

12R-2-101

AN 08-35AM33-2

HANDBOOK OF
OPERATING INSTRUCTIONS
for
RADIO
FREQUENCY AMPLIFIER
AM-33/ART

RESTRICTED
(For Official Use Only)



Approved 10 NOVEMBER 1944

DO NOT (FORWARD) REMOVE
554001 11700
DO NOT REFLATE BEFORE
READING OPERATING INSTRUCTIONS

DANGER HIGH VOLTAGE

OUT. IND.

IOA
IA

ALLOW 40 SEC.
FILAMENT WARM UP

LOCK

ON LOCAL ON

LOCK

OFF REMOTE OFF
FILAMENT PLATE

PLATE TUNING

OUT. IND.
ADJ.

AM - 33/ART
80/115V. 1ϕ 400-2600- & 24V. D.C.
311 : CKV ● 536 DAY - DE - RC

GRID TUNING

M.F.P.
FEB. - 45

METER

NTR

MT-171

AMP IN CONTROL AMP OUT
RCV. SEND

PLATE

★

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Destruction of Abandoned Materiel in the Combat Zone

In case it should become necessary to prevent the capture of this equipment and when ordered to do so, DESTROY IT SO THAT NO PART OF IT CAN BE SALVAGED, RECOGNIZED, OR USED BY THE ENEMY. BURN ALL PAPERS AND BOOKS.

Means:—

1. Explosives, when provided.
2. Hammers, axes, sledges, machetes, or whatever heavy object is readily available.
3. Burning by means of incendiaries such as gasoline, oil, paper, or wood.
4. Grenades and shots from available arms.
5. Burying all debris or disposing of it in streams or other bodies of water, where possible and when time permits.

Procedure:—

1. Obliterate all identifying marks. Destroy nameplates and circuit labels.
2. Demolish all panels, castings, switch- and instrument-boards.
3. Destroy all controls, switches, relays, connections, and meters.
4. Rip out all wiring and cut interconnections of electrical equipment. Smash gas, oil, and water-cooling systems in gas-engine generators, etc.
5. Smash every electrical or mechanical part, whether rotating, moving, or fixed.
6. Break up all operating instruments such as keys, phones, microphones, etc.
7. Destroy all classes of carrying cases, straps, containers, etc.
8. Bury or scatter all debris.

DESTROY EVERYTHING!



Unsatisfactory Report

For U. S. Army Air Force Personnel:

In the event of malfunctioning, unsatisfactory design, or unsatisfactory installation of any of the component units of this equipment, or if the material contained in this book is considered inadequate or erroneous, an Unsatisfactory Report, AAF Form No. 54, or a report in similar form, shall be submitted in accordance with the provisions of Army Air Force Regulation No. 15-54, listing:

1. Station and organization.
2. Nameplate data (type number or complete nomenclature if nameplate is not attached to the equipment).
3. Date and nature of failure.
4. Airplane model and serial number.
5. Remedy used or proposed to prevent recurrence.
6. Handbook errors or inadequacies, if applicable.

For U. S. Navy Personnel:

Report of failure of any part of this equipment during its guaranteed life shall be made on Form N. Aer. 4112, "Report of Unsatisfactory or Defective Material," or a report in similar form, and forwarded in accordance with the latest instructions of the Bureau of Aeronautics. In addition to other distribution required, one copy shall be furnished to the inspector of Naval Materiel (location to be specified) and the Bureau of Ships. Such reports of failure shall include:

1. Reporting activity.
2. Nameplate data.
3. Date placed in service.
4. Part which failed.
5. Nature and cause of failure.
6. Replacement needed (yes—no).
7. Remedy used or proposed to prevent recurrence.

For British Personnel:

Form 1022 procedure shall be used when reporting failure of radio equipment.

SAFETY NOTICE

THIS EQUIPMENT EMPLOYS HIGH VOLTAGES WHICH ARE DANGEROUS AND MAY BE FATAL IF CONTACTED BY OPERATING PERSONNEL. EXTREME CAUTION SHOULD BE EXERCISED WHEN WORKING WITH THE EQUIPMENT.

**SECTION I
GENERAL DESCRIPTION**

1. GENERAL.

(See figure 1-1.)

a. Radio Frequency Amplifier AM-33/ART is designed for installation and operation in aircraft and is used in conjunction with any one of several transmitters.

b. Control Unit C-198/AR, supplied as a part of the equipment, is generally used when the basic transmitter is of the receiver-transmitter type that uses a single

antenna for both transmission and reception. The control unit is mounted adjacent to the transmitter and amplifier and provides operation of the amplifier from that location. (See fig. 5-4.)

c. Radio Frequency Amplifier AM-33/ART operates from 80 to 145 volts, 400 to 2600 cycles, and a direct current source of 24 volts. At nominal power output, 860 watts of alternating current power at 80 percent power factor, and 12 to 14 watts of direct current power are required.

2. EQUIPMENT SUPPLIED.

The following equipment is supplied with Radio Frequency Amplifier AM-33/ART.

Quantity per Equipment	Name of Unit	Army Type Designation	Navy Type Designation	Overall Dimensions (Inches)	Weight (Pounds)
1	Radio Frequency Amplifier	AM-33/ART	AM-33/ART	21 x 10½ x 7⅞	52
1	Mounting Base	MT-171/U	MT-171/U	Size 1 ATR	2
1	Control Unit	C-198/AR	C-198/AR	4 x 4½ x 3	5
1	Mounting Plate	MT-336/AR	MT-336/AR	4½ x 4 x 1	
1	Plug	AN3108-14S-9P	AN3108-14S-9P	3 x 2¼ dia.	.3
1	Plug	AN3108-22-4S	AN3108-22-4S	3 x 2¼ dia.	.3
1	Plug	AN3108-14S-9S	AN3108-4S-9S	3 x 2¼ dia.	.3
6	Plug	PL-259		1½ x ¾ dia.	.05
4	Adapter	M-359		1¼ x 1¼ x ¾ dia.	.076
1	Adapter	AN3057-12	AN3057-12	1-3/16 x 1-9/16 dia.	.06
2	Adapter	AN3057-6	AN3057-6	1-5/16 x 1-5/16 dia.	.03
As Required	Radio Frequency Cable	RG-8/U	RG-8/U		.106/ft.

3. EQUIPMENT REQUIRED BUT NOT SUPPLIED.

a. The required length of power cable is necessary for the installation of the radio frequency amplifier but is not supplied with the equipment.

b. Test Set I-139-A is required for testing and aligning the amplifier but is not supplied with the equipment.



Figure 1-1. Radio Frequency Amplifier AM-33/ART

SECTION II INSTALLATION AND ADJUSTMENT

1. UNPACKING THE EQUIPMENT.

- a. Unpack all the boxes in the shipment before setting up any of the equipment.
- b. Remove the units completely from the packing cases and take off the wrapping or packing material.

2. PRELIMINARY INSPECTION.

- a. Loosen the two hold-down thumbscrews which hold the amplifier to the mounting.

- b. Remove the two screws in the top behind the front panel.

- c. Loosen the Dzus fasteners at the rear of the case.
- d. Withdraw the amplifier from the housing.
- e. See that all the vacuum tubes are in place.
- f. Check to see that a 10-ampere fuse is installed in the "115-V." a-c holder and that a 1-ampere fuse is installed in the "24-V." fuse holder.

g. See that spare fuses, of the required value, are installed in the spare fuse holders on the side of the r-f shield.

b. Adjust the "OUT. IND. ADJ." capacitor to minimum capacitance.

i. Replace the amplifier in the case and fasten all screws.

j. See that the lamp is firmly seated in the "OUT. IND." lamp socket.

