TM 11-5821-318-12

TECHNICAL MANUAL

# OPERATOR'S AND AVIATION UNIT MAINTENANCE MANUAL

# VHF AM/FM RADIO SET AN/ARC-186(V)

This copy is a reprint which includes current pages from Change 1.



HEADQUARTERS, DEPARTMENT OF THE ARMY
15 JANUARY 1986

Change
No. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 15 August 1993

# Operator's And Aviation Unit Maintenance Manual

## VHF AM/FM RADIO SET AN/ARC-186(V) (NSN 5821-01-086-6243) (EIC: N/A)

TM 11–5821–318–12, 15 January 1986, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. Added or revised illustrations are indicated by a bar adjacent to the figure caption. An illustration change is indicated by a miniature pointing hand.

| *Remove pages* | *Insert pages* |
|---|---|
| i and ii | i and ii |
| (iii blank)/1-0 | (iii blank)/1-0 |
| 1–1 through 1-4 | 1–1 through 1-4 |
| None | 1-4.1/(1-4.2 blank) |
| 1–5 and 1-6 | 1–5 and 1-6 |
| 1–11 and 1–12 | 1–11 and 1–12 |
| 1–23 through 1–26 | 1–23 through 1–26 |
| 3–23 through 3–26 | 3–23 through 3–26 |
| 3-87 and 3-88 | 3-87 and 3-88 |
| A–1 and A–2 | A–1 and A–2 |
| B–3 and B-4 | B–3 and B-4 |
| B–7 and B-8 | B–7 and B-8 |
| C–1 and C–2 | C-1 and C-2 |

2. File this change sheet in front of the manual for reference purposes.

By Order of the Secretary of the Army:

GORDON R. SULLIVAN
*General, United States Amy*
*Chief of Staff*

Official:

MILTON H. HAMILTON
*Administrative Assistant to the*
*Secretary of the Army*
05018

DISTRIBUTION :

To be distributed in accordance with DA Form 12-351E, block 1479, requirements for TM 11-5821-318-12.

Change

No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 1 January 1987

# Operator's and Aviation Unit Maintenance Manual

## VHF AM/FM RADIO SET AN /ARC-186(V)
## (NSN 5821-01-086-6243)

TM 11-5821-318-12, 15 January 1986, is changed as follows:

1. Remove old pages and insert new pages as indicated below:

| *Remove pages* | *Insert pages* |
|---|---|
| i and ii | i and ii |
| 2-3 through 2-6 | 2-3 through 2-6 |
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2. New or changed material is indicated by a vertical bar in the margin of the page. Added or revised illustrations are indicated by a vertical bar adjacent to the illustration.

3. On the front cover, in ink, insert the following National stock number in parentheses below ''AN/ARC-l86(V)": (NSN 5821-01-086-6243).

4. File this change sheet in the front of the publication for reference purposes.



*This change supersedes TM 11-5821-318-12, 2 January 1981.

By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR.
*General, United States Army*
*Chief of Staff*

Official:

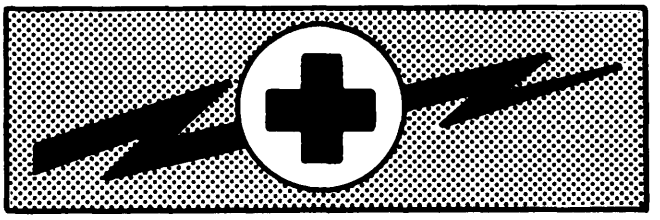
R.L. DILWORTH
*Brigadier General, United States Army*
*The Adjutant General*

DISTRIBUTION :
To be distributed in accordance with DA Form 12-36 literature requirements for AN/ARC-186.

# 5 SAFETY STEPS TO FOLLOW IF SOMEONE IS THE VICTIM OF ELECTRICAL SHOCK

1. DO NOT TRY TO PULL OR GRAB THE INDIVIDUAL
2. IF POSSIBLE , TURN OFF THE ELECTRICAL POWER
3. IF YOU CANNOT TURN OFF THE ELECTRICAL POWER, PULL, PUSH, OR LIFT THE PERSON TO SAFETY USING A WOODEN POLE OR A ROPE OR SOME OTHER INSULATING MATERIAL
4. SEND FOR HELP AS SOON AS POSSIBLE
5. AFTER THE INJURED PERSON IS FREE OF CONTACT WITH THE SOURCE OF ELECTRICAL SHOCK, MOVE THE PERSON A SHORT DISTANCE AWAY AND IMMEDIATELY START ARTIFICIAL RESUSCITATION

# WARNING



**WARNING**

## HIGH VOLTAGE

is used in the operation of this equipment

## DEATH ON CONTACT

may result if personnel fail to observe safety precautions

Never work on electronic equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment and who is competent in administering first aid. When the technician is aided by operators, he must warn them about dangerous areas.

Whenever possible, the power supply to the equipment must be shut off before beginning work on the equipment. Take particular care to ground every capacitor likely to hold a dangerous potential. When working inside the equipment, after the power has been turned off, always ground every part before touching it.

Be careful not to contact high-voltage connections of 115-volt ac input connections when installing or operating this equipment.

Whenever the nature of the operation permits, keep one hand away from the equipment to reduce the hazard of current flowing through vital organs of the body.

**WARNING** Do not be misled by the term "low voltage." potentials as low as 50 volts may cause death under adverse conditions.

For Artificial Respiration, refer to FM 21-11.

**Technical Manual**

**NO. 11-5821-318-12**

**HEADQUARTERS**
**DEPARTMENT OF THE ARMY**
**Washington, DC,** *15 January 1986*

**Operator's and Aviation Unit Maintenance Manual**

**VHF AM/FM RADIO SET**
**AN/ARC-186(V)**

**(NSN 5841-01-086-6243) (EIC: N/A)**

**REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS**

You can help improve this manual. If you find any mistakes, or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms) or DA Form 2028-2 located in back of this manual direct to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-LC-LM-LT, Fort Monmouth, New Jersey 07703-5007. In either case a reply will be furnished direct to you.

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*This manual supersedes TM 11-5821-318-12 dated 2 January 1981

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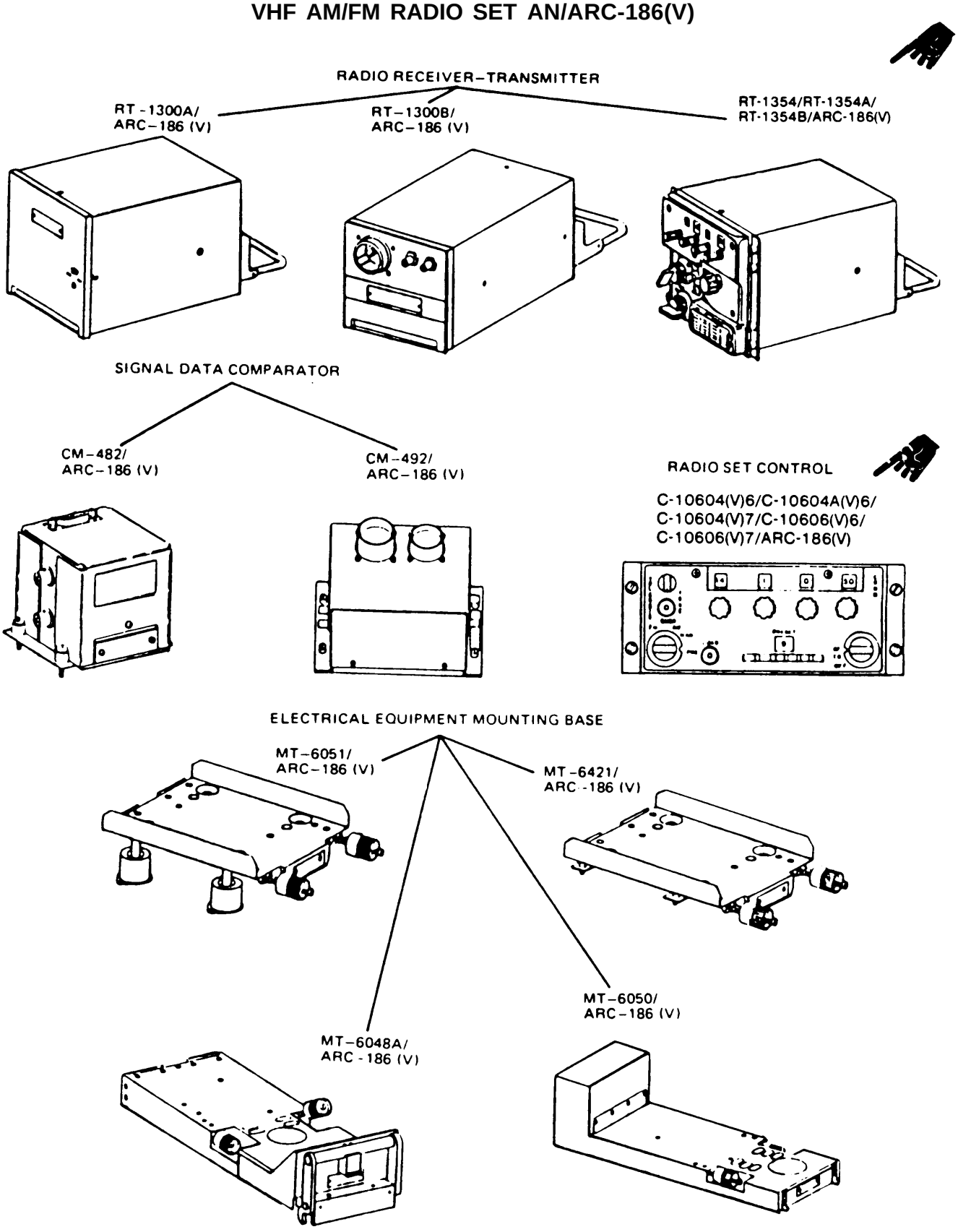
# VHF AM/FM RADIO SET AN/ARC-186(V)



# CHAPTER 1
# INTRODUCTION

## CHAPTER OVERVIEW

Chapter 1 is divided into three sections.

a. Section I. General Information

Tells you general "need-to-know" information found in all technical manuals (TM's). This information includes:

- Consolidated Index of Army Publications and Blank Forms
- Maintenance forms, records, and reports.
- Destruction of Army Electronics Materiel
- Administrative Storage
- Reporting equipment improvement recommendations (EIR).

An official nomenclature to common name cross-reference list is included to make the TM easier to read.

b. Section II. Equipment Description and Data.

Tells you about the VHF AM/FM radio set. It includes:

- Equipment purpose, capabilities, and features.
- Location and description of major components.
- Differences between equipment configurations.
- Equipment specifications and data.

c. Section III. Principles of Operation

Tells you how:

- Your equipment can be hooked up.
- It works.

# Section I. GENERAL INFORMATION

## 1-1. SCOPE

a. Type of Manual.

Operator and Aviation Unit Maintenance

b. Model Number and Equipment Name.

AN/ARC-186(V) VHF AM/FM Radio Set

c. Purpose of Equipment

Provides very-high-frequency (vhf) amplitude modulated (AM) and/or frequency modulated (FM) 2-way voice communication.

## 1-1.1. CONSOLIDATED INDEX OF ARMY PUBLICATIONS AND BLANK FORMS

Refer to the latest issue of DA Pam 25–30 to determine whether there are new editions, changes, or additional publications pertaining to the equipment.

## 1-2. MAINTENANCE FORMS, RECORDS, AND REPORTS

*a. Reports of Maintenance and Unsatisfactory Equipment.* Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA Pam 738–750, as contained in Maintenance Management Update.

*b. Reporting of Item and Packaging Discrepancies.* Fill out and forward SF 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2/DLAR 4140.55/SECNAVINST 4355.18/AFR 400-54/MCO 4430.3J.

*c. Transportation Discrepancy Report (TDR) (SF361).* Fill out and forward Transportation Discrepancy Report (TDR) (SF 361) as prescribed in AR 55-38/NAVSUPINST 4610.33C/AFR 75-18/MCO P4610.19D/DLAR 4500.15.

## 1-2.1. ADMINISTRATIVE STORAGE

Administrative storage of equipment issued to and used by Army activities will have Preventive Maintenance Checks and Services (PMCS) performed before storing. When removing the equipment from administrative storage, the PMCS checks should be performed to assure operational readiness.

## 1-3. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your equipment needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don’t like the design or performance. Put it on an SF 368 (Product Quality Deficiency Report). Mail it to: Commander, US Army Communications-Electronics

Command and Fort Monmouth, ATTN: AMSEL-LC-ED-TC, Fort Monmouth, New Jersey 07703-5023. We'll send you a reply.

## 1-4. NOMENCLATURE CROSS-REFERENCE LIST

| Common Name | Official Nomenclature |
|---|---|
| Radio Set | VHF AM/FM Radio Set AN/ARC-186(V) |
| RT-1300A | Radio Receiver-Transmitter RT-1300A/ARC-186(V) |
| RT-1300B | Radio Receiver-Transmitter RT-1300B/ARC-186(V) |
| RT-1354 | Radio Receiver-Transmitter RT-1354/ARC-186(V), Radio Receiver-Transmitter RT-1354A/ARC-186(V), and Radio-Transmitter RT-1354B/ARC-186(V) |
| C-10604 | Radio Set Control C-10604(V)6/ARC-186(V), Radio Set Control C-10604A(V)6/ARC-186(V), and Radio Set Control C-10604(V)7/ARC-186 |
| C-10606 | Radio Set Control C-10606(V)6/ARC-186(V) and Radio Set Control C-10606(V)7/ARC-186(V) |
| CM-482 | Signal Data Comparator CM-482/ARC-186(V) |
| CM-492 | Signal Data Comparator CM-492/ARC-186(V) |
| MT-6048A | Electrical Equipment Mounting Base MT-6048A/ARC-186(V) |
| MT-6050 | Electrical Equipment Mounting Base MT-6050/ARC-186(V) |
| MT-6051 | Electrical Equipment Mounting Base MT-6051/ARC-186(V) |
| MT-6421 | Electrical Equipment Mounting Base MT-6421/ARC-186(V) |
| MT-1535 | Electrical Equipment Mounting Base MT-1535/ARC-54 |
| MT-3664 | Electrical Equipment Mounting Base MT-3664/ARC-131 |
| MT-3791 | Electrical Equipment Mounting Base MT-3791/ARC-134 |

**NOTE**

The following common names and official nomenclature are used for test, measurement, and diagnostic equipment and material.

| Common Name | Official Nomenclature |
|---|---|
| Tool Kit TK-101/G | Electronic Equipment Tool Kit TK-101/G |
| AN/URM-120 | Radio Frequency Power Test Set AN/URM-120 |
| AN/PSM-45 | Digital Multimeter AN/PSM-45 |
| MK-693A | Maintenance Kit MK-693A |
| Headset-Microphone | Headset-Microphone SPH-4A |
| | Headset-Microphone H-158/AIC |
| DA-75 | Electrical Dummy Load DA-75/U |
| Safety Wire | Nonelectrical wire |

## 1-5. DESTRUCTION OF ARMY ELECTRONICS MATERIEL

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

## 1-6. PREPARATION FOR STORAGE OR SHIPMENT

For:

— Storage information, see TM 740-90-1.

— Shipment information, see TM 746-10.

## 1-7. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

a. Characteristics

The radio set provides:

— FM and/or AM 2-way voice communications.

— Wide-band AM or FM secure voice (X-mode) transmission and reception when secure voice equipment is installed.

— FM homing (direction finding) indications when an indicator (not part of set) is installed.

— Retransmission when two radio sets are installed.

b. Capabilities and Features.

The radio set:

— Can be switched cooperate AM and FM, AM only, or FM only.

— Has AM and FM guard channels.

