listed in column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance categories, appropriate "work time" figures will be shown for each category. The number of task-hours specified by the "work time" figure represents the average time required to restore an item (assembly, subassembly, component, module, end item or system) to a serviceable condition under typical field operating conditions. This time includes preparation time, troubleshooting time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. Subcolumns of column 4 are as follows:

C- Operator/Crew
 0 - Organizational
 F - Direct Support
 H - General Support
 D - Depot

e. *Column 5, Tools and Equipment.* Column 5 specifies by code, those common tool sets (not -individual tools) and special tools, test, and support equipment required to perform the designated function.

f. *Column 6, Remarks.* Column 6 contains an alphabetic code which leads to the remark in section IV, Remarks, which is pertinent to the item opposite the particular code.

C-4. Tool and Test Equipment Requirements (Sect. 111)

a. *Tool or Test Equipment Reference Code.* The numbers in this column coincide with the numbers used in the tools and equipment column of the MAC. The numbers indicate the applicable tool or test equipment for the maintenance functions.

b. *Maintenance Category.* The codes in this column indicate the maintenance category allocated the tool or test equipment.

c. *Nomenclature.* This column lists the noun name and nomenclature of the tools and test equipment required to perform the maintenance functions.

d. *National/NATO Stock Number.* This column lists the National/NATO stock number of the specific tool or test equipment.

e. *Tool Number.* This column lists the manufacturer's part number of the tool followed by the Federal Supply Code for manufacturers (5 digit) in parentheses.

C-5. Remarks (Sect. IV)

a. *Reference Code.* This code refers to the appropriate item in section II, column 6.

b. *Remarks.* This column provides the required explanatory information necessary to clarify items appearing in section II.

(Next printed page is C-3)

**Section II. MAINTENANCE ALLOCATION CHART
FOR
INDICATORS CHANNEL ALIGNMENT ID-11899/PR AND ID-1189 (XE-2)/PR**

(1) GROUP NUMBER	(2) COMPONENT ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQUIP	(6) REMARKS
			C	O	F	H	D		
00	INDICATORS CHANNEL ALIGNMENT ID-1189/PR AND ID-1189 (XE-2)/PR	Inspect Inspect Test Test Service Service Calibrate Repair Repair Overhaul Rebuild		0.1 0.25 0.5 0.5		0.5 0.5 0.1 0.5		Visual 4-9 2,3 1 2 3 2-12 2-12	A B C D E
01	Top Plate Assembly	Inspect Test Test Service Adjust Align Repair Repair Overhaul Rebuild		0.1 0.25 0.25 0.25		0.5 0.25 0.25		4-12 1 2,3 1 2 3 2-12 2-12	B B B F
0101	Attenuator	Inspect Test Service Calibrate Repair Overhaul Rebuild				0.1 0.1 0.1 0.1 0.25 0.25		4,5 2,3 2-5 2-5	
010101	Attenuator Board Assembly	Inspect Test Calibrate Repair Overhaul Rebuild				0.1 0.1 0.1 0.25 0.25		4,5 2,3 2-5 2-5	
0102	Shield Assembly: VFO	Inspect Test Service Adjust Calibrate Repair Overhaul Rebuild				0.1 0.1 0.1 0.25 0.25 0.25 0.5		4-12 2,3 2,3 2,3 2-12 2-12	C
010201	Board Assembly: VFO	Inspect Test Service Calibrate Repair Overhaul Rebuild				0.1 0.1 0.1 0.1 0.25 0.25		4,5 2,3 2-5 2-5	
0103	Function Board	Inspect Test Service Adjust Calibrate Repair Overhaul Rebuild				0.1 0.25 0.25 0.25 0.25 0.5 0.75		4-9 2,3 2,3 2,3 2,3 2-9 2-9	
02	Case CY-0675/PR	Inspect Service Repair		0.1 0.1		2.0			
03	Adapter, Receiving Set MX-8512 (XE-I)/PR	Inspect Test Adjust Align Repair Overhaul Rebuild				0.1 0.25 0.25 0.25 0.5 0.75 1.0		4-12 2,3 2-12 2,3 2-12 2-12	

**Section II. MAINTENANCE ALLOCATION CHART
FOR
INDICATORS CHANNEL ALIGNMENT ID-11899/PR AND ID-1189 (XE-2)/PR**

(1) GROUP NUMBER	(2) COMPONENT ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQUIP	(6) REMARKS
			C	O	F	H	D		
0301	Printed circuit Board	Inspect Test Adjust Align Repair Overhaul Rebuild				0.1 0.25 0.25 0.25 0.5 0.75	1.0	4-2 2,3 2-12 2,3 2-12 2-12	

**SECTION III. TOOL AND TEST EQUIPMENT REQUIREMENTS
FOR
INDICATORS CHANNEL ALIGNMENT ID-1189/PR AND ID-1189 (XE-2)/PR**

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1	0	TOOL KIT, ELECTRONIC EQUIPMENT TK-101/G	5180.00-064-5178	
2	H, D	TOOL KIT, ELECTRONIC EQUIPMENT TK-100/C	5180-00-605-0079	
3	H, D	TOOL KIT, ELECTRONIC EQUIPMENT TK-105/G	5160-00-610-8177	
4	H, D	MULTIMETER TS-352B/U	6625-00-553-0142	
5	H, D	POWER SUPPLY PP-3514/U (2 required)	6130-00-445-6933	
6	H, D	GENERATOR, SIGNAL AN/GRM-50	6625-00-868-8353	
7	H, D	VOLTMETER, ELECTRONIC ANURM-145	6625-00-973-3986	
8	H, D	RADIO INTERFERENCE MEASURING SET AN/URM-185	6625-00-776-0595	
9	H, D	COUNTER, ELECTRONIC, DIGITAL READOUT AN/USM-207	6255-00-911-6368	
10	H, D	CABLE ASSEMBLY	4931-00-843-2794	
11	H, D	ADAPTER	5935-00-410-1399	
12	H, D	POWER SUPPLY PP-3135/U	6625-00-635-7991	

Section IV. REMARKS
INDICATORS CHANNEL ALIGNMENT ID-1189/PR AND ID-1189 (XE-2)/PR

REFERENCE CODE	REMARKS
A	Test for faulty battery only.
B	Exterior only.
C	Calibration required after service.
D	By replacement of components on main chassis, PC boards, cables connectors and switches.
E	By parts replacement as noted.
F	By battery and knob replacement only.