3. BENCH TEST.

a. MAKING OF CABLES.—Make up the cables for interconnecting the transmitter and amplifier as shown in figure 5-5 (if the control unit is not used) or in figures 5-6 or 5-7 (if the control unit is used).

IMPORTANT

Be sure that the r-f cable connecting the transmitter and amplifier is $48'' \pm \frac{3}{4}''$ and that when the control unit is used, the combined length of the r-f cable connecting the transmitter antenna connector and the "XMTR" connector on the control unit and the r-f cable connecting the "AMP. IN" connector on the control unit and the "R-F INPUT" connector on the amplifier will be $44'' \pm \frac{3}{4}''$. Measure the cable from tip to tip of the connector prongs.

b. CABLE CONNECTIONS.

(1) CONTROL UNIT NOT IN USE.

(a) Connect the correct r-f cable between the antenna connector on the transmitter and the "R-F INPUT" connector on the amplifier. (See fig. 5-5.)

(b) Connect the correct r-f cable between the "ANT." connector on the amplifier and the antenna. (See fig. 5-5.)

(c) Connect the power cable between the "POWER INPUT" connector on the amplifier panel and the junction box or other source of power. (See fig. 5-5.)

(2) CONTROL UNIT IN USE.

(a) Connect the correct r-f cable between the antenna connector and the transmitter and the "XMTR" connector on the control unit. (See fig. 5-6.)

(b) Connect the correct r-f cable between the "AMP. IN" connector on the control unit and the "R-F INPUT" connector on the amplifier.

(c) Connect the correct r-f cable between the "ANT." connector on the amplifier and the "AMP. OUT" connector on the control unit.

(d) Connect the correct r-f cable between the "ANT." connector on the control unit and the antenna.

(e) Connect the two-conductor cable between the "CONTROL" connector on the amplifier and the "CONTROL" connector on the control unit.

(f) Connect the power cable between the "POWER INPUT" connector on the amplifier and the junction box or other source of power.

c. TEST PROCEDURE.

Note

The following general adjustment procedure is only tentative and will be replaced at a later date by a more detailed and accurate procedure in a revision to this handbook and in the handbook of maintenance instructions.

(1) CONTROL UNIT C-198/AR NOT IN USE.

Note

See that the "LOCAL-REMOTE" switch on the amplifier is in the "LOCAL" position.

(a) Disconnect the r-f cable from the antenna connector on the transmitter.

(b) Disconnect the antenna cable from the "ANT." connector on the amplifier.

(c) Connect the antenna cable to the antenna connector on the transmitter.

(d) Turn on and adjust the driver transmitter for the desired frequency of operation as directed in the handbook of operating instructions for that equipment.

(e) Turn off the transmitter.

(f) Disconnect the antenna cable from the antenna connector on the transmitter and reconnect it to the "ANT." connector on the amplifier.

(g) Reconnect the r-f cable from the "R-F INPUT" connector on the amplifier to the antenna connector on the transmitter.

WARNING

Under no circumstances remove the output coupling coil when the amplifier is turned on. When the coupling coil is removed, the plate tuning coil is not grounded and assumes a potential of 1500 volts negative with respect to ground.

(b) Loosen the screws holding the amplifier in the housing as directed in paragraphs 2a through c, this section, and pull the amplifier out of the housing far enough to gain access to the output coupling coils.

Note

Four coils, each covering a different frequency range, are secured inside the amplifier, one in the output coil plug-in mounting and the other three in coil holders at the back and at the left of the r-f shield.

(i) Select the output coupling coil to cover the desired frequency range as shown in the table below and insert the coil selected in the pin jacks provided below the amplifier plate tuning coil.

TABLE 2-1. FREQUENCY OF OUTPUT COUPLING COILS

Coil Designation	Frequency Range (Megacycles)
T-105-1	25-45
T-105-2	40-65
T-105-3	60-100
T-105-4*	30-40

*Coil T-105-4 is a special narrow band coil and is to be used only after reference to the Handbook of Maintenance Instructions for Radio Frequency Amplifier AN-33/ART.

(j) Set the amplifier "GRID TUNING" and "PLATE TUNING" dials to zero. Check to see that the sliding contacts on the plate tuning coils rest on the coils and are at the extreme inner ends of the coils.

Note

If the sliding contacts are not in the proper position, adjust them with the fingers.

(k) Replace the amplifier in the housing and fasten all screws.

(l) Plug Test Set I-139-A into the "METER" socket on the amplifier.

(m) Turn on the amplifier "FILAMENT" switch.

CAUTION

Do not operate the transmitter into the amplifier with the amplifier "PLATE" switch turned off. Excessive grid current will be drawn by the amplifier tubes which will cause irreparable damage to the tubes.

(n) Allow a 45-second warm-up period and turn on the "PLATE" switch on the amplifier. The reading on the test set should be between 0.5 and 0.6 milliamperes.

(o) Turn on the driver transmitter according to the handbook of operating instructions for that equipment.

(p) Carefully turn the amplifier "GRID TUNING" dial toward the high numbers on the dial (the frequency becomes lower as the dial is turned toward the high numbers) until a peak is noted in the test-set reading. The peak reading should be made to occur below 0.7 milliamperes.

IMPORTANT

A second peak will occur in the reading on the test set about 15 or 20 divisions on the grid dial beyond the dial setting for the first peak. Turn the "GRID TUNING" dial carefully to avoid overlooking the first peak as the first peak reading is the correct one.

(q) While adjusting the "GRID TUNING" dial, watch for indications of an over-driven amplifier. To check for overdrive turn the "GRID TUNING" dial through the first rise and note whether a second rise occurs about 3 or 4 divisions beyond the first rise. If this second rise occurs the amplifier is being over-driven. The overdrive will normally appear at 0.7 or

0.8 milliamperes on the test set. If signs of overdrive are noted decrease the power output of the transmitter until the two closely spaced peaks are no longer indicated on the test set.

(r) Adjust the driver transmitter and the amplifier "GRID TUNING" dial, *keeping the amplifier grid in full resonance*, for a maximum deflection on the test set. The reading should be at least 0.7 milliamperes if full power output of the amplifier is desired.

IMPORTANT

Do not overdrive the amplifier. Refer to paragraph 3c(1)(q), above.

(s) Turn the amplifier "PLATE TUNING" dial toward the high numbers on the dial (the frequency becomes lower as the dial is turned toward the high numbers) until a maximum brilliance is indicated by the "OUT. IND." lamp on the amplifier. As the "PLATE TUNING" dial is turned, two tuning spots may be indicated by the "OUT. IND." lamp. One of these spots will be of greater brilliance than the other. The point of maximum brilliance is usually the correct indication. At any rate, the tuning spot giving the maximum r-f voltage on the antenna is the tuning spot to use.

Note

The dial readings for the amplifier "PLATE TUNING" dial and the amplifier "GRID TUNING" dial, when the amplifier is finally tuned, will usually be within ± 10 divisions of each other. However, if an antenna is used which detunes the amplifier plate circuit very much (more than a 2-to-1 standing wave ratio on the antenna cable), the dial readings will probably not agree.

(t) Lock the amplifier "GRID TUNING" and "PLATE TUNING" dials and all the dials provided with locks on the transmitter.

(u) Operate the amplifier and associated transmitter as required for tactical purposes.

(2) CONTROL UNIT C-198/AR IN USE.

Note

See that the "LOCAL-REMOTE" switch on the amplifier is in the "REMOTE" position.

(a) Adjust the "RCV.-SEND" switch on the control unit in the "RCV." position.