— Provides homing signals to an indicator (not part of set). Indications allow pilot to fly aircraft to a transmitting FM transmitter.

— Allows pilot to select up to 20 preset frequencies before or during flight.

— Will transmit and receive radio signals when radio set is in homing (DF) mode.

— Can be used with X-mode equipment TSEC KY-28 or TSEC KY-58.

— Uses quick-disconnect connectors and fasteners so you can change components easily.

# Section II. EQUIPMENT DESCRIPTION AND DATA

## 1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

The radio set consists of several components.

These components can be connected several different ways, depending on aircraft:

— Mission.

— Type.

— Wiring, antennas, indicators, and X-mode equipment.

This paragraph describes all of the major components of the radio set.

Your aircraft's avionics TM will tell you what components are installed in your aircraft.

## 1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (Continued)

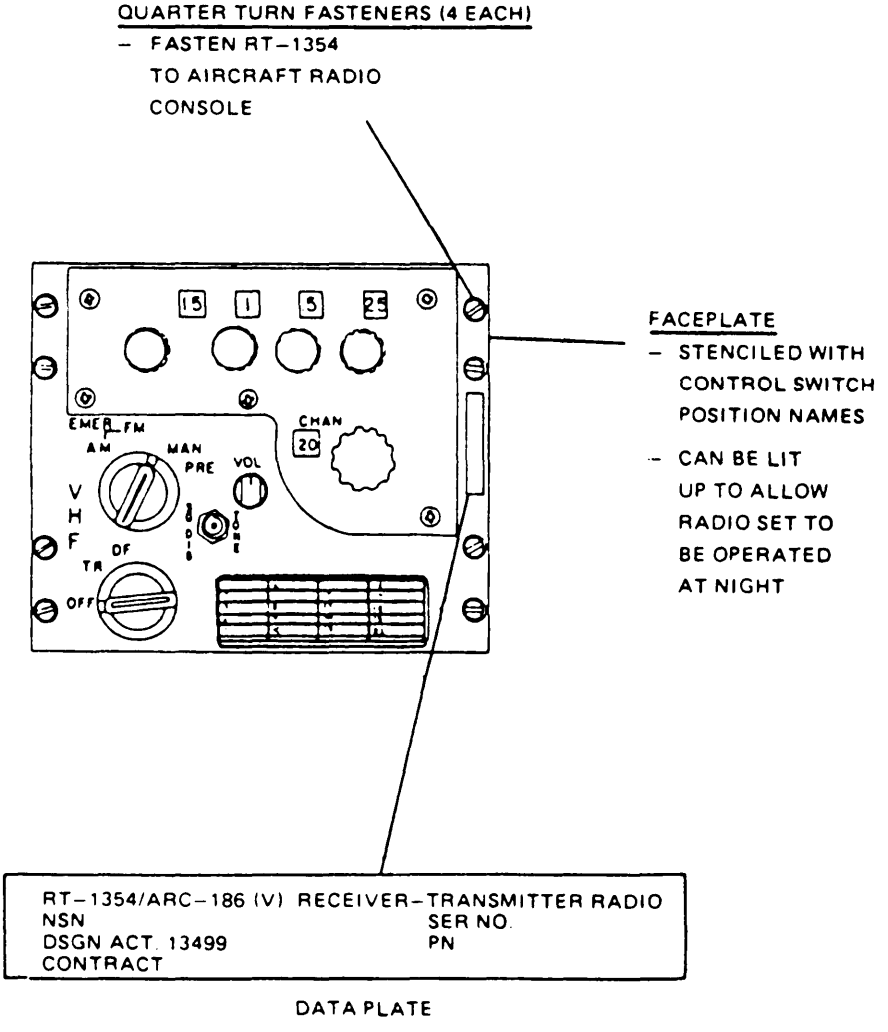
a. RT-1354.

The operator's controls and indicators on front are explained in Chapter 2.

The RT-1354 faceplate lights up red.

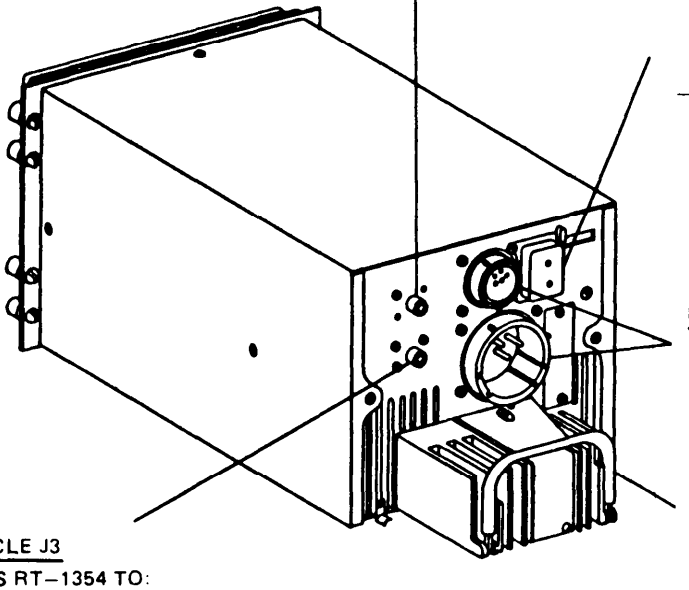
The RT-1354A faceplate lights up green. This color allows the RT-1354A to be used with night vision equipment.

The RT-1354B faceplate lights up ANVIS (Aviator Night Vision Instrument System) green. This Color allows the RT-1354B to be used with night vision equipment.



## 1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (Continued)

a. RT-1354 (Continued).



RECEPTACLE J4
- CONNECTS RT-1354 TO AIRCRAFT VHF AM ANTENNA

FUSE (UNDER COVER)
- FUSE PROTECTS RT-1354/AIRCRAFT ELECTRICAL SYSTEM FROM SHORT CIRCUITS
- HOLES IN COVER ALLOW TEST PROBES TO BE INSERTED FOR CONTINUITY CHECKS

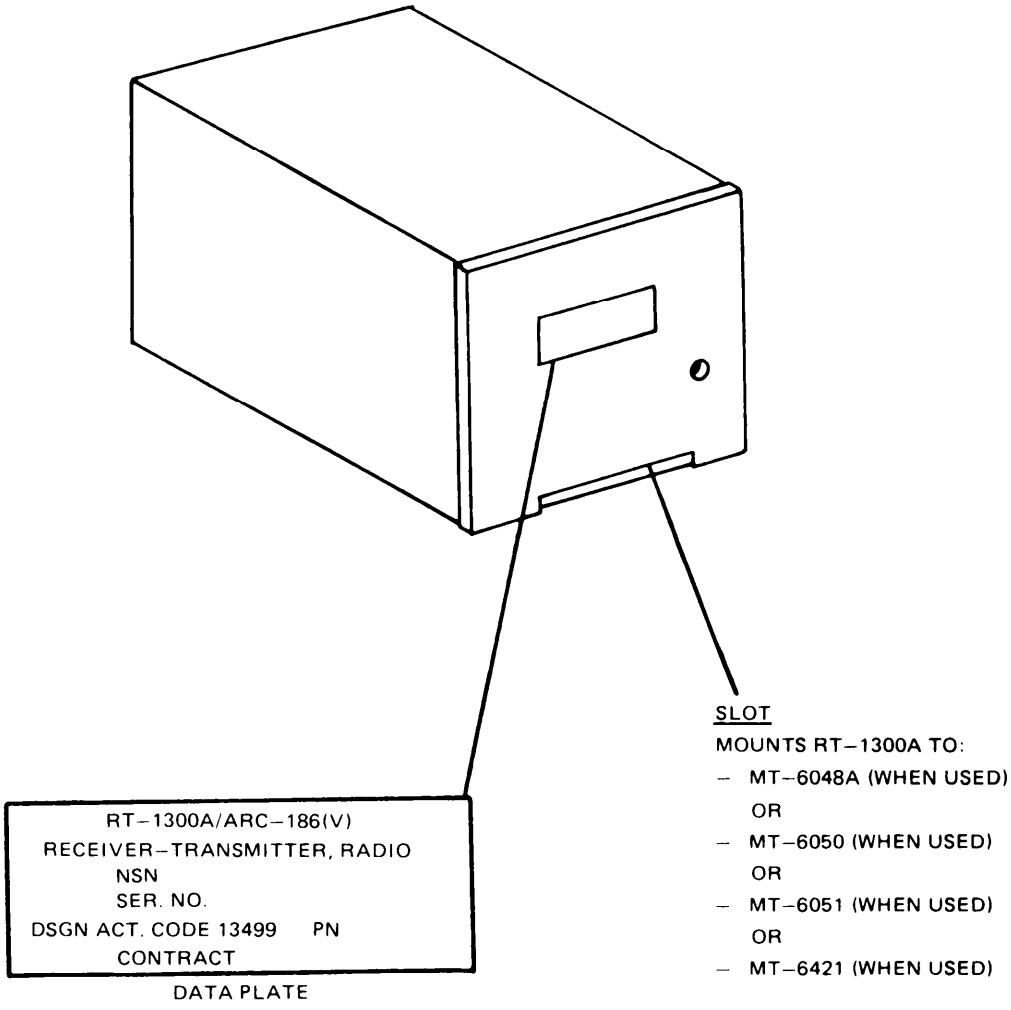
RECEPTACLE J1, J2
- CONNECT RT-1354 TO AIRCRAFT WIRING

HANDLE

RECEPTACLE J3
CONNECTS RT-1354 TO:
- MT-6048A PLUG P3 (WHEN USED) OR
- CM-482 RECEPTACLE J5 (WHEN USED) OR
- CM-492 RECEPTACLE J5 (WHEN USED) OR
- AIRCRAFT FM ANTENNA OR
- AIRCRAFT COMBINATION VHF AM/FM ANTENNA

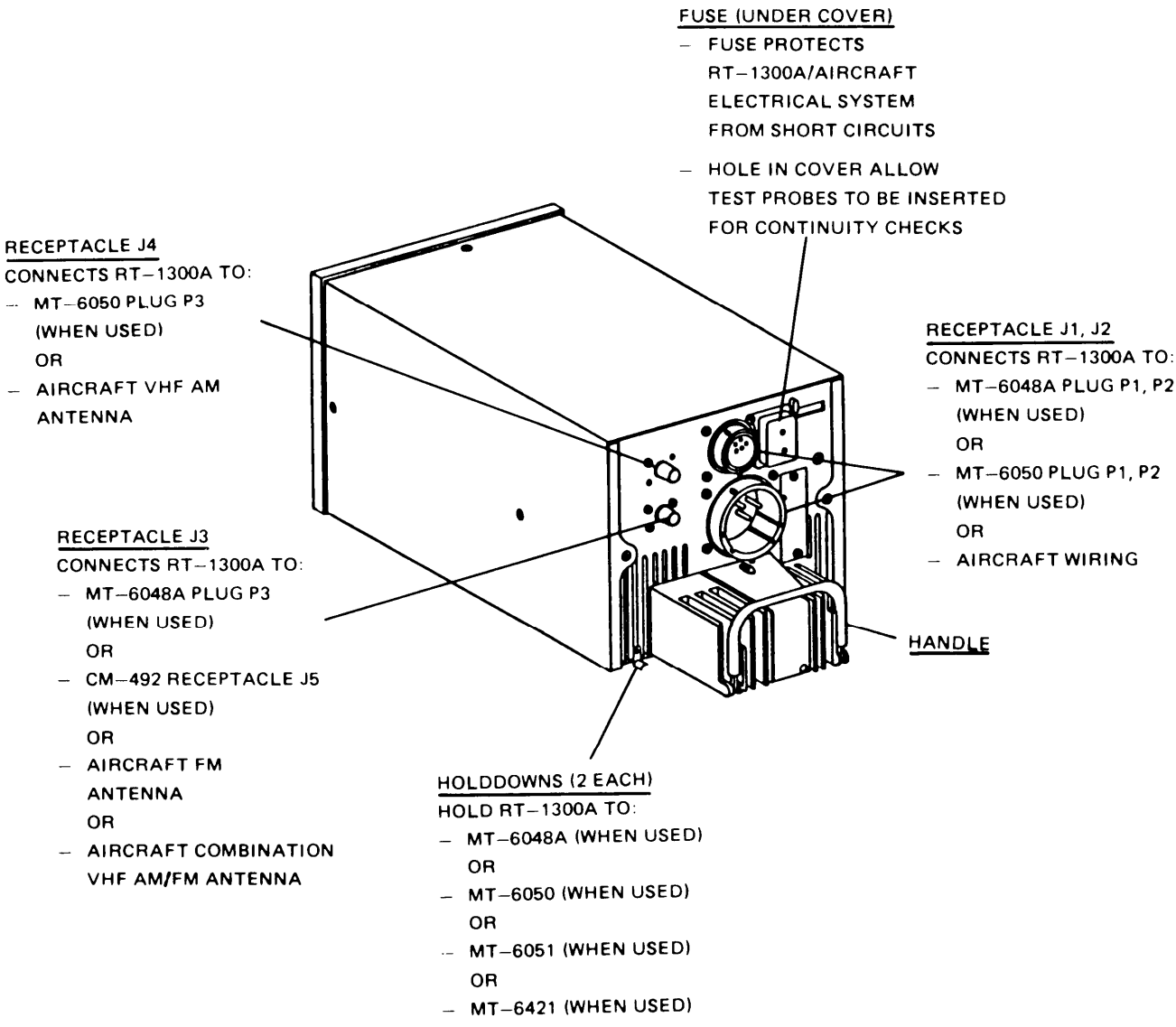
## 1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (Continued)

b. RT-1300A.



## 1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (Continued)

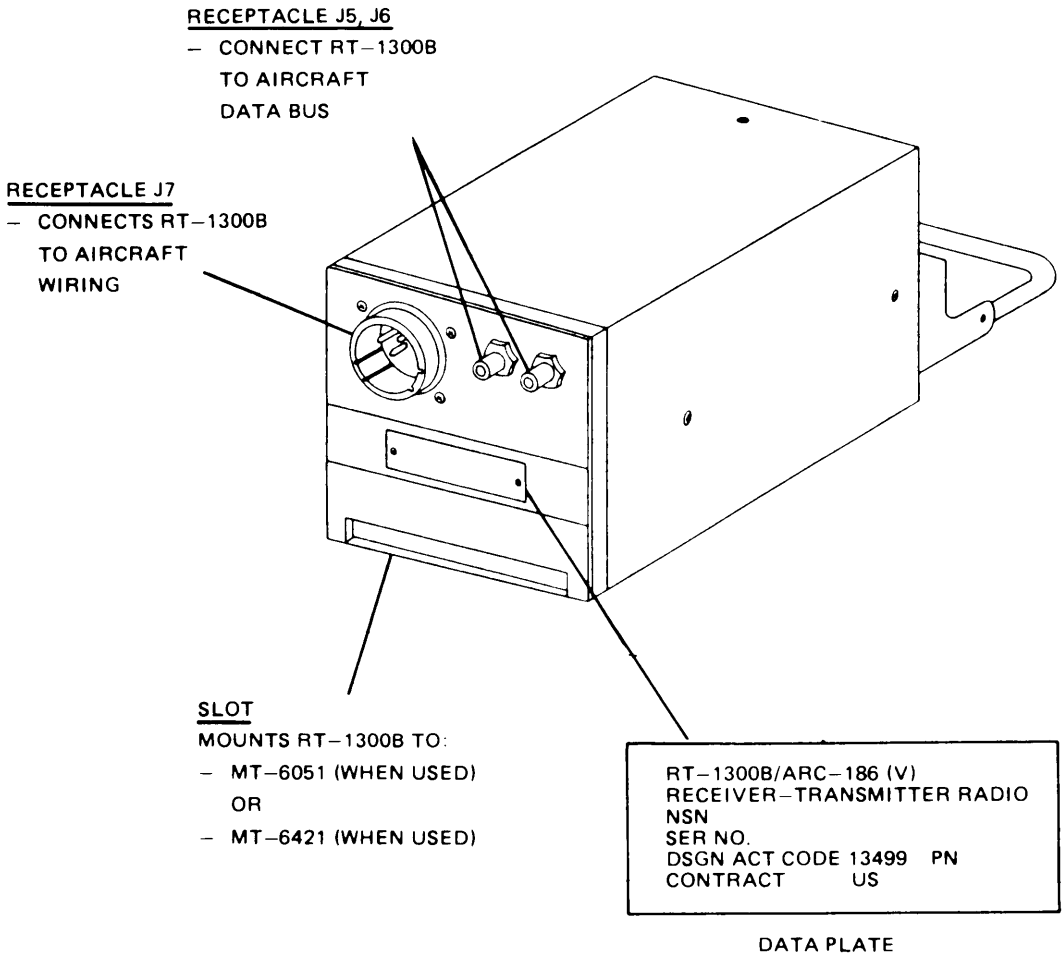
b. RT-1300A (Continued).