**APPENDIX D
ADDITIONAL AUTHORIZATION LIST**

Section I. INTRODUCTION

D-1. Scope

This appendix lists additional items you are authorized for the support of the ID-1189/PR and the ID-1189(XE-2)/PR.

D-2. General

This list identifies items that do not have to accompany the ID-1189/PR and the ID-1189(XE-2)/PR and that do not have to be turned in with it. These items are all authorized to you by CriA, MTOE, TDA, or JTA.

D-3. Explanation of Listing

National stock numbers, descriptions, and quantities are provided to help you identify and request the additional items you require to support this equipment.

If the item you require differs between serial numbers of the same model, effective serial numbers are shown in the last line of the description. If item required differs for different models of this equipment, the model is shown under the "Usable on" heading in the description column. These codes are identified as:

Code	Used on
1	1189/PR

SECTION II ADDITIONAL AUTHORIZATION LIST

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION PART NUMBER AND FSCM	(3) UNIT OF MEAS	(4) QTY AUTH
6135-00-926-0345	BATTERY, DRY BA-399/U (80058)	1	EA

By Order of the Secretary of the Army:

HAROLD K. JOHNSON,
General, United States Army,
Chief of Staff.

Official:

KENNETH G. WICKHAM,
Major General, United States Army,
The Adjutant General.

Distribution:

USACDCEC (10)	Army Pic Gen (2)
Active Army:	USAJFKCENSPWAR (2)
USASA1'(2)	USAMEDTC (2)
CNGB (1)	USAOEC (2)
OCC-E (7)	USAINTC (2)
Dir/Trans (1)	USATC AD (2)
CofEngrs (1)	Instl (2) except
TSG (1)	Fort Hancock (4)
CofSpts (1)	Fort Gordon (10)
USAARENBD (2)	Fort Huachuca (10)
USAIB (2)	WSMR (5)
USAAESWBD (2)	Fort Knox (12)
SD Comd Agcy (1)	Fort Belvoir
USAMC (5)	DPG (S)
USCONARC (5)	USAEPG (5)
ARADCOM (5)	Fort Lee (5)
ARADCOM Rgn (2)	JCA, Ft. Ritchie (5)
OS Maj Comd (4)	Army Dep (2) except
USARJ (2)	LBAD (14)
USARYIS (2)	SAAD (30)
USARHAW (2)	TOAD (14)
LOGCOMD (2)	LEAD (7)
USAMICOM (4)	SHAD (3)
USASTRATCOM (4)	NAAD (5)
USAESC (70)	SVAD (5)
MDW (1)	CHAD (3)
Armies (2) except	ATAD (10)
Seventh (5)	BHAD (5)
Eighth (5)	SEAD (5)
Div (2)	GENDEPS (2)
Div Arty (2)	Sig Sec GENDEPS (5)
Bde (2)	Sig Dep (12)
Corps (2)	Sig FLDMS (2)
USAC (3)	AMS (1)
1st Cav Div (5)	USAERDAA ()
1st GM Bde (2)	USAERDAA (2)
13th USASA Fld Sta (2)	USAERDAW (13)
52d USASA Sp Op Comd (2)	USACRREL (2)
Svc Colleges (2)	USAEHA (5)
Br Svc Sch (2) except	MAAG (2)
USASESCS (5)	Miu Msn (2)
USATC Armor (2)	USDB ()
USATCFLWV (2)	UD 2
USATC Inf (2)	USAG, Arlington Hall (2)
USASTC (2)	Redstone Arsenal (5)
WRAMC (1)	Watertown (5)


Units org under fol TOE:	7-57	
(2 copies each)	7-102	
1-56	7-168	
1-75	9-510	
1-100	10-500	(JAJE)
1-101	11-57	
5-64	11-97	
5-78	11-98	
6-37	11-117	
6-155	11-127	
6-156	11-155	
6-165	11-157	
6-166	11-158	
6-185	11-500	(AA-AC)
6-186	11-587	
6-216	11-592	
6-345	11-597	
6-346	17-17	
6-355	17-42	
6-385	17-51	
6-386	17-55	
6-415	17-102	
6-416	19-35	
6-525	19-37	
6-558	19-47	
6-575	19-55	
6-576	19-57	
6-577	19-67	
6-700	19-87	
6705	19-97	
6-706	19-500	(AA-AE,
7-15	IC-IE)	
7-17	29-7	
7-18	29-407	
7-35	37-102	
7-42	39-51	
7-45	55-457	
7-55	57-102	

NG: State AG (3).

USAR: None.

For explanation of abbreviations used, see AR 320-50.

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

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		FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)	
		DATE SENT	
PUBLICATION NUMBER		PUBLICATION DATE	PUBLICATION TITLE
IN THIS SPACE, TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT.			
BE EXACT PIN-POINT WHERE IT IS			
PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.
PRINTED NAME, GRADE OR TITLE AND TELEPHONE NUMBER		SIGN HERE	