(b) Turn on and adjust the driver transmitter for the desired operating frequency as directed in the handbook of operating instructions for that equipment.

(c) Turn off the transmitter.

(d) Place the "RCV.-SEND" switch on the control unit in the "SEND" position.

(e) Place the amplifier and associated transmitter for operation as indicated in paragraphs 3c(1)(b) through (u), above.

4. INSTALLATION.

a. MOUNTING BASE MT-171/U AND RADIO FREQUENCY AMPLIFIER AM-33/ART.

(1) Install the mounting base in the aircraft so that the following conditions will be met:

(a) There will be sufficient clearance around the amplifier to allow ample ventilation. (See fig. 5-3.)

(b) The front panel of the amplifier as well as the front panels of the transmitter and control unit will be accessible to the operator.

(c) The equipment will be as close to the antenna and power source as possible.

(d) The interconnecting cables between the transmitter, the amplifier and the control unit, if used, will be as indicated in figure 5-5 or figures 5-6 and 5-7.

(2) Place the amplifier on the mounting base. Be sure that the two horizontal pins at the rear of the mounting engage the holes provided in the amplifier housing.

(3) Tighten the two knurled thumb nuts over the lugs provided at the bottom of the front panel of the amplifier and safety wire.

b. CONTROL UNIT C-198/AR.—Mount the control unit in a position near enough the driver transmitter and the amplifier that the combined length of the r-f cable connecting the transmitter antenna connector and the "XMTR" connector on the control unit and the r-f cable connecting the "AMP. IN." connector on the control unit and the "R-F INPUT" connector on the amplifier will not exceed $44 \pm \frac{3}{4}$ inches.

Note

It is recommended that Control Unit C-198/AR be used only if the transmitter is a combination transmitter-receiver utilizing a single antenna for both transmission and reception.

c. MAKING OF CABLES.—Make up cables for interconnecting the units as shown in figures 5-1, 5-2, 5-5 or figures 5-6 and 5-7.

d. CABLE CONNECTIONS.—Interconnect the units, using the correct cables, as instructed in paragraph 3b, this section, and in figure 5-5 or figure 5-6.

5. ADJUSTMENT.

The adjustment procedure for the radio frequency amplifier is the same as the procedure for bench testing the equipment. Refer to paragraph 3c(1) or 3c(2), this section, for directions for adjusting the equipment prior to operation.

6. AFTER-INSTALLATION TESTS.

a. Turn the amplifier "FILAMENT" switch to "ON." (See fig. 3-1.)

b. Place the amplifier "LOCAL-REMOTE" switch in the "LOCAL" position if the control unit is not used and in the "REMOTE" position if the control unit is used.

c. If the control unit is used, place the "RCV.-SEND" switch on the control unit in the "SEND" position.

d. Turn the amplifier "PLATE" switch to "ON."

e. Turn on the associated transmitter according to the handbook of operating instructions for that equipment. The amplifier output indicator lamp should glow indicating r-f output.

f. Plug Test Set I-139-A into the "METER" jack on the amplifier. The test set reading should not exceed .8.

g. Disconnect the test set.

b. Turn off the associated transmitter as directed in the handbook of operating instructions for that equipment.

i. Turn off the "PLATE" switch on the amplifier.

j. Turn off the "FILAMENT" switch on the amplifier.

k. If the control unit is used leave the "LOCAL-REMOTE" switch on the amplifier in the "REMOTE" position.

l. If the control unit is not used, leave the "LOCAL-REMOTE" switch in the "LOCAL" position.

m. See that the "PLATE TUNING" dial "LOCK" and the "GRID TUNING" dial "LOCK" are tight. (See fig. 3-1.)

SECTION III OPERATION

WARNING

This equipment employs high voltages. Observe all safety regulations at all times.

1. STARTING AND STOPPING THE EQUIPMENT.

(See figure 3-1.)

a. STARTING THE EQUIPMENT.

(1) Turn the "FILAMENT" switch on the radio frequency amplifier to "ON."

(2) Allow 45 seconds for warming up, then place

the "PLATE" switch in the "ON" position.

(3) Turn on the associated transmitter as directed in the handbook of operating instructions for that equipment. The "OUT. IND." lamp should glow indicating power output.

Note

If necessary, adjust the "OUT. IND. ADJ." adjustment to bring the lamp to the desired brilliance. If the exterior illumination is high, it may be necessary to remove the lamp assembly cover.

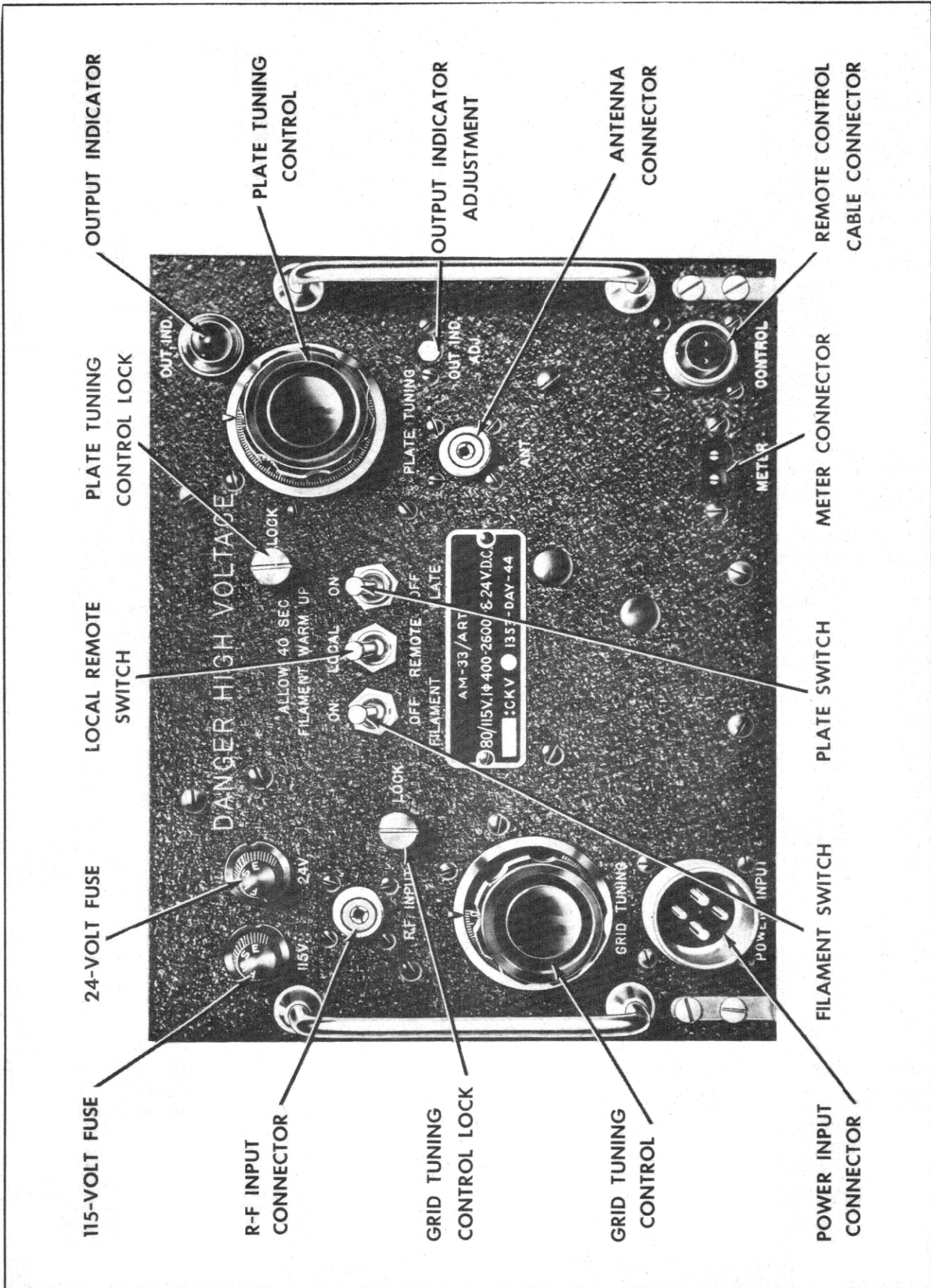


Figure 3-1. Radio Frequency Amplifier AN-33/ART—Front Panel View

b. STOPPING THE EQUIPMENT.