## 1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (Continued)

c. RT-1300B.

The back of the RT-1300B looks the same as the RT-1300A.



## 1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (Continued)

d. C-10604 and C-10606.

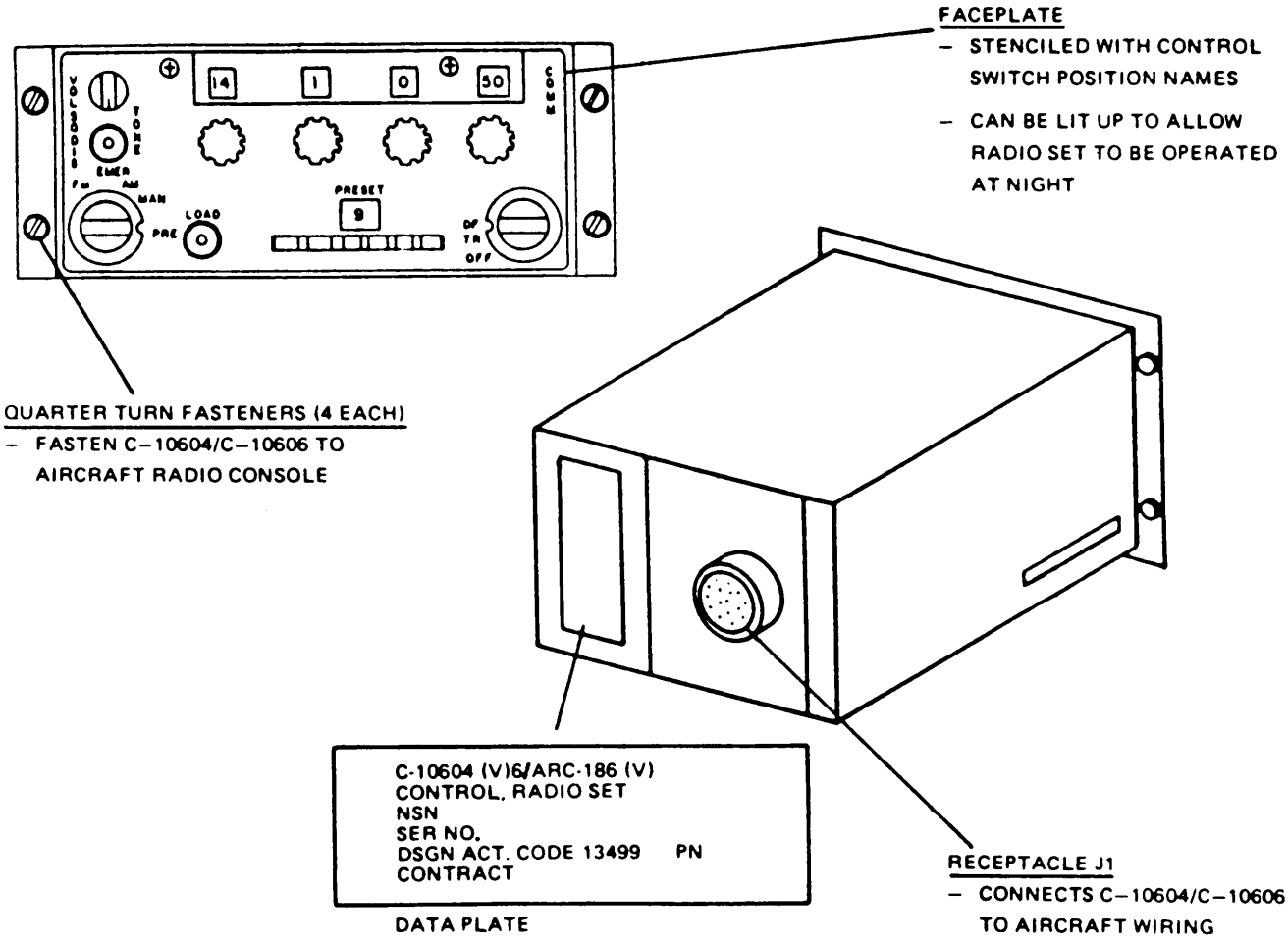
The C-10604 and C-10606 are the same except each has a different receptacle (Jl).

C-10604(V)6 and C-10606(V)6 faceplates light up red.

C-10604A(V)6 faceplate lights up ANVIS (Aviator Night Vision Instrument System) green. This color allows the C-10604A(V)6 to be used with night vision equipment.

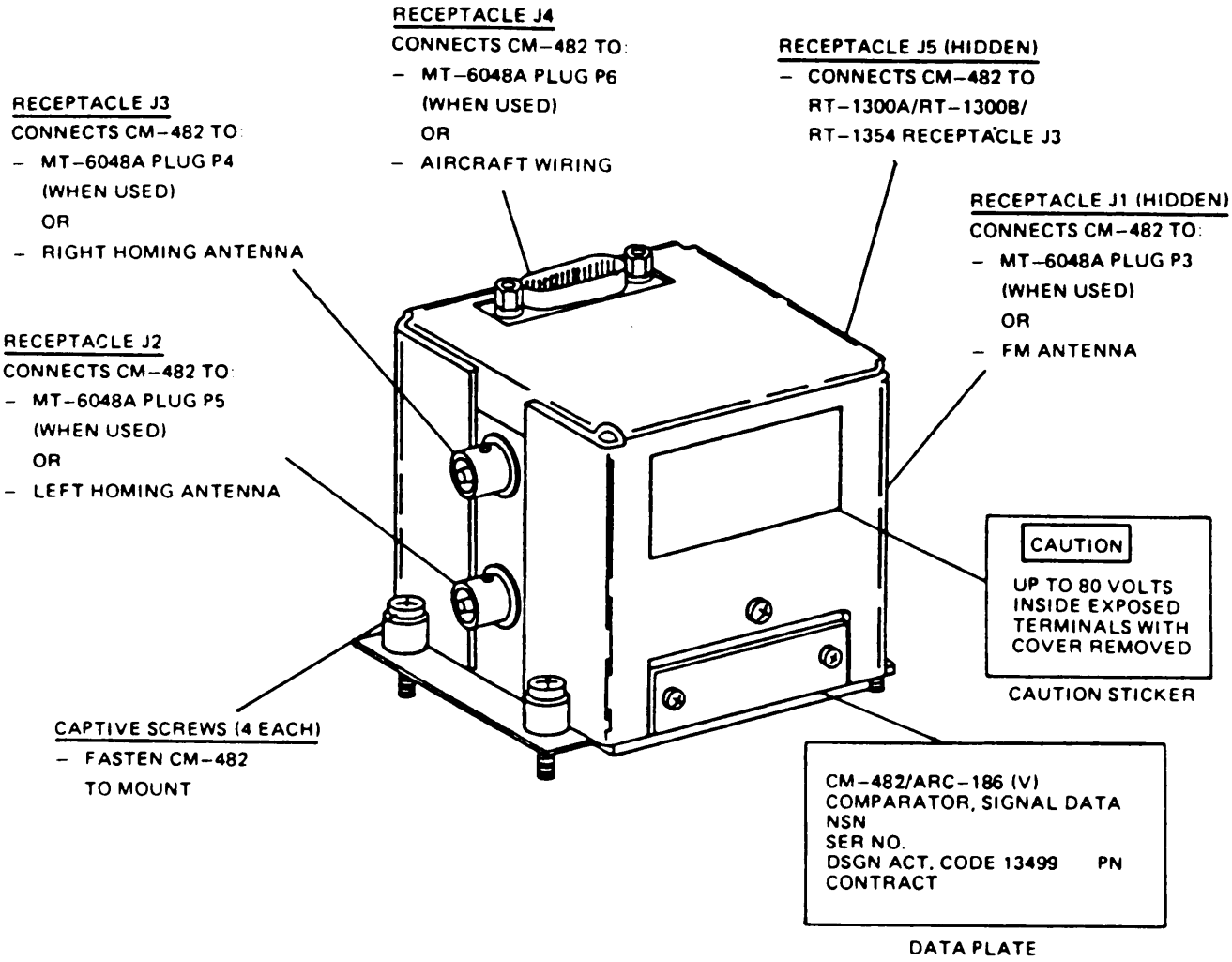
C-10604(V)7 and C-10606(V)7 faceplates light up green. This color allows the C-10604(V)7 and C-10606(V)7 to be used with night vision equipment.

The operator's controls and indicators on the front are explained in Chapter 2.



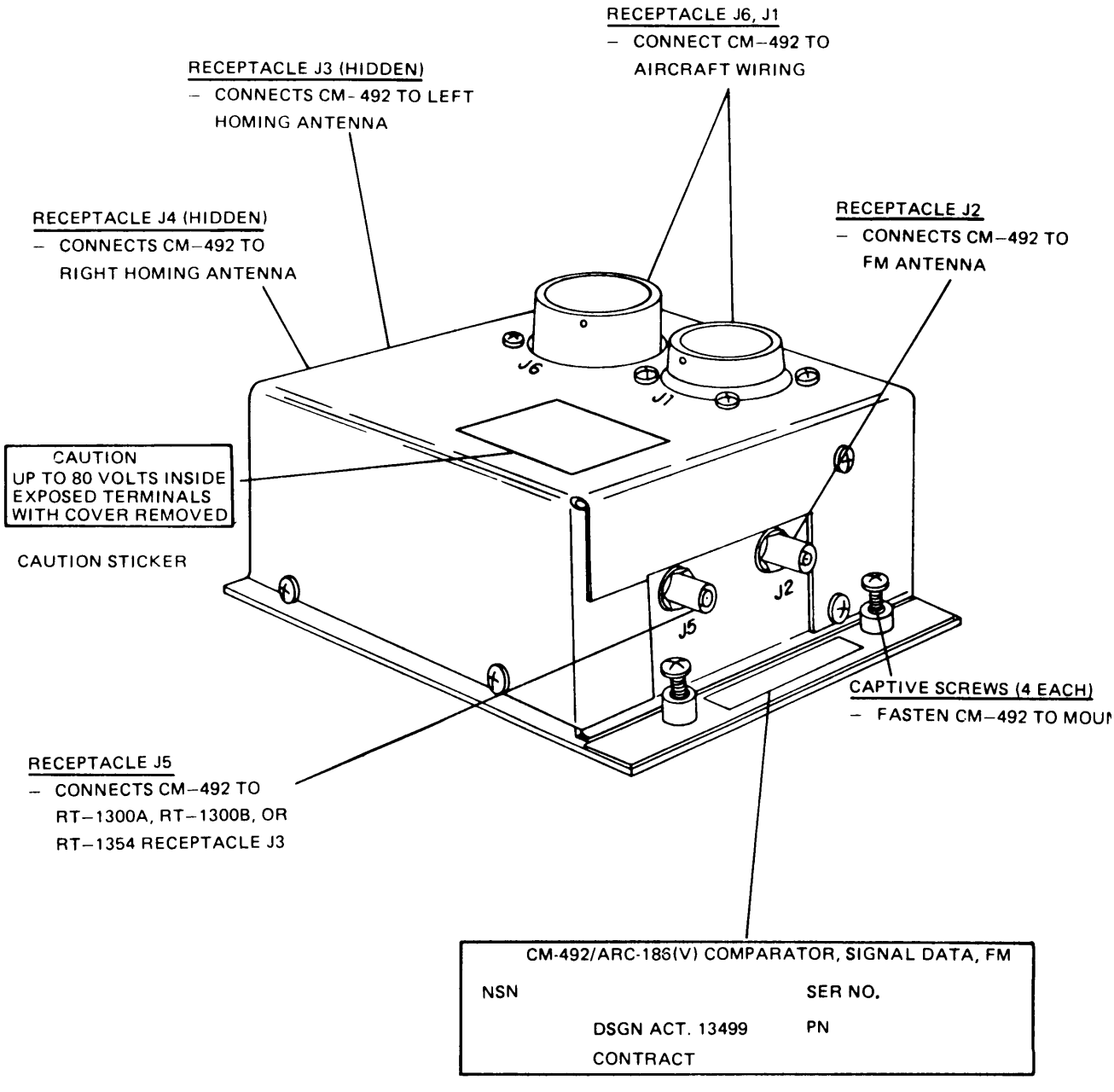
## 1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (Continued)

e. CM-482.



## 1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (Continued)

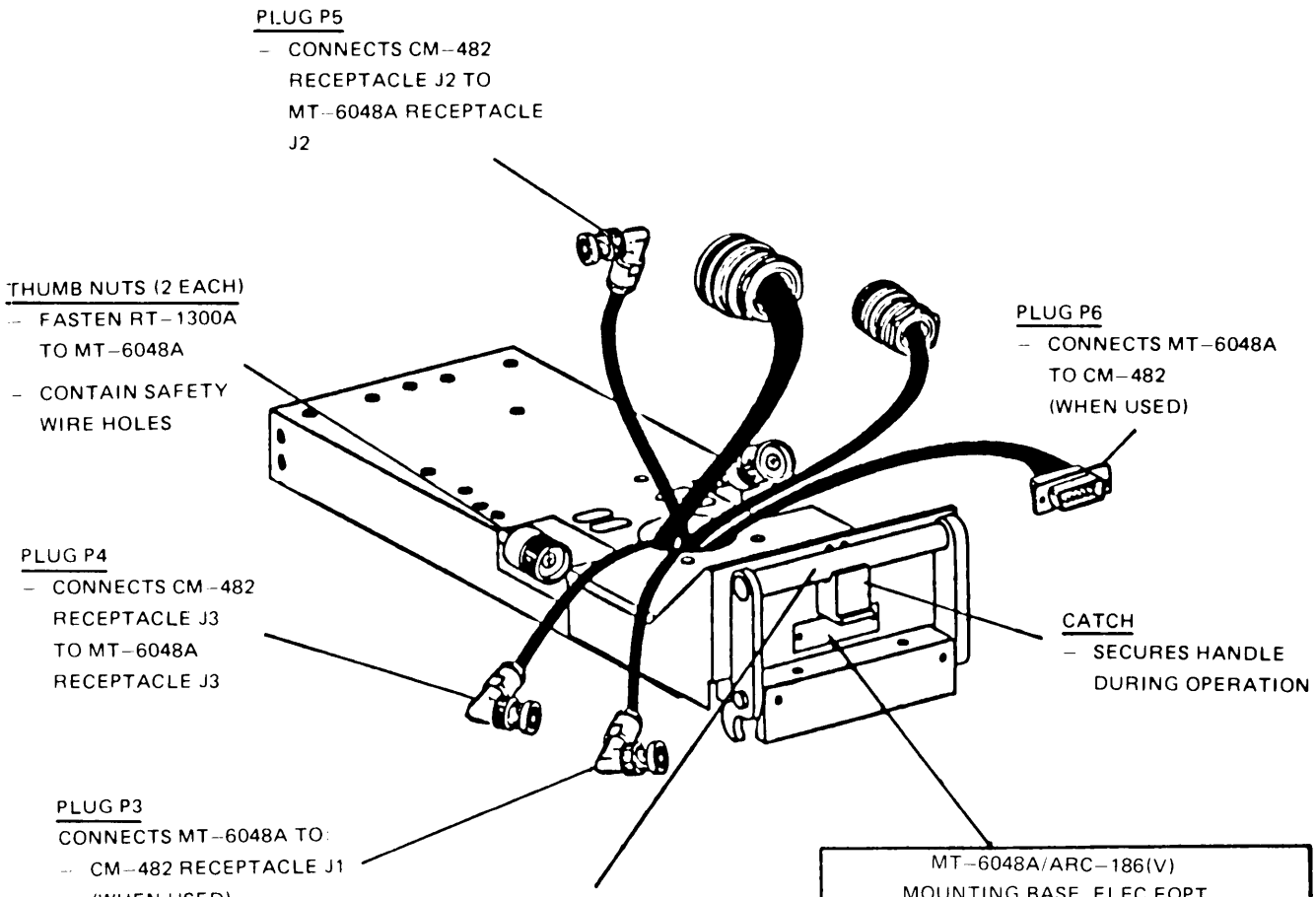
f. CM-492.