(1) Turn off the associated equipment as directed in the handbook of operating instructions for that equipment.

(2) Turn off the "PLATE" switch on the amplifier.

(3) Turn off the "FILAMENT" switch on the amplifier.

2. NORMAL OPERATION.

CAUTION

Do not operate the equipment except as required for testing, tuning, and tactical use.

a. CONTROL UNIT C-198/AR NOT IN USE.

(1) See that the "LOCAL-REMOTE" switch on the amplifier is in the "LOCAL" position. (See fig. 3-1.)

(2) Turn on the equipment as directed in paragraphs 1*a*(1) through (3) above.

(3) Operate the equipment as required for tactical purposes.

Note

No adjustments are necessary during flight.

b. CONTROL UNIT C-198/AR IN USE.

(1) See that the "LOCAL-REMOTE" switch on the amplifier is in the "REMOTE" position.

(2) Turn on the equipment as directed in subparagraphs 1*a*(1) through (3) above.

(3) During transmission place the "RCV.-SEND" switch on the control unit in the "SEND" position.

(4) During reception or standby periods, place the "RCV.-SEND" switch on the control unit in the "RCV." position.

(5) Operate the equipment as required for tactical purposes.

Note

No adjustments are necessary during flight.

SECTION IV
EMERGENCY OPERATION AND REPAIR

WARNING

Dangerous voltages exist in the equipment. Turn off the amplifier and associated transmitter before disconnecting the cable connectors, removing the equipment from the dust cover, replacing fuses, and repairing damaged wires.

1. EMERGENCY OPERATION.

If the radio frequency amplifier is damaged or becomes inoperative during flight, emergency operation at reduced power is possible using only the transmitter after making the following changes.

a. CONTROL UNIT NOT IN USE.

(1) Turn off the "PLATE" and "FILAMENT" switches on the amplifier.

(2) Disconnect the power cord from the amplifier.

(3) Disconnect the amplifier radio frequency input cable from the transmitter.

(4) Disconnect the antenna cable from the "ANT." connector on the amplifier panel and connect it directly to the antenna connector on the transmitter.

(5) Operate the transmitter only.

b. CONTROL UNIT IN USE.

(1) Place the "RCV.-SEND" switch on the control unit in the "RCV." position.

(2) Turn off the amplifier "PLATE" switch.

(3) Turn off the amplifier "FILAMENT" switch.

(4) Disconnect the power cord from the amplifier.

(5) Disconnect the cable from the "AMP. IN" connector on the control unit.

(6) Operate the transmitter only.

2. EMERGENCY REPAIR.

Note

Do not attempt repairs other than replacement of fuses and pilot lamps and repair of damaged cordage.

a. REPLACEMENT OF FUSES.—One 10-ampere, 25-volt fuse (for 115-volt circuits) and one 1-ampere, 250-volt fuse (for 24-volt circuits) are mounted in fuse receptacles on the front panel. Spare fuses are located in clips on the side of the radio frequency shield. Replace the fuses as follows:

(1) Replace the "24V." fuse if the fan motor cannot be heard after placing the equipment in operation.

(2) Replace the "115V." fuse if, when the equipment is turned on, the "OUT. IND." lamp does not light or, if for any reason, it is questionable that the equipment is operating.

b. REPLACEMENT OF "OUT. IND." LAMP.

(1) Remove the defective lamp by pulling straight out.

(2) Install a lamp known to be good by pushing the lamp into the socket.

c. REPAIR OF DAMAGED CORDAGE.—In case of damage to the inter-equipment wiring during flight make repairs as follows:

(1) Remove the insulation from the ends of the broken wire.

(2) Splice the wires which are identified by the same number at the cable connector plugs.

Note

A tightly twisted wire connection is adequate for temporary service.

(3) Insulate the bare splices with adhesive tape, scotch tape, paper, or any other convenient means.

SECTION V SUPPLEMENTARY DATA

1. TUBE COMPLEMENT.

The following table lists the tube complement of Radio Frequency Amplifier AM-33/ART.

TABLE 5-1. TUBE COMPLEMENT

Reference Symbol	Stock Number	Tube Designation		Function	Spares
		Jan	VT		
V-101-1	2J836	836	236	Rectifier	None
V-101-2	2J836	836	236	Rectifier	None
V-102-1	2J4E27	4E27		R-f amplifier	None
V-102-2	2J4E27	4E27		R-f amplifier	None

2. FUSE COMPLEMENT.

The table below lists the fuse complement of the amplifier.

TABLE 5-2. FUSE COMPLEMENT.

Type Number	Stock Number	Current Rating	Location	
			Active Fuse	Spare Fuse
FU-64	3Z1964	1 ampere	Panel "24V."	On side of r-f shield
FU-23	3Z1923	10 amperes	Panel "115V."	On side of r-f shield

3. PILOT LAMP COMPLEMENT.

The table below lists the pilot lamp complement of the amplifier.

TABLE 5-3. PILOT LAMP COMPLEMENT

Type Designation	Stock Number	Location
LM-27	2Z5927	Panel "OUT. IND."

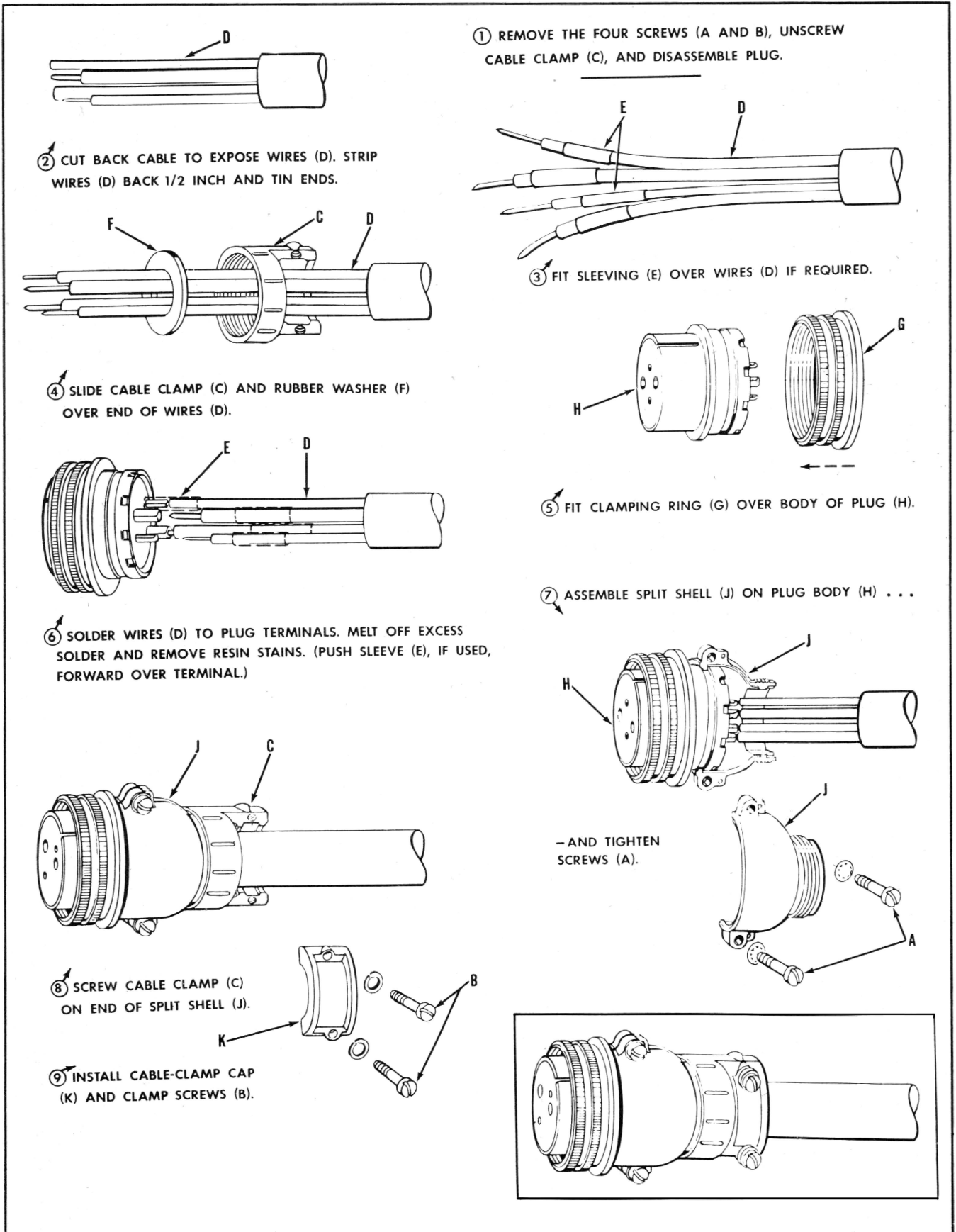
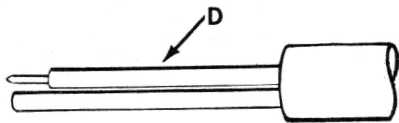
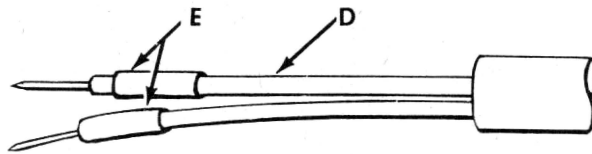


Figure 5-1. Assembly of Power Cable Connector

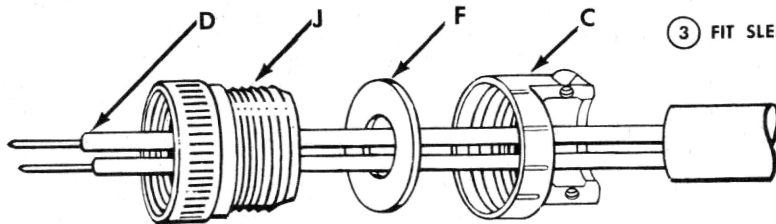
- ① REMOVE THE TWO SCREWS (A AND B), UNSCREW CABLE CLAMP (C), AND DISASSEMBLE PLUG.



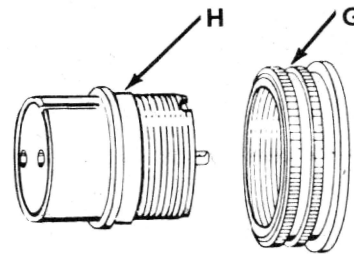
- ② CUT BACK CABLE TO EXPOSE WIRES (D). STRIP WIRES (D) BACK ½ INCH AND TIN ENDS.



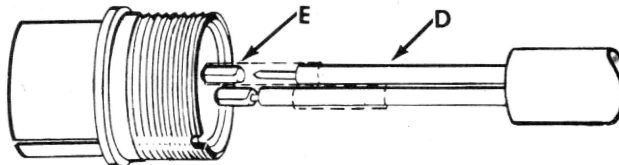
- ③ FIT SLEEVING (E) OVER WIRES (D) IF REQUIRED.



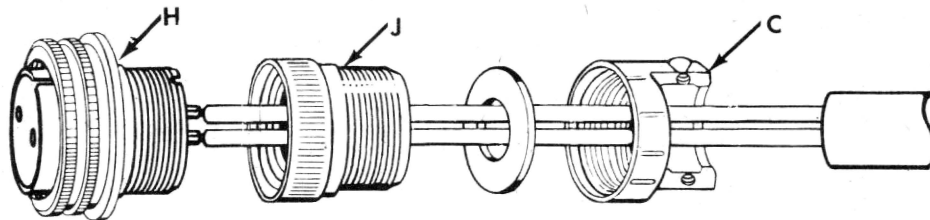
- ④ SLIDE CABLE CLAMP (C), RUBBER WASHER (F), AND BACK SHELL (J) OVER END OF WIRES (D).



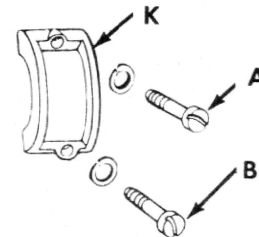
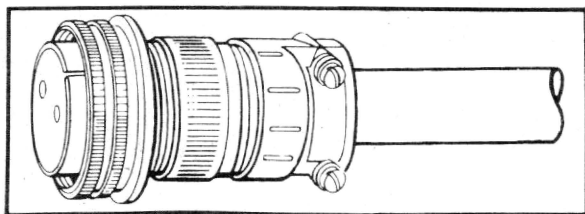
- ⑤ FIT CLAMPING RING (G) OVER BODY OF PLUG (H).



- ⑥ SOLDER WIRES (D) TO PLUG TERMINALS. MELT OFF EXCESS SOLDER AND REMOVE RESIN STAINS. (PUSH SLEEVE (E), IF USED, FORWARD OVER TERMINAL.)



- ⑦ SCREW BACK SHELL (J) ONTO PLUG BODY (H) AND SCREW CABLE CLAMP (C) ONTO BACK SHELL (J).



- ⑧ INSTALL CABLE-CLAMP CAP (K) AND CLAMP SCREWS (A AND B).