## 1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (Continued)

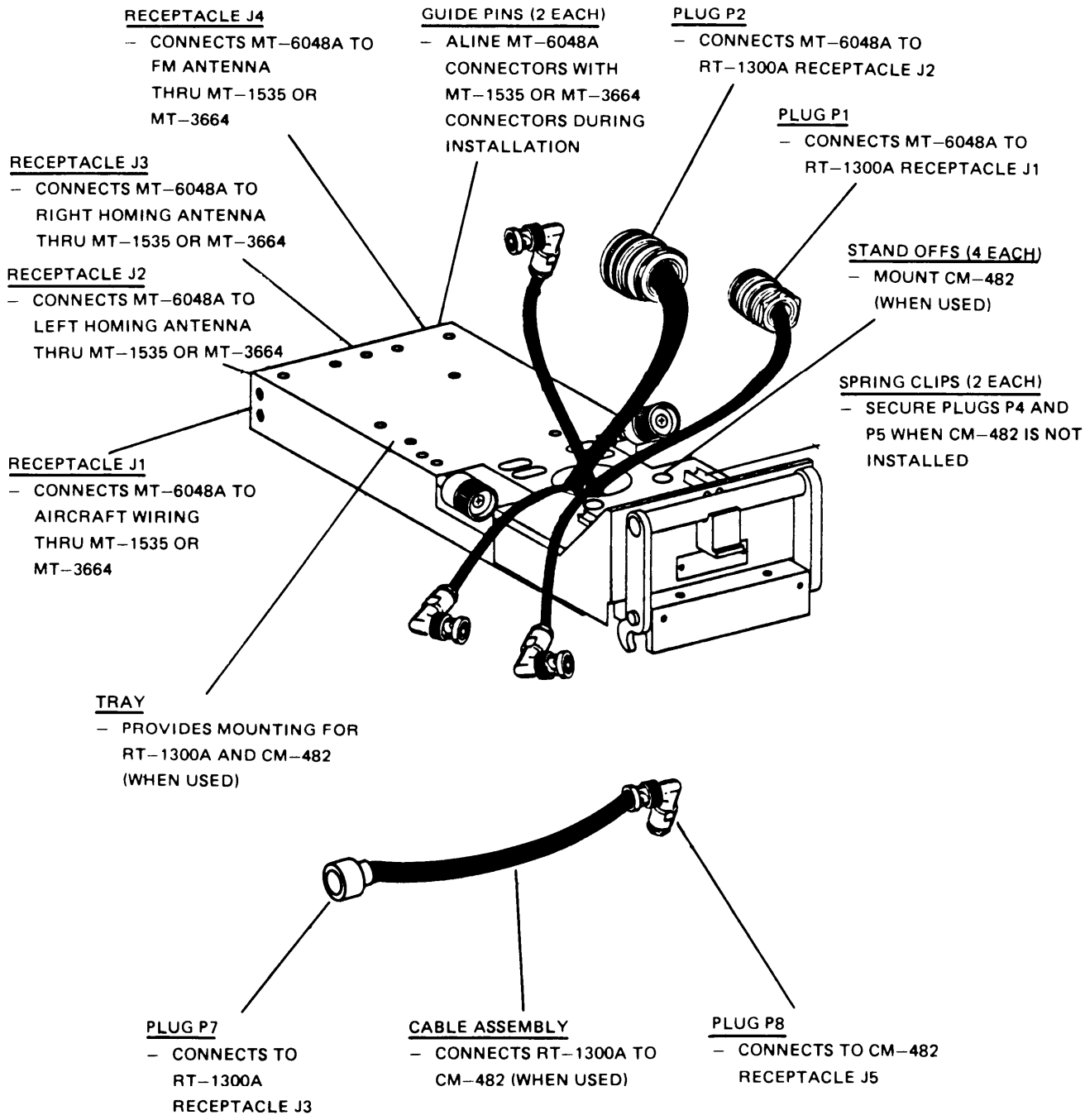
g. MT-6048A.

The MT-6048A is used to mount the RT-1300A on MT-1535/ARC-54 or MT-3664/ARC-131.



## 1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (Continued)

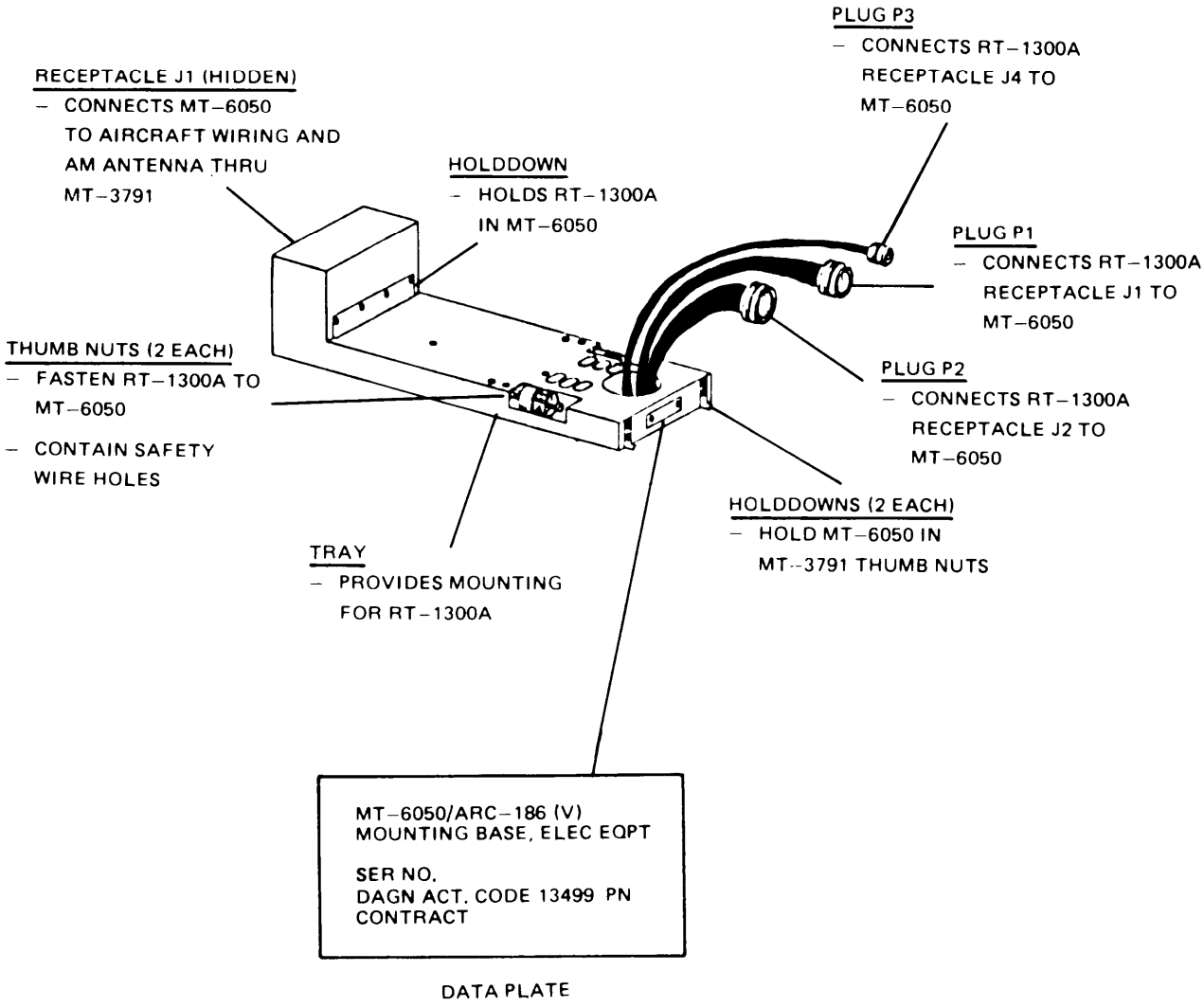
g. MT-6048A (Continued).



## 1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (Continued)

h. MT-6050.

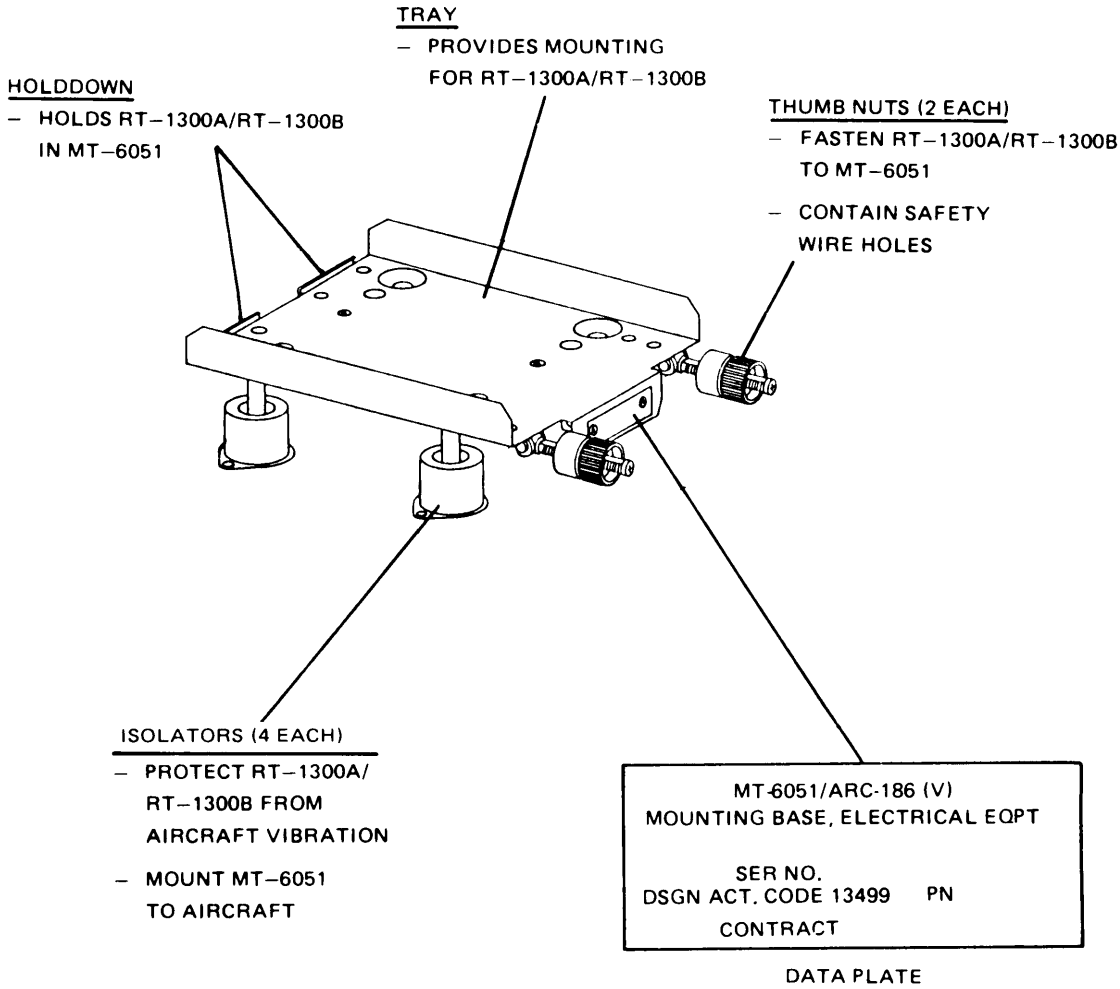
The MT-6050 is used to mount the RT-1300A on the MT-3791/ARC-134.



## 1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (Continued)]

i. MT-6051/6421.

The MT-6421 is the same as MT-6051 except it has two straps under the tray instead of isolators.



## 1-9. EQUIPMENT CONFIGURATION

The AN/ARC-186(V ) components may be used in aircraft that have wiring for other radio sets already installed.

This chart shows you what AN/ARC-186(V) components are used in these aircraft.

**NOTE**

Except for wiring and antennas, all the components listed in a column must be replaced when AN/ARC-186(V) is installed. For example, you cannot use an RT-1300A with an AN/ARC-54 control. The radio won't work.

| AN/ARC-186(V) components | Used in aircraft that are wired for: | | |
|---|---|---|---|
| | AN/ARC-54<br>AN/ARC-131 | AN/ARC-l 14<br>and<br>AN/ARC-l 15 | AN/ARC-134 |
| RT-1300A | X | | X |
| RT-1354 | | X | |
| C-10604 | X | | |
| C-10606 | | | X |
| CM-482 | X NOTE 1 | X NOTE 1 | |
| CM-492 | X NOTE 1 | X NOTE 1 | |
| MT-6048A | X | | |
| MT-6050 | | | X |

NOTE

Either the CM-482 or CM-492 is required only if homing is required. CM-492 requires wiring and mounting changes.

## 1-10. EQUIPMENT DATA

a. Electrical.