Figure 5-2. Assembly of Control Cable Connector

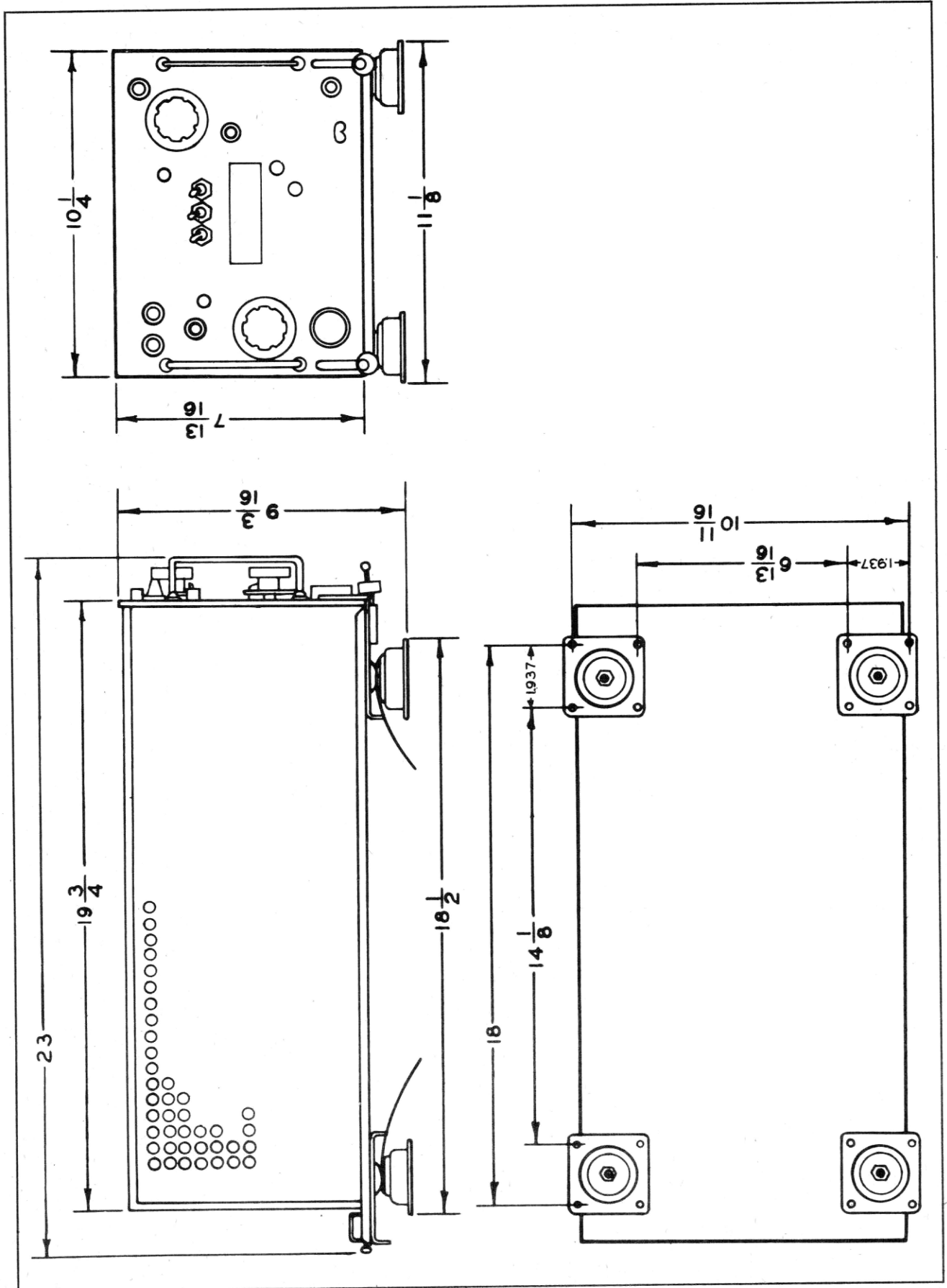


Figure 5-3. Radio Frequency Amplifier AM-33/ART—Outline Dimensions

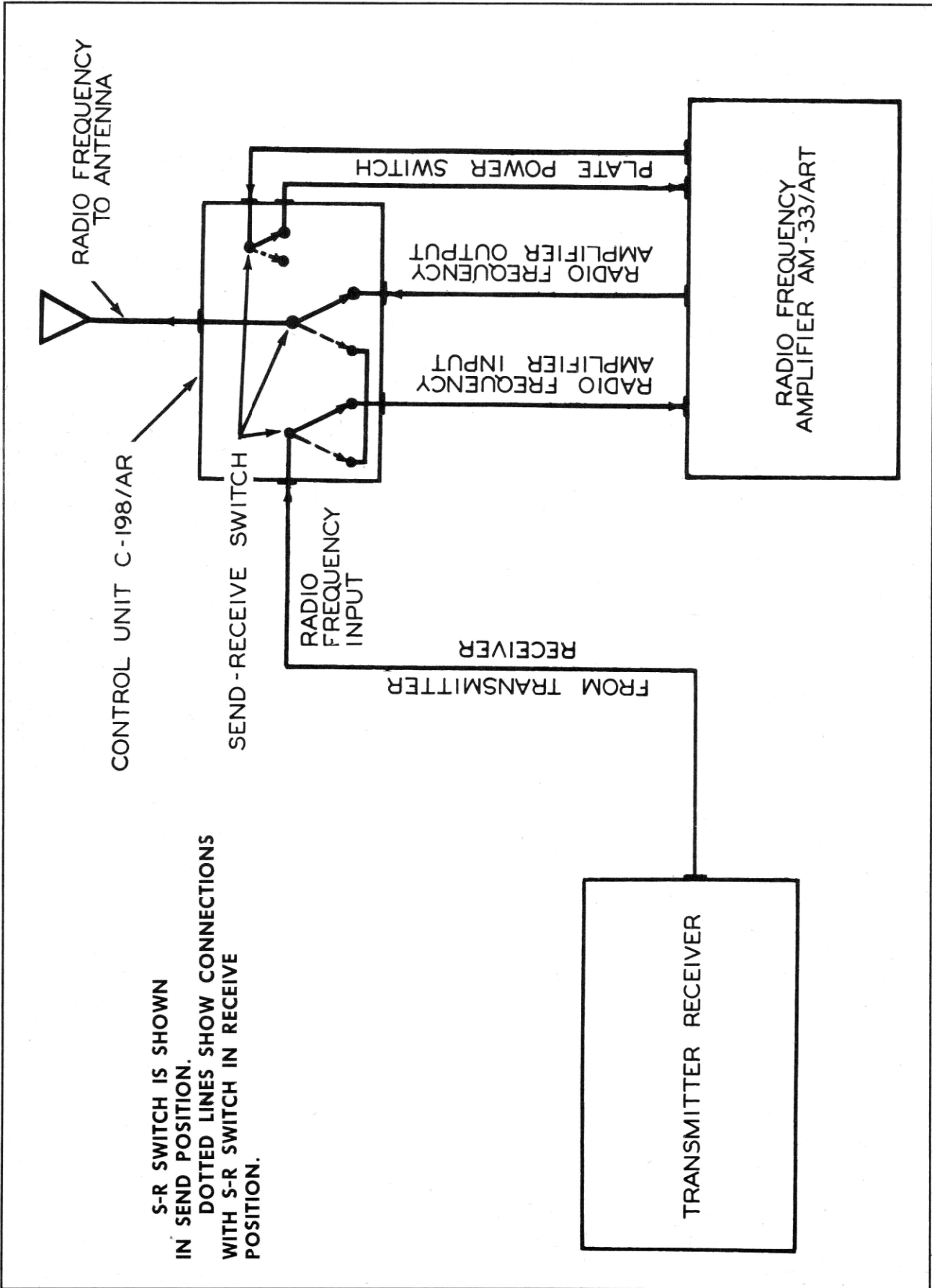
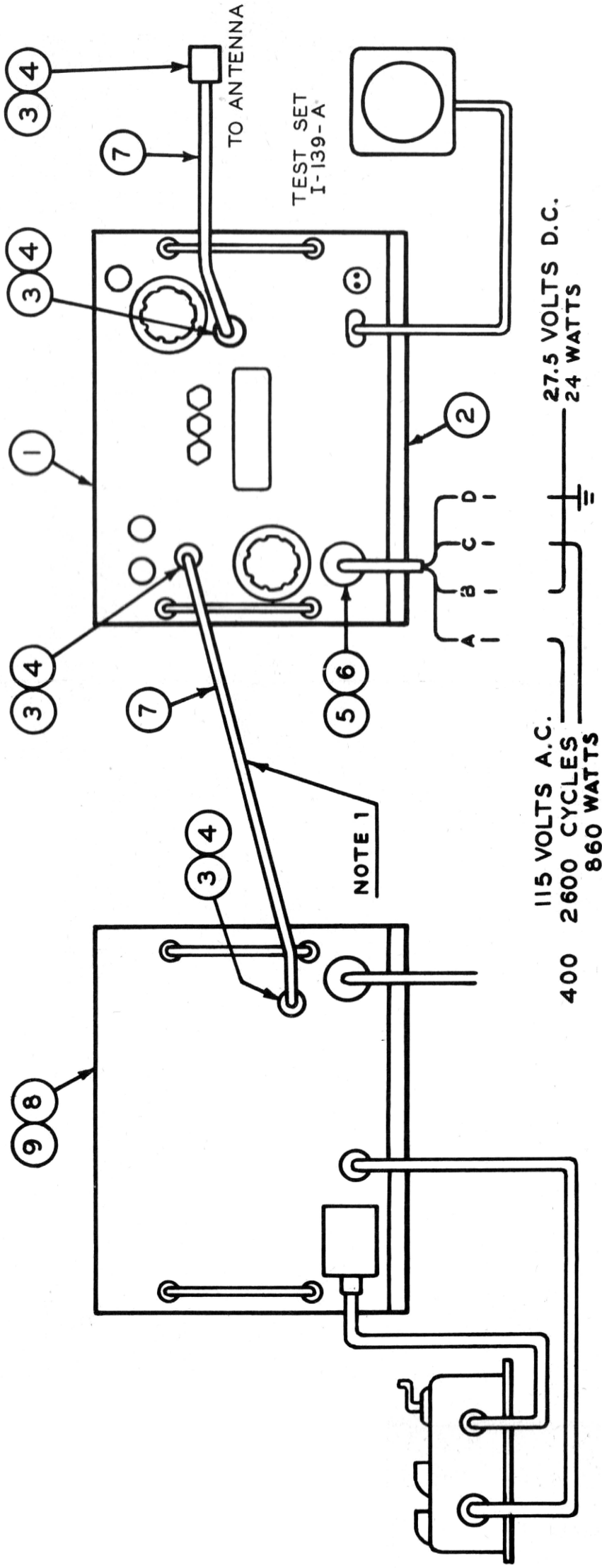


Figure 5-4. Functional Diagram Showing Principle of Control Unit C-198/AR

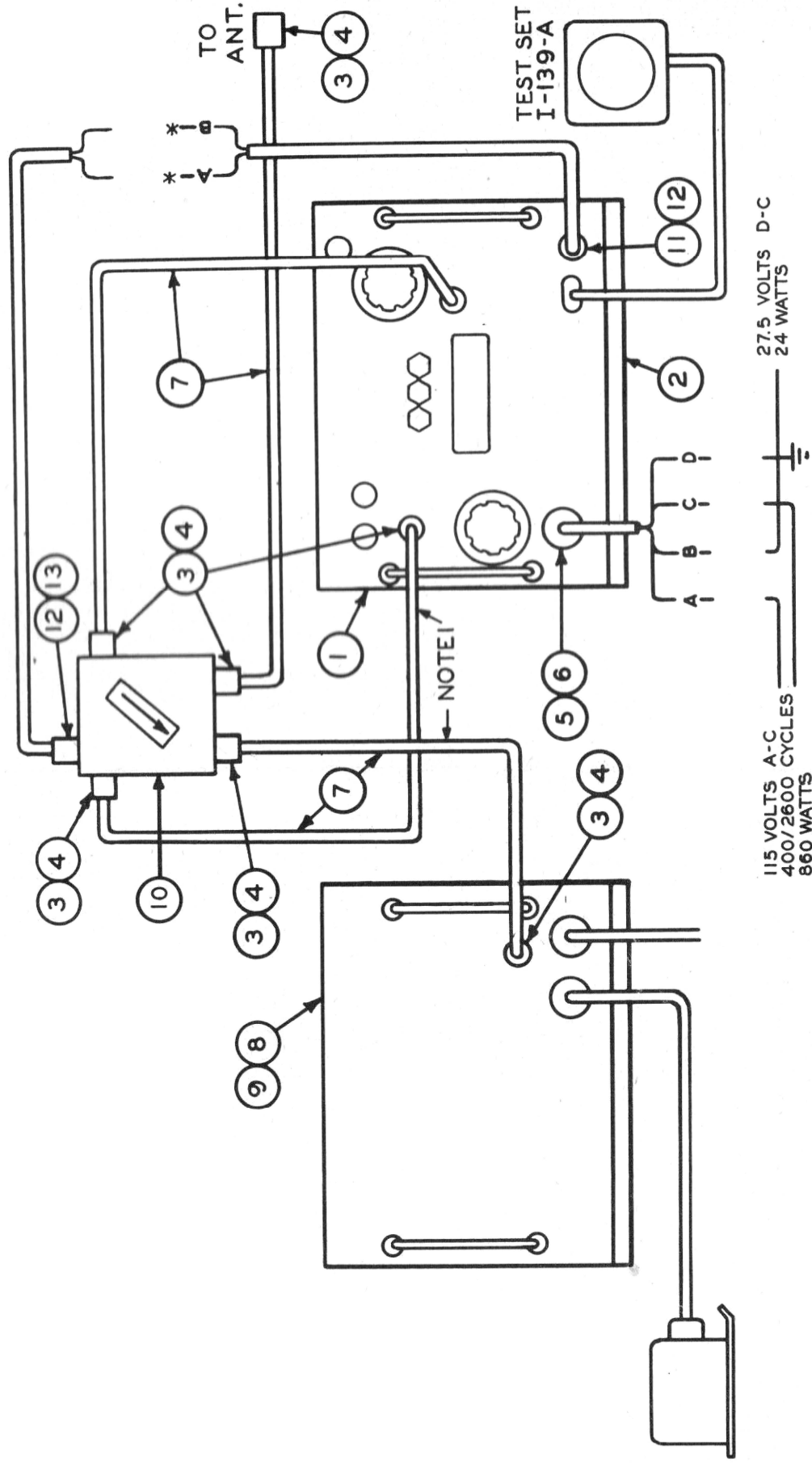


ITEM	EQUIPMENT	NO. REQ'D.	NOMENCLATURE
1	RADIO FREQUENCY AMPLIFIER	1	AM-33 ART
2	MOUNTING BASE	1	MT-171/U
3	PLUG	4	PL-259
4	ADAPTER	AS REQ'D.	M-359
5	PLUG	1	AN3108-22-4S
6	ADAPTER	1	AN3057-12
7	RADIO FREQUENCY CABLE	AS REQ'D.	RG-8/U
8	RADIO SET	1 OR	AN/ARQ-7
9	RADIO SET	1	AN/ARQ-8

REFERENCE SPECIFICAT'N	WIRE NO.	MAX. OPERAT. VOLTAGE	MAX. RESIS-TANCE	WIRE SIZE
AN-J-C-48A	A	115 A.C.	.08	AN-14
AN-J-C-48A	D	28 D.C.	.46	AN-20
AN-J-C-48A	C	115 A.C.	.08	AN-14
AN-J-C-48A	B	0	.02	AN-14

NOTE 1. THIS CABLE TO BE $48" \pm \frac{3}{4}"$

Figure 5-5. Radio Frequency Amplifier AM-33/ART—Cording Diagram
(Control Unit C-198/AR Not Used)