Frequency range:

AM transmit/receive. . . . . 116 to 151.975 megahertz (MHz)

AM receive only . . . . . 108.000 to 115.975 MHz

FM transmit/receive . . . . . 30.000 to 87.975 MHz

Channel spacing . . . . . 25 kilohertz (kHz)

Preset channels . . . . . 20 with electronic memory

## 1-10. EQUIPMENT DATA (Continued)

Transmit output power:

| | |
|---|---|
| AM/FM | 10 watts (W) minimum into 52-ohm load |

Receive/transmit duty:

| | |
|---|---|
| Cycle time | 5 minutes receive, 1 minute transmit |

Transmitter modulation:

| | |
|---|---|
| Narrow-band AM | 80% minimum with 0.39 volt root mean square (Vrms), 1000-Hz audio input |
| X-mode | 80% minimum with 3.54 Vrms, 1000-Hz audio input |
| Narrow-band FM | ±5-kHz deviation with 0.39 Vrms, 1000-Hz audio input |
| X-mode | ±5 kHz deviation with 3.45 Vrms, 1000-Hz audio input |

Receiver sensitivity:

| | |
|---|---|
| AM | 6-microvolt (µV) terminated or 3-µV (open circuit) carrier frequency, modulated 30% with 1000 hertz (Hz), will produce 10-decibel (dB) signal-plus-noise to noise (S+N/N) ratio. |
| FM | 1.5-µV terminated or 0.7-µV (open circuit) carrier frequency, deviated plus or minus (±)5 kHz with 1000 Hz, will produce 10-dB S+N/N ratio. |

Receiver selectivity:

| | |
|---|---|
| Narrow band | Not more than:<br>-6 dB down ±9.5 kHz of center frequency<br>-60 dB down ±17.5 kHz of center frequency |
| Wide band | Not more than:<br>-6 dB down ±18 kHz of center frequency<br>-60 dB down ±45 kHz of center frequency |

Receiver and transmitter audio bandwidth:

| | |
|---|---|
| Narrow band | 300 to 3200 Hz |
| Wide band | 19 to 14,000 Hz |
| Direction finding | 10 to 7000 Hz |

**1-10. EQUIPMENT DATA (Continued)**

Receiver audio output:

| | |
|---|---|
| Narrow band | 2.5 to 3.0 Vrms into a 150-ohm load with VOL control fully clockwise |
| X-mode | Not less than 1.9 Vrms |
| Retransmit | 2.38 to 3.15 Vrms |
| Homing | Not less than 1.9 Vrms |
| Receive audio distortion | 12.5% maximum |
| Transmit audio sidetone | 0.93 to 1.57 Vrms |

Operating voltages:

| | |
|---|---|
| Normal | 24 to 33 volts direct current (Vdc) |
| Emergency | 18 Vdc |

Operating Currents:

| | |
|---|---|
| Receive | 0.75 ampere (A) normal, 1.5 A maximum |
| Transmit | 3.5 A normal, 4.5 A maximum |

b. Weights and Dimensions.

RT-1300A:

| | |
|---|---|
| Weight | 7.00 pounds (lb) (3.18 kilograms (kg)) |
| Length | 8.38 inches (in.) (212.7 millimeters (mm)) |
| Width | 5.00 in. (127.0 mm) |
| Height | 4.75 in. (120.65 mm) |

RT-1300B:

| | |
|---|---|
| Weight | 7.00lb (3.18 kg) |
| Length | 8.52 in. (235.96 mm) |
| Width | 5.00 in. (127.0 mm) |
| Height | 4.75 in. (120.65 mm) |

## 1-10. EQUIPMENT DATA (Continued)

RT-1354:

Weight . . . . . 7.501b (3.4 kg)

Length . . . . . .9.5 in. (241.2 mm)

Width.. . . . . .5.0 in. (127.0 mm)

Height. . . . . 4.75 in. (120.65 mm)

C-10604 and C-10606:

Weight . . . . . 1.60 lb (0.73 kg)

Length . . . . . .4.98 in. (126.49 mm)

Width. . . . . .5.75 in. (146.05 mm)

Height . . . . . .2.239 in. (56.87 mm)

CM-482:

Weight . . . . . 0.50 lb (0.23 kg)

Length . . . . . .2.71 in. (68.83 mm)

Width . . . . . 3.734 in. (94.84 mm)

Height . . . . . .3.22 in. (81.73 mm)

CM-492:

Weight . . . . . 2.50lb (l.12 kg)

Length.. . . . . 4.60 in. (116.8 mm)

Width... . . . . 5.70 in. (144.8 mm)

Height. . . . . 2.87 in. (79.9 mm)

MT-6048A:

Weight . . . . . 4.00lb (1.8 kg)

Length.. . . . . 14.73 in. (374.1 mm)

Width... . . . . 5.10 in. (129.5 mm)

Height . . . . . 3.65 in. (92.7 mm)

**1-10. EQUIPMENT DATA (Continued)**

MT-6050:

Weight. . . . . 3.50 lb (l.6 kg)

Length. . . . . 12.95 in. (328.8 mm)

Width . . . . . 4.92 in. (125.0 mm)

Height. . . . . 3.50 in. (88.9 mm)

MT-6051:

Weight. . . . . 1.10 lb (0.5 kg)

Length . . . . . 8.65 in. (219.5 mm)

Width . . . . . 5.80 in. (147.3 mm)

Height. . . . . 2.192 in. (55.68 mm)

MT-6421:

Weight. . . . . 1.10 lb (0.5 kg)

Length . . . . . 8.65 in. (219.5 mm)

Width. . . . . 5.25 in. (133.4 mm)

Height . . . . . 1.735 in. (44.05 mm)

c. Environmental.

Temperature:

Operation . . . . . -65 to +160 Fahrenheit (°F) (-54 to +85 Celsius (°C))

Storage . . . . . -65 to +185 °F (-54 to+85 °C)

## Section III. PRINCIPLES OF OPERATION

The radio set provides:

- AM and FM clear voice and X-mode 2-way communication
- FM homing
- Retransmission

All the components that make up the radio set are shown and explained in paragraph 1-8.

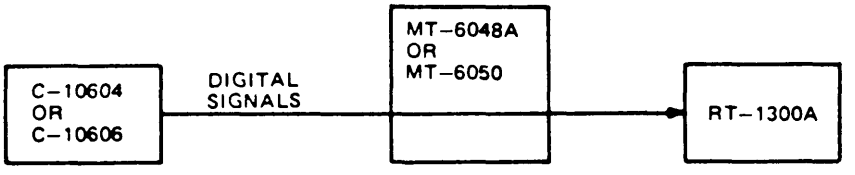
Your aircraft's avionics TM will tell you exact installation and wiring information.

This section tells how the radio set works.

## 1-11. MODE AND FREQUENCY SELECTION

MODE AND FREQUENCY SELECTION WITH RT–1300B INSTALLED


MODE AND FREQUENCY SELECTION WITH MT–6048A/MT–6050 INSTALLED



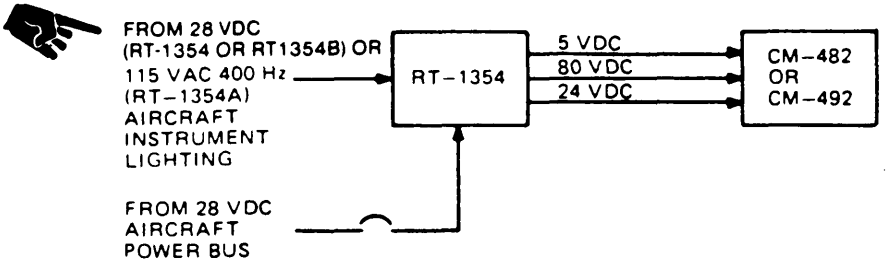

MODE AND FREQUENCY SELECTION WITH C–10604/C–10606 INSTALLED


Mode control and frequency selection is done in the:

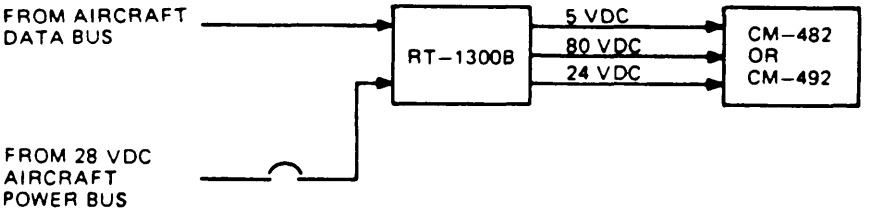
- RT-1300B by digital signals supplied by other aircraft equipment.
- RT-1354 by its own mode and frequency selector switches.
- RT-1300A by digital signals supplied by the C-10604 or C-10606.

## 1-12. POWER DISTRIBUTION

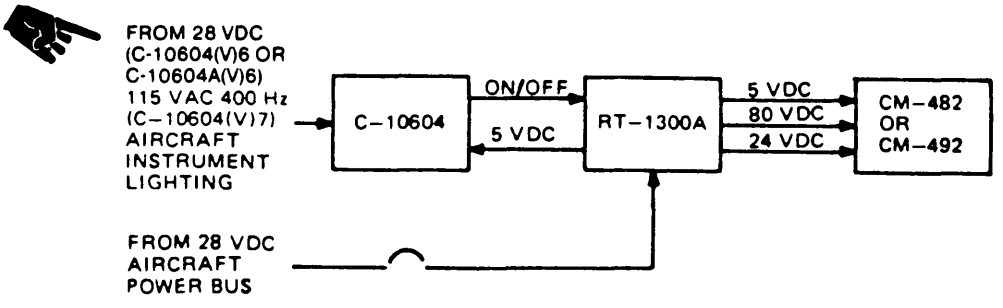
RADIO SET POWER DISTRIBUTION RT–1354 INSTALLED




RADIO SET POWER DISTRIBUTION RT–1300B INSTALLED

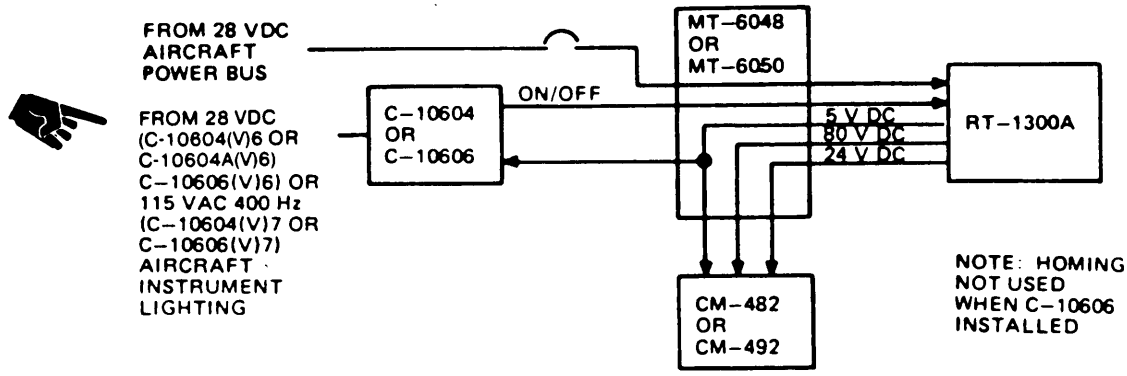



RADIO SET POWER DISTRIBUTION RT–1300 INSTALLED



## 1-12. POWER DISTRIBUTION (Continued)

RADIO SET POWER DISTRIBUTION MT–6048A OR MT–6050 INSTALLED




The radio set gets electrical power from the aircraft electrical system. This 28 Vdc is routed through a circuit breaker to the RT-1300A/1300B/1354.

Radio set power distribution is controlled by the RT-1354/C-10604/C-l0606 OFF/TR/DF switch or the aircraft data bus.

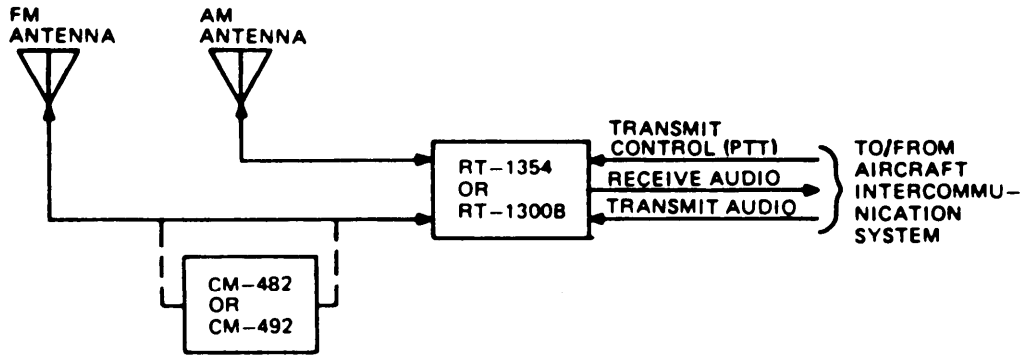
Selecting TR or DF turns the RT-1300A/1300B/1354 on by supplying a ground. Selecting OFF turns the RT-1300A/1300B/1354 off by supplying an open.

A turned-on RT-1300A/1300B/1354 produces 5, 24, and 80 Vdc. These voltages are applied to the CM-482/492 when installed. The 5 Vdc is also applied to the C-10604/10606 when installed.

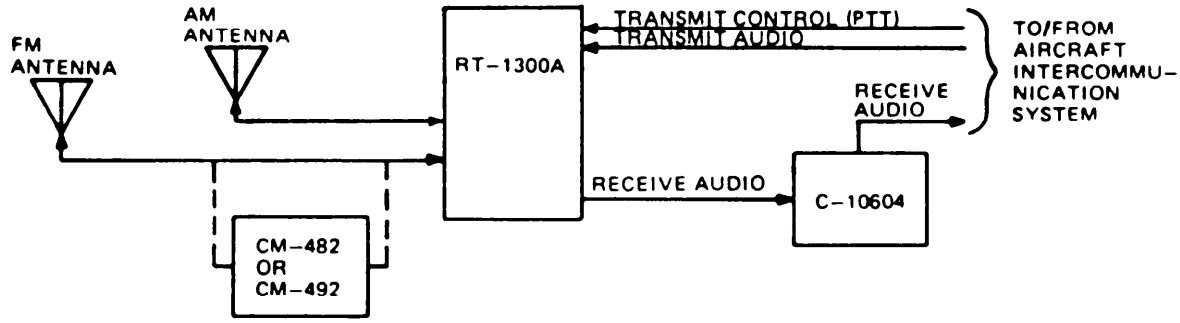
The RT-1354, RT-1354B, C-10604(V)6, C-10604A(V)6 and C-10606(V)6 panel edge lighting is powered by 0 to 28 Vdc. The RT-1354A, C-10604(V)7, and C-10606(V)7 panel edge lighting is powered by 0 to 115 Vac, 400 Hz. These voltages are supplied by the aircraft instrument lighting system.

## 1-13. CLEAR VOICE COMMUNICATIONS

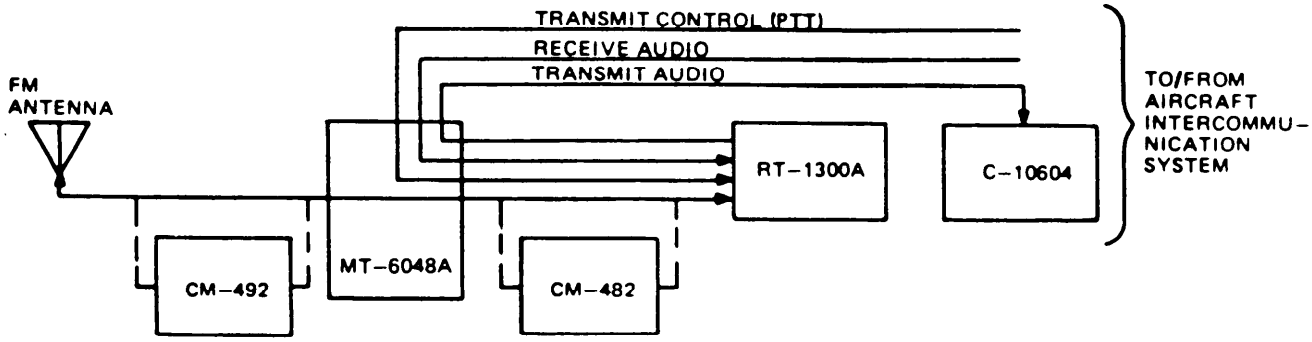
RADIO SET TRANSMIT/RECEIVE WITH RT–1300B OR RT–1354 INSTALLED



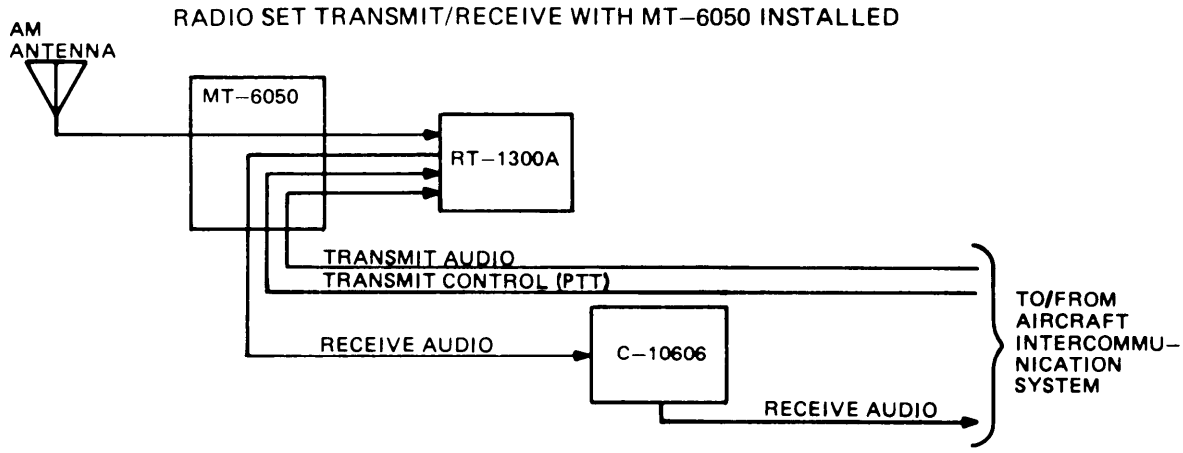

RADIO SET TRANSMIT/RECEIVE WITH RT–1300A INSTALLED




RADIO SET TRANSMIT/RECEIVE WITH MT–6048A INSTALLED



## 1-13. CLEAR VOICE COMMUNICATIONS (Continued)




The radio set transmits and receives in clear voice when the:

– X-mode equipment is turned off.

– OFF/TR/DF switch or aircraft data bus is set to TR.

Depending on how the aircraft is wired, the radio set may be connected to:

– Separate AM and FM antennas.

– An AM or FM antenna.

– A combination antenna that can be used for AM and FM communications.

When a combination antenna is used, it is connected to the RT-1300A/1300B/1354's FM coaxial connector.

The RT-1300A/1300B/1354 contains one transmitter and one receiver. The receiver and transmitter can receive and transmit both AM and FM communications. When the operator selects a frequency, the radio set automatically:

– Selects AM or FM operation.

– Connects the necessary antenna to the receiver-transmitter circuits.

Radio frequency (RF) signals received by the AM antenna are applied to the RT-1300A/1300B/1354. When the MT-6050 is installed, the RF is routed through it to the RT-1300A.

RF signals received by the FM or combination AM/FM antenna are applied to the RT-1300A/1300B/1354. Depending upon aircraft wiring, these signals may be routed:

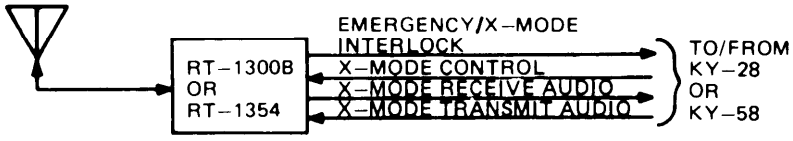
– Directly to the RT-1300A/1300B/1354.

— Through a CM-482 or CM-492. In T/R, the CM-482 and CM-492 connect the antenna to the RT-1300A/1300B/1354.

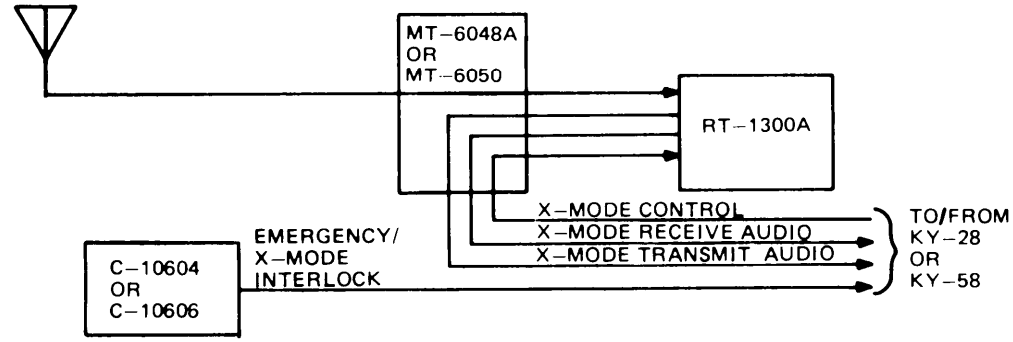
— Through the MT-6048A.

## 1-14. X-MODE COMMUNICATIONS

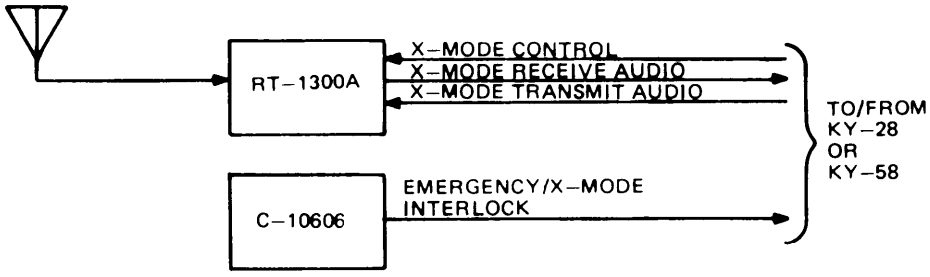
X–MODE COMMUNICATIONS WITH RT–1300B OR RT–1354 INSTALLED




X–MODE COMMUNICATIONS WITH MT–6048A OR MT–6050 INSTALLED




X–MODE COMMUNICATIONS WITH MT–6050 INSTALLED



## 1-14. X-MODE COMMUNICATIONS (Continued)

In X-mode, all transmit audio to the radio set is encoded and all received audio is decoded by the KY-28 or KY-58.

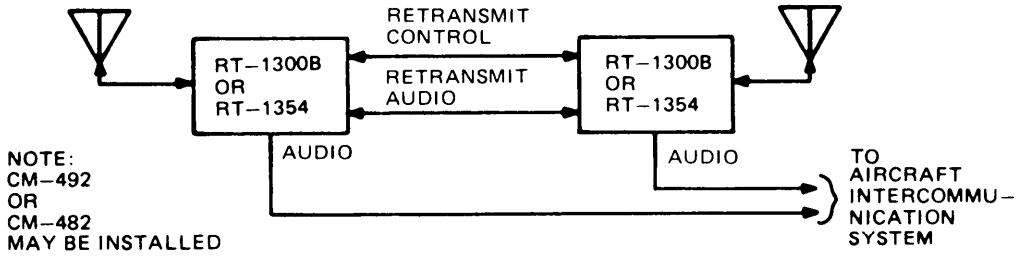
The radio set must be switched from narrow band to wide band to operate in X-mode. The switching is done by an X-mode control signal supplied by the KY-28/58.

After the radio set is switched to X-mode, it operates the same as clear voice communications.

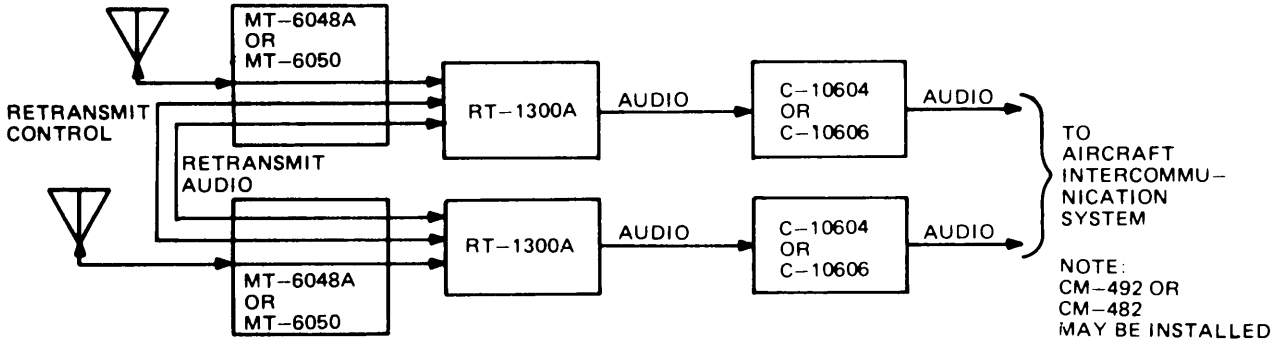
X-mode is automatically turned off when the radio set is switched to EMER AM/FM by the emergency/ X-mode interlock signal. This allows the emergency information to be transmitted and received in clear voice.

## 1-15. RETRANSMISSION

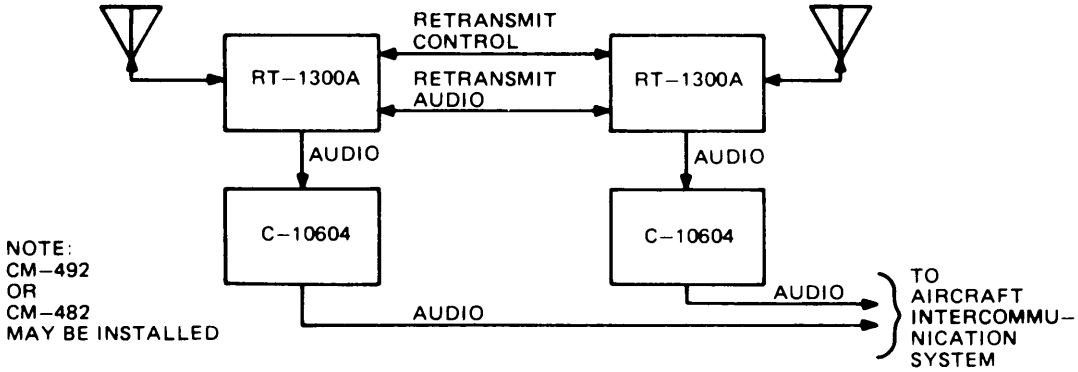
RETRANSMISSION WITH RT–1300B/RT–1354 INSTALLED



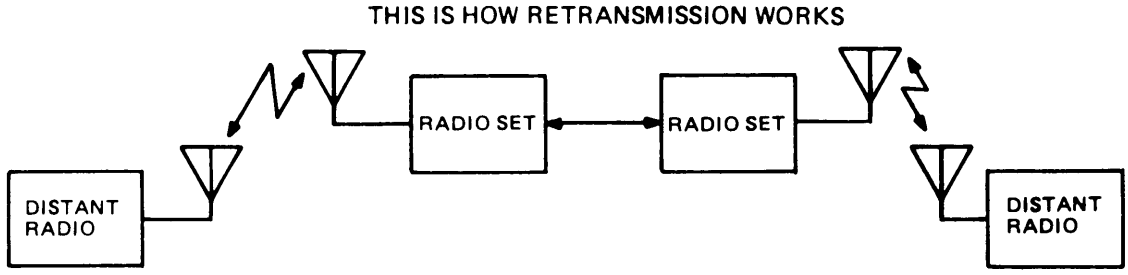

RETRANSMISSION WITH MT–6048A/MT–6050 INSTALLED




RETRANSMISSION WITH MT–6051/MT–6421 INSTALLED



## 1-15. RETRANSMISSION (Continued)




During retransmission, two radio sets are connected together to operate as a radio relay. They pass signals between two other radios that are far apart.

When the distant radios are not transmitting, both radio sets are in receive mode. When one of the radio sets receives a signal, it:

- Stays in receive mode.
- Makes a retransmit control signal.
- Changes the received signal into audio.
- Sends the retransmit control signal and audio to the other radio set.

The other radio set is switched from receive mode to transmit mode by the retransmit control signal. The audio from the receiving radio is applied to the transmitter for retransmission to the other distant radio.

The other radio set remains in the transmit mode until the distant station stops transmitting. When the distant station stops transmitting:

- The retransmit control signal stops.
- Both radio sets operate in the receive mode.

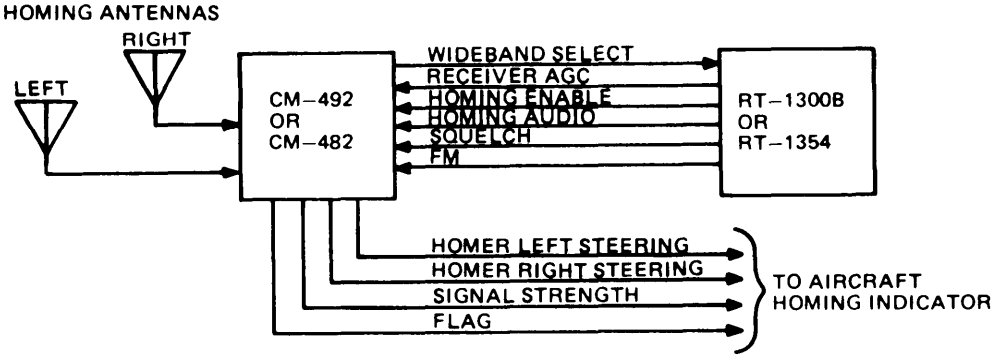
During retransmission, the received audio may be listened to by aircraft personnel without affecting operation.

For retransmission to work, the:

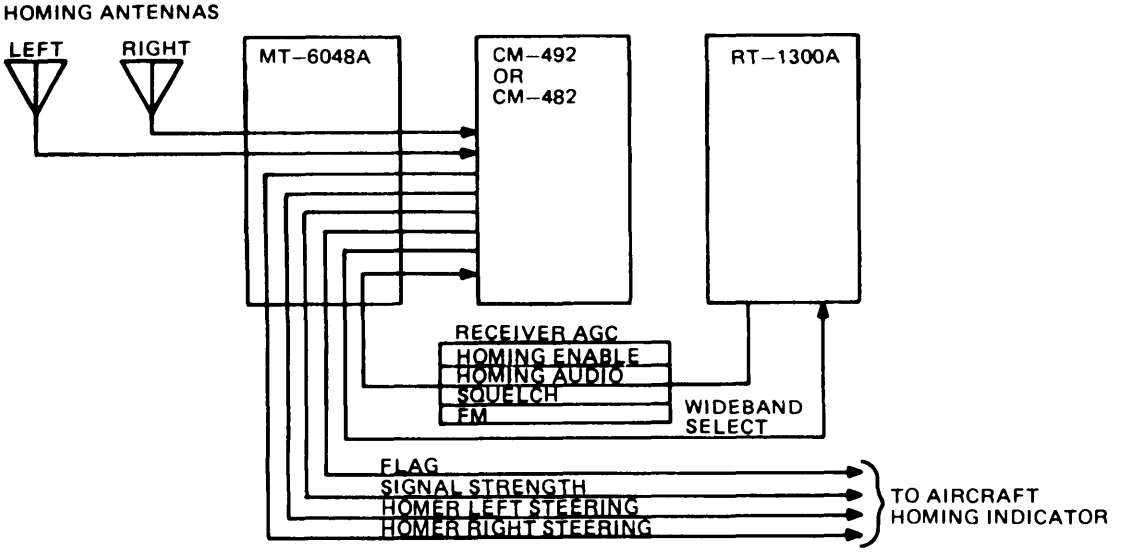
- Radio sets must be tuned to the frequencies of the distant radios.
- Distant radios must be tuned at least 10 MHz apart.