ITEM	EQUIPMENT	NO. REQ'D	NOMENCLATURE
1	RADIO FREQUENCY AMPLIFIER	1	AM-33/ART
2	MOUNTING BASE	1	MT-171/U
3	PLUG	6	PL-259
4	ADAPTER	AS REQ'D	M-359
5	PLUG	1	AN3108-22-4S
6	ADAPTER	1	AN3057-12
7	RADIO FREQUENCY CABLE	AS REQ'D	RG-8/U
8	RADIO SET	1	AN/ARQ-1
9	RADIO SET	1	AN/ARQ-7
10	CONTROL UNIT	1	C-198/AR
11	PLUG	1	AN3108-14S-9P
12	ADAPTER	2	AN3057-6
13	PLUG	1	AN3108-14S-9S

REFERENCE SPECIFICAT'N	WIRE NO.	MAX. OPERAT. VOLTAGE	MAX. RESIS-TANCE	WIRE SIZE
AN-J-C-48A 95-27273	A	115 A.C.	.08	AN-14
AN-J-C-48A	B	28 D.C.	.46	AN-20
AN-J-C-48A 95-27273	C	115 A.C.	.08	AN-14
AN-J-C-48A	D	0	.02	AN-14
AN-J-C-48A 95-27273	A*	115 A.C.	.03	AN-14
AN-J-C-48A 95-27273	B*	115 A.C.	.03	AN-14

NOTE I. COMBINED LENGTH OF THESE CABLES TO BE
44" + 3/4"

Figure 5-6. Radio Frequency Amplifier AM-33/ART—Cording Diagram
(Control Unit C-198/AR Used)

WIRE TABLE

All wires to be per Spec. AN-J-C-48 unless otherwise specified.
Wire sizes marked † to be individually shielded per Spec. 95-27273.

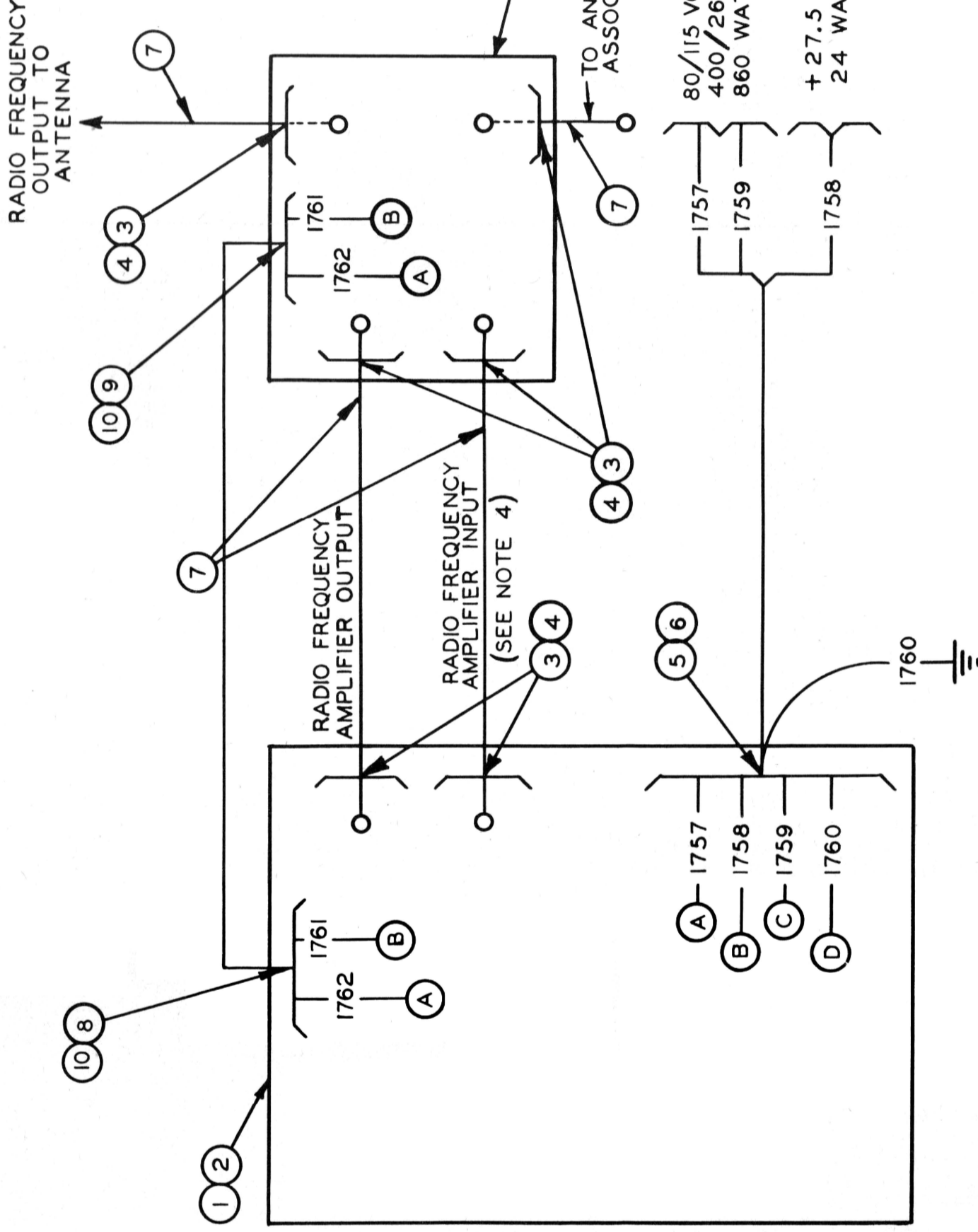
Ref. No.	Wire No.	Maximum Operating Voltage	Max. Allowable Resistance In Ohms (71°C)	Minimum AN Size Permitted
	1757	115 A.C.		AN-18
	1758	28 D.C.		AN-20
	1759	115 A.C.		AN-18
	1760	0		AN-20
	1761	115 A.C.		AN-20
	1762	115 A.C.		AN-20

- NOTES**
- Length of coaxial cable for radio frequency, input between associated equipment and amplifier; when Control Unit C-198/AR is not used, shall be $48 \pm \frac{3}{4}$ inches. When control unit is used, combined length of coaxial cable from associated equipment to control unit, to radio frequency input of amplifier shall be $44 \pm \frac{3}{4}$ inches.
 - It is recommended that adapter M-359 be used only when necessary. The adapter is not recommended for use with the control unit.
 - When this equipment is installed on a rack assembly, the power cord may be already installed on rack and connected to terminal strip in terminal box J-491A.
 - All terminal strips required in the installation of the wiring shall be made of suitable insulating material and with terminal spacing to provide protection against voltage breakdown.

COMPONENT TABLE

Item	Quan. Req'd.	Equipment Nomenclature		Spec. or Installation Drawing
		Description	Type No.	
* 1	1	Radio Frequency Amplifier	AM-33/ART	
* 2	1	Mounting Base	MT-171/U	H44G3448
* 3	6	Plug	PL-259	
* 4	As Req'd.	Adapter	M-359	
* 5	1	Plug	AN3108-22-45	AN-9534
* 6	1	Adapter	AN3057-12	AN-3057
* 7	As Req'd.	Radio Frequency Cable	RG-8/U	JAN-C-17
* 8	1	Plug	AN3108-145-9P	AN-W-C-591
* 9	1	Plug	AN3108-145-9S	AN-W-C-591
* 10	2	Adapter	AN3057-6	AN-3057
* 11	1	Control Unit	C-198/AR	
* 12	1	Mounting Plate	MT-336/AR	

* Indicates government furnished equipment.



ITEM	WEIGHT
(1) (2)	50 POUNDS

DUST COVER SIZE S.A.R.C. BI-D