## 1-16. HOMING

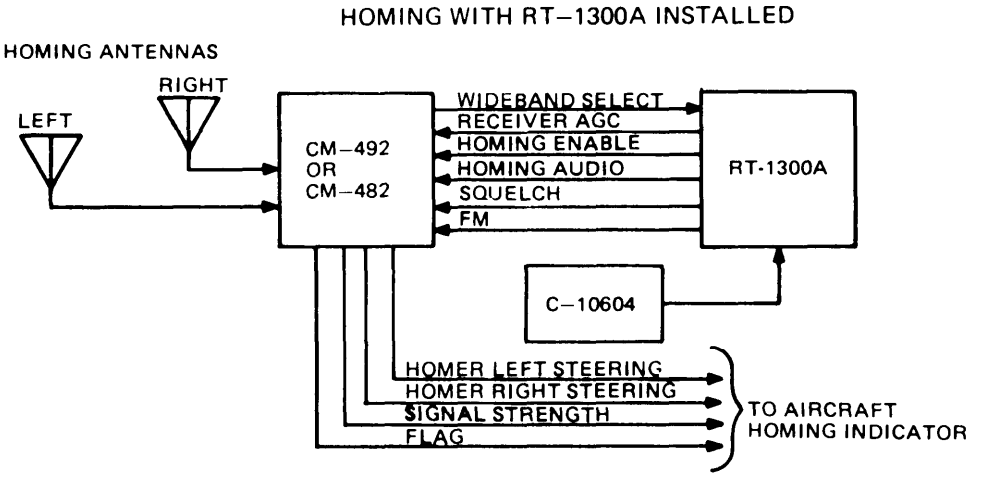
HOMING WITH RT–1300B OR RT–1354 INSTALLED




HOMING WITH MT–6048A INSTALLED



## 1-16. HOMING (Continued)




Homing is flying toward a transmitting transmitter while using the pointers on an indicator to guide you.

When the radio set OFF/TR/DF switch is set to DF, the radio set will process transmitted signals into homing signals to operate the indicator.

The homing antennas are mounted on the right and left sides of the aircraft. When the aircraft is flying directly toward the transmitter, the signal arrives at both antennas:

– At the same time.

– With the same signal strength.

When the aircraft is flying to the right or left of the transmitter, the signal arrives at the antenna:

– At different times.

– With a different signal strength.

The CM-482 and CM-492 have the same inputs and outputs. They both process the transmitted signal into:

– Signal strength signals.

– Steering signals.

– Flag signals.

The only difference is how they do it. The CM-482 processes the signal strength difference and the CM-492 processes the time difference.

## 1-16. HOMING (Continued)

Homing is turned on when:

— The radio set is tuned to a frequency between 30 and 87.975 MHz.

— The OFF/TR/DF switch is set to DF (homing).

Tuning the radio set to these frequencies causes an FM control signal to be sent to the CM-482/492. This allows the radio set to operate as a homer in the FM band only.

Selecting DF causes the RT-1300A/1300B/1354 to send a homing enable to the CM-482/492. The FM control signal and homing enable switch the CM-482/492 from TR to DF.

The RT-1300A/1300B/1354 must be set to wide band to process homing signals. This is done by the wide-band enable supplied by the CM-482/492 during DF operation.

The rf signals received by the homing antennas are routed to the CM-482/492. The rf signals are processed by the CM-482/492 into one rf signal that contains signal strength information (the CM-482 only) or time difference information (the CM-492 only). This signal is routed to the RT-1300A/1300B/1354.

The RT-1300A/1300B/1354 uses the rf signal to provide three outputs:

— Receiver automatic gain control (AGC).

– Squelch.

— Homing audio.

The receiver AGC is sent through the CM-482/492 to the aircraft homing indicator to operate the signal strength indicator.

The squelch is sent through the CM-482/492 to the aircraft homing indicator to operate the flag.

The homing audio is supplied to the CM-482/492. The audio contains the signal strength information (CM-482 only) or the time difference information (CM-492 only), if any. The CM-482/492 processes the strength or time information into left, right, or straight-ahead steering signals. These signals are sent to the aircraft homing indicator to operate the steering pointer.

# CHAPTER 2
# OPERATING INSTRUCTIONS

**CHAPTER OVERVIEW**

Chapter 2 is divided into three sections.

a. Section I. Description and Use of Operator's Controls and Indicators.

Shows you the controls and indicators.

Tells you what each control or indicator is.

Tells you what each control or indicator does.

b. Section II. Operation Under Usual Conditions.

Tells you how cooperate the radio set.

c. Section III. Operation Under Unusual Conditions.

Tells you what to do:

- During emergencies.
- If the radio set is jammed by electronic warfare equipment.
- When security (X-mode) operation is required.

## Section I. DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS

**SECTION OVERVIEW**

This section contains description and use of operator's controls and indicators found on the RT-1354 and C-10604/10606.

The C-10604/10606 controls and indicators are the same. They are described together.

The RT-1300B is controlled by other equipment in the aircraft. This equipment is not explained.

Controls not explained in this section are for maintenance personnel only. They are not to readjusted by operators — you may cause your radio set to not work properly.

## 2-1. RT-1354 CONTROLS AND INDICATORS

**SQ DIS (SQUELCH DISABLE)/ TONE SWITCH**

THREE POSITION TOGGLE SWITCH

| | |
|---|---|
| CENTER POSITION | TURNS SQUELCH ON–NO NOISE IN HEADSET |
| SQ DIS | TURNS SQUELCH OFF–NOISE IN HEADSET |
| TONE | USED WITH SECURITY EQUIPMENT ALLOWS RADIO SET TO TRANSMIT 1000 HERTZ (Hz) TONE |

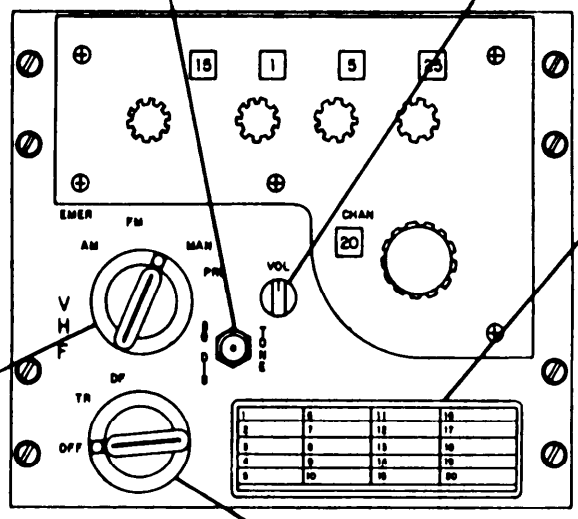
**VOL (VOLUME) CONTROL**

VARIABLE RESISTOR

- CONTROLS RECEIVER AUDIO
- TURNED CLOCKWISE TO MAKE AUDIO LOUDER

**COVER**

- SHOWS WHAT FREQUENCIES ARE PRESET IN RADIO SET
- CAN BE WRITTEN ON WITH PENCIL AND ERASED
- SNAPS OFF FOR ACCESS TO CONTROLS UNDERNEATH




**EMER AM/FM/MAN/PRE**

(EMERGENCY) AMPLITUDE MODULATED FREQUENCY MODULATED/MANUAL/ PRESET SWITCH

FOUR POSITION ROTARY SWITCH

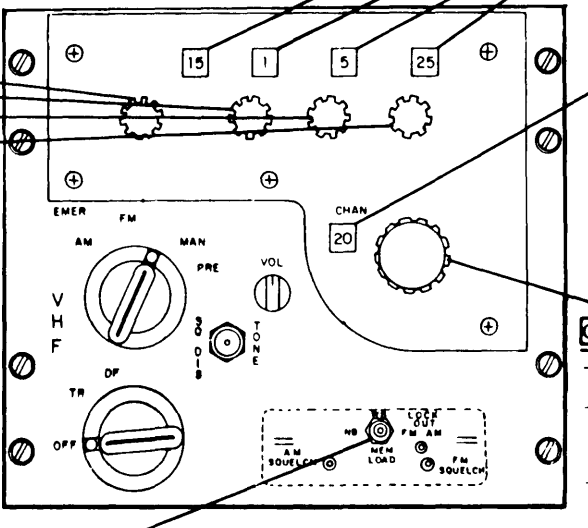
| | |
|---|---|
| EMER AM FM | ALLOWS RADIO SET TO TRANSMIT/RECEIVE AM/FM GUARD FREQUENCIES WITHOUT CHANGING OTHER CONTROL |
| MAN | ALLOWS OPERATOR TO SELECT FREQUENCIES USING FREQUENCY SELECTOR SWITCHES |
| PRE | ALLOWS OPERATOR TO SELECT FREQUENCIES USING CHAN SWITCH |

**OFF / TR (TRANSMIT/RECEIVE)/ DF (DIRECTION FINDING) SWITCH**

THREE POSITION ROTARY SWITCH

| | |
|---|---|
| OFF | REMOVES AIRCRAFT POWER FROM RADIO SET |
| TR | ALLOWS RADIO SET TO TRANSMIT/RECEIVE |
| DF | ALLOWS RADIO SET TO TRANSMIT/RECEIVE/HOME |

## 2-1. RT-1354 CONTROLS AND INDICATORS (Continued)




**FREQUENCY INDICATOR WINDOWS (4 EACH)**

SHOW FREQUENCY SELECTED BY SELECTOR SWITCHES IN:

- 10 MHz STEPS
- 1 MHz STEPS
- 0.1 MHz STEPS
- 0.025 MHz STEPS

**FREQUENCY SELECTOR SWITCHES (4 EACH)**

ROTARY SWITCHES ALLOW OPERATOR TO SELECT FREQUENCIES IN:

- 10 MHz STEPS
- 1 MHz STEPS
- 0.1 MHz STEPS
- 0.025 MHz STEPS

**CHAN (CHANNEL) WINDOW**

- SHOWS CHANNEL SELECTED BY CHAN SWITCH

**CHAN SWITCH**

TWENTY POSITION ROTARY SWITCH

- ALLOWS OPERATOR TO SELECT 1 OF 20 PRESET FREQUENCIES
- TURNED CLOCKWISE TO INCREASE CHANNEL NUMBER

**WB (WIDE BAND)/ NB (NARROW BAND)/ MEM (MEMORY) LOAD SWITCH**

THREE POSITION TOGGLE SWITCH

| | |
|---|---|
| WB / NB | NOT USED BY OPERATOR |
| MEM LOAD | USED WITH FREQUENCY SELECTOR SWITCHES; |
| CHAN | SWITCH TO ALLOW OPERATOR TO PROGRAM RADIO SET WITH PRESET FREQUENCIES |

**NOTE**

- COVER IS REMOVED TO SHOW CONTROLS
- CONTROLS NOT EXPLAINED ARE USED BY AVIATION UNIT MAINTENANCE

## 2-2. C-10604/10606 CONTROLS AND INDICATORS

**SQ DIS (SQUELCH DISABLE)/ TONE SWITCH**

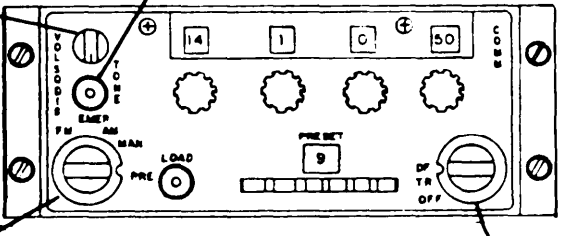
THREE POSITION TOGGLE SWITCH

| | |
|---|---|
| CENTER POSITION | TURNS SQUELCH ON–NO NOISE IN HEADSET |
| SQ DIS | TURNS SQUELCH OFF–NOISE IN HEADSET |
| TONE | USED WITH SECURITY EQUIPMENT ALLOWS RADIO SET TO TRANSMIT 1000 HERTZ (Hz) TONE |

**VOL (VOLUME) CONTROL**

VARIABLE RESISTOR

- CONTROLS RECEIVER AUDIO
- TURNED CLOCKWISE TO MAKE AUDIO LOUDER




**EMER AM/FM/MAN/PRE**

**(EMERGENCY) AMPLITUDE MODULATED FREQUENCY MODULATED/MANUAL/ PRESET SWITCH**

FOUR POSITION ROTARY SWITCH

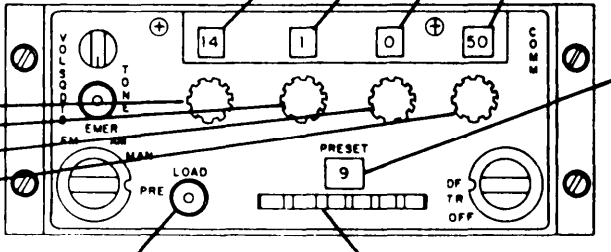
| | |
|---|---|
| EMER AM FM | ALLOWS RADIO SET TO TRANSMIT/RECEIVE AM/FM GUARD FREQUENCIES WITHOUT CHANGING OTHER CONTROL |
| MAN | ALLOWS OPERATOR TO SELECT FREQUENCIES USING FREQUENCY SELECTOR SWITCHES |
| PRE | ALLOWS OPERATOR TO SELECT FREQUENCIES USING PRESET SWITCH |

**OFF / TR (TRANSMIT/RECEIVE)/ DF (DIRECTION FINDING) SWITCH**

THREE POSITION ROTARY SWITCH

| | |
|---|---|
| OFF | REMOVES AIRCRAFT POWER FROM RADIO SET |
| TR | ALLOWS RADIO SET TO TRANSMIT/RECEIVE |
| DF | ALLOWS RADIO SET TO TRANSMIT/RECEIVE/HOME |

## 2-2. C-10604/10606 CONTROLS AND INDICATORS (Continued)




**FREQUENCY INDICATOR WINDOWS (4 EACH)**

SHOW FREQUENCY SELECTED BY SELECTOR SWITCHES IN:

- 10 MHz STEPS
- 1 MHz STEPS
- 0.1 MHz STEPS
- 0.025 MHz STEPS

**FREQUENCY SELECTOR SWITCHES (4 EACH)**

ROTARY SWITCHES ALLOW OPERATOR TO SELECT FREQUENCIES IN:

- 10 MEGAHERTZ (MHz) STEPS
- 1 MHz STEPS
- 0.1 MHz STEPS
- 0.025 MHz STEPS

**PRESET WINDOW**

– SHOWS CHANNEL SELECTED BY PRESET SWITCH

**LOAD SWITCH**

PUSHBUTTON SWITCH

– USED WITH FREQUENCY SELECTOR SWITCHES, PRESET SWITCH ALLOWS OPERATOR TO PROGRAM RADIO SET WITH PRESET FREQUENCIES

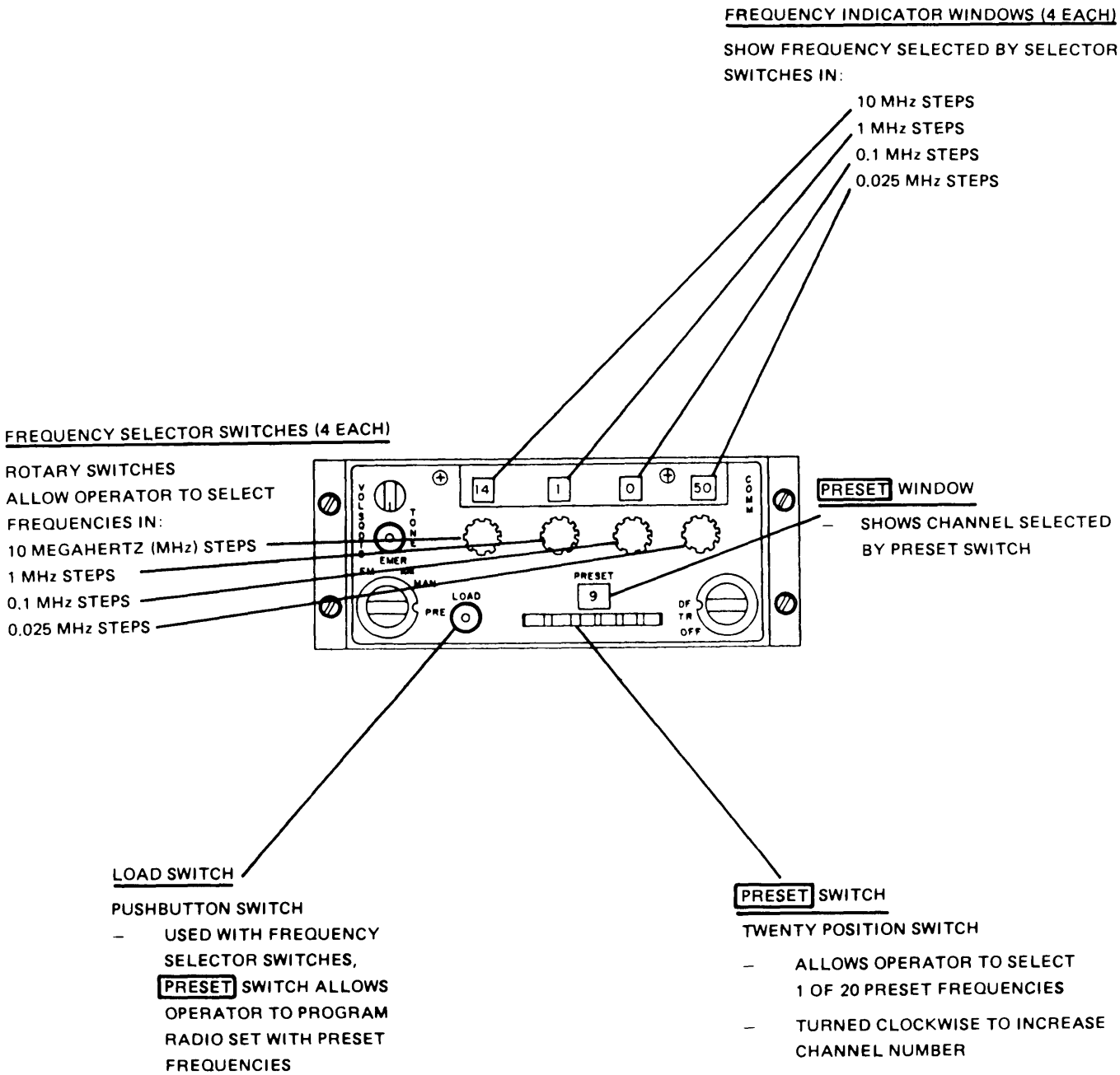
**PRESET SWITCH**

TWENTY POSITION SWITCH

– ALLOWS OPERATOR TO SELECT 1 OF 20 PRESET FREQUENCIES

– TURNED CLOCKWISE TO INCREASE CHANNEL NUMBER

## 2-2. C-10604/10606 CONTROLS AND INDICATORS



## 2-2. C-10604/10606 CONTROLS AND INDICATORS (Continued)

**SQ DIS (SQUELCH DISABLE)/ TONE SWITCH**

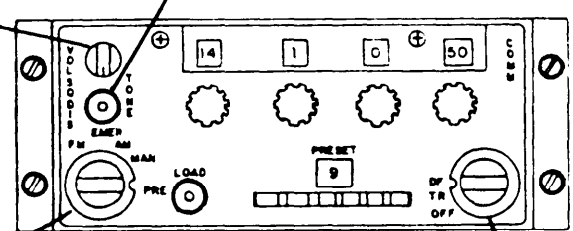
THREE POSITION TOGGLE SWITCH

| | |
|---|---|
| CENTER POSITION | TURNS SQUELCH ON–NO NOISE IN HEADSET |
| SQ DIS | TURNS SQUELCH OFF–NOISE IN HEADSET |
| TONE | USED WITH SECURITY EQUIPMENT ALLOWS RADIO SET TO TRANSMIT 1000 HERTZ (Hz) TONE |

**VOL (VOLUME) CONTROL**

VARIABLE RESISTOR

- CONTROLS RECEIVER AUDIO
- TURNED CLOCKWISE TO MAKE AUDIO LOUDER




**EMER AM/FM/MAN/PRE**

**(EMERGENCY) AMPLITUDE MODULATED FREQUENCY MODULATED/MANUAL/ PRESET SWITCH**

FOUR POSITION ROTARY SWITCH

| | |
|---|---|
| EMER AM/FM | ALLOWS RADIO SET TO TRANSMIT/RECEIVE AM/FM GUARD FREQUENCIES WITHOUT CHANGING OTHER CONTROL |
| MAN | ALLOWS OPERATOR TO SELECT FREQUENCIES USING FREQUENCY SELECTOR SWITCHES |
| PRE | ALLOWS OPERATOR TO SELECT FREQUENCIES USING PRESET SWITCH |

**OFF / TR (TRANSMIT/RECEIVE)/ DF (DIRECTION FINDING) SWITCH**

THREE POSITION ROTARY SWITCH

| | |
|---|---|
| OFF | REMOVES AIRCRAFT POWER FROM RADIO SET |
| TR | ALLOWS RADIO SET TO TRANSMIT/RECEIVE |
| DF | ALLOWS RADIO SET TO TRANSMIT/RECEIVE/HOME |

# Section II. OPERATION UNDER USUAL CONDITIONS

## SECTION OVERVIEW

This section explains radio set operation using the C-10604/10606 controls and the controls on the RT-1354.

The RT-1300B is controlled by other equipment in the aircraft. This equipment is not explained.

Some aircraft do not use all the radio set's capabilities (example: some use AM but not FM; FM but not AM; AM and FM, but not homing). Be sure to check the aircraft avionics configuration manual to find out what capabilities are used.

## 2-3. TURNING THE RADIO SET ON

**STEP 1** Be sure that:

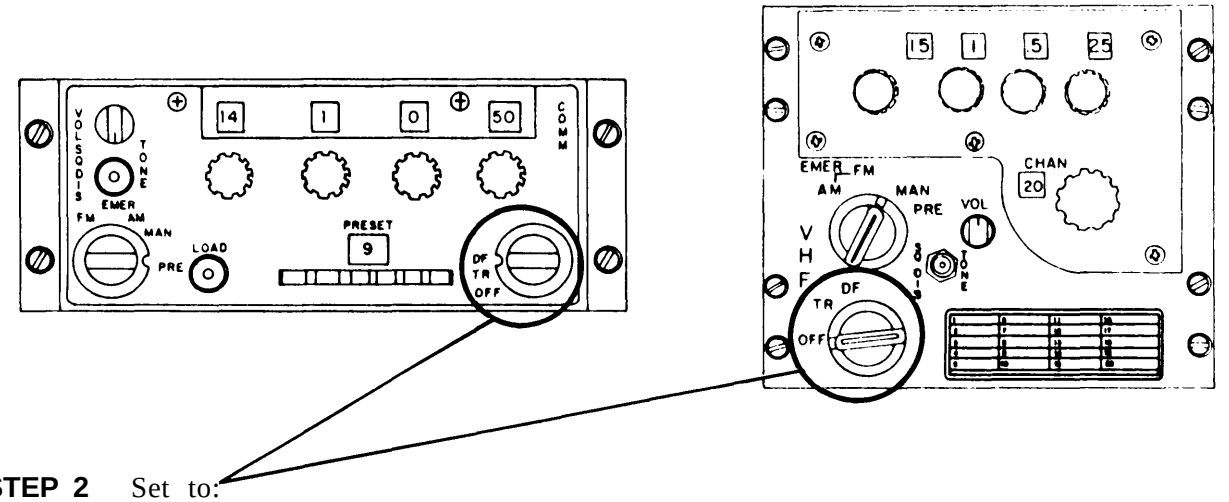
– Radio set OFF/TR/DF switch is set to OFF.

– Aircraft power is on.

– Radio set circuit breaker is closed.

– Interphone control transmit/receive switches are set for radio set operation.

– Headset jack is connected to aircraft receptacle.




**STEP 2** Set to:

– TR if you want to transmit/receive

or

– DF if you want to transmit/receive/home.

## 2-4. SELECTING A FREQUENCY

**NOTE**

Sometimes you may hear a tone in your headset while selecting a frequency.

The tone tells you that that radio set won't work on the frequency you set it to.

This happens when you select an:

- AM frequency on a radio set that is adjusted for FM-only operation

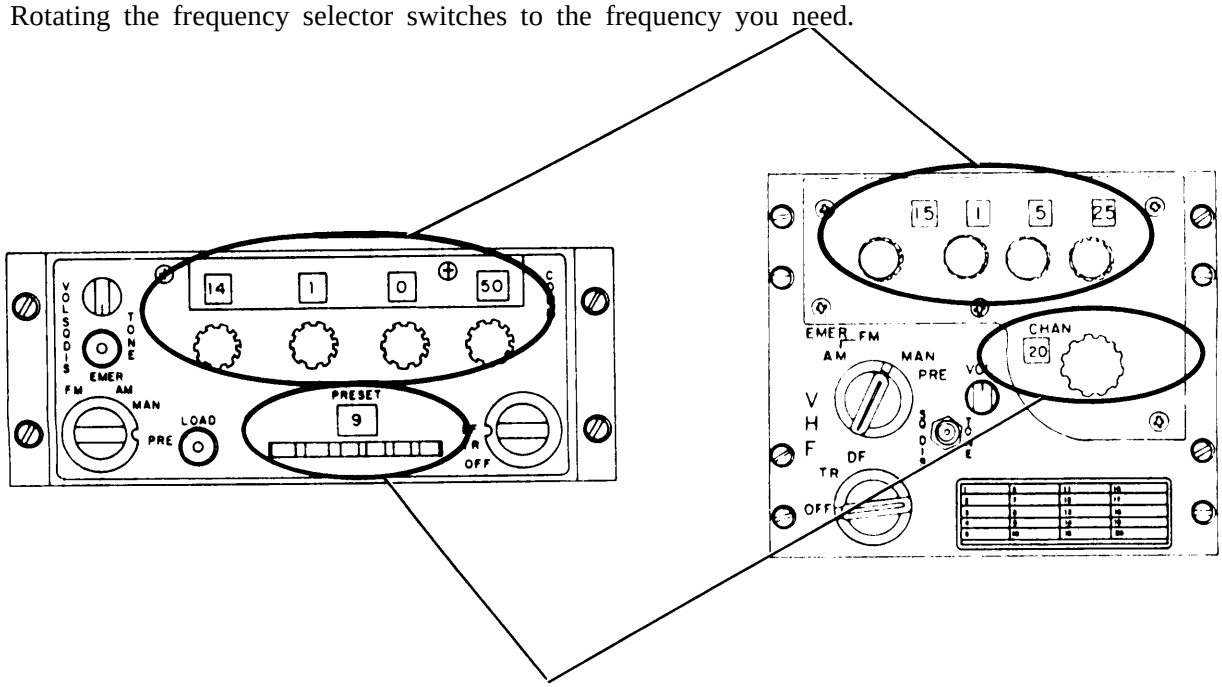
**or**

- FM frequency on a radio set that is adjusted for AM-only operation.

To be sure you know how the radio set is adjusted — check the avionics configuration manual for your aircraft.

There are two ways to select a frequency:

- Rotating the frequency selector switches to the frequency you need.




- Selecting a preset frequency programmed into a channel (paragraph 2-5 tells you how to do a preset).

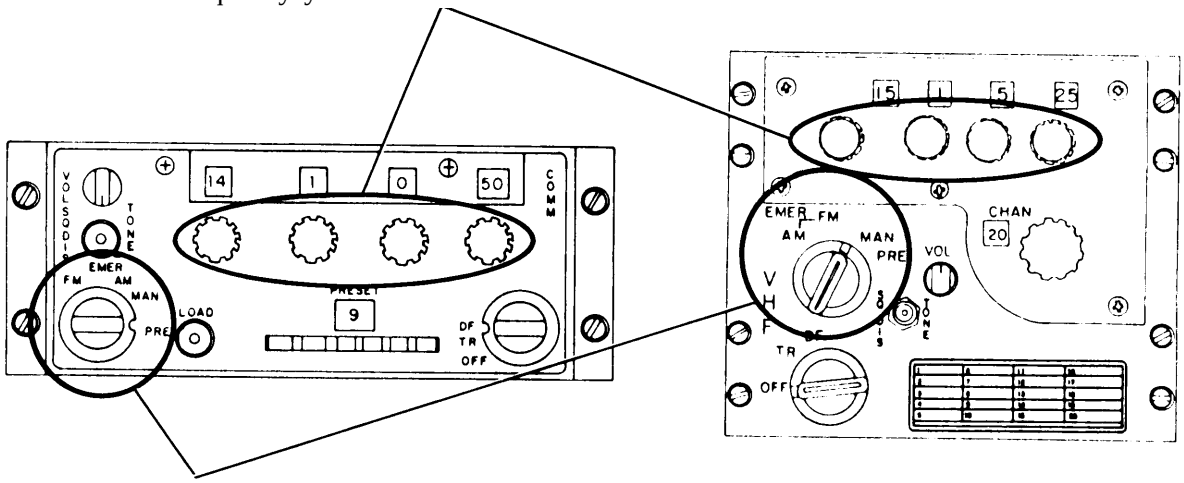
**NOTE**

When you select a frequency, you also automatically select AM or FM mode.

## 2-4. SELECTING A FREQUENCY (Continued)

a. Selecting a Frequency.

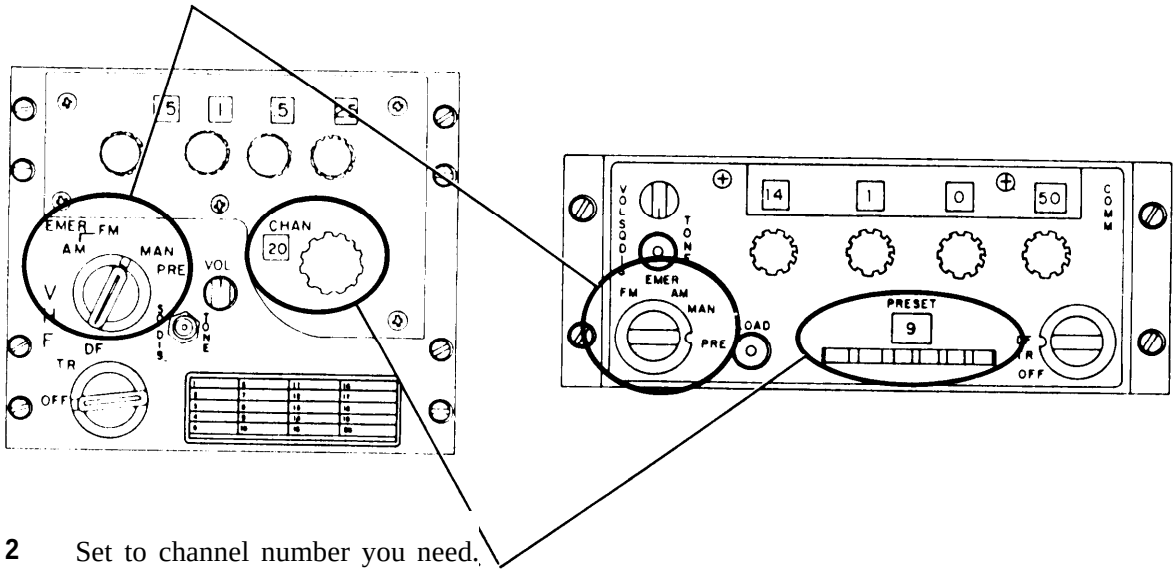
**STEP 1** Set to frequency you need.




**STEP 2** Set to MAN.

b. Selecting a Preset Frequency.

**STEP 1** Set to PRE.




**STEP 2** Set to channel number you need.

## 2-5. PROGRAMMING A PRESET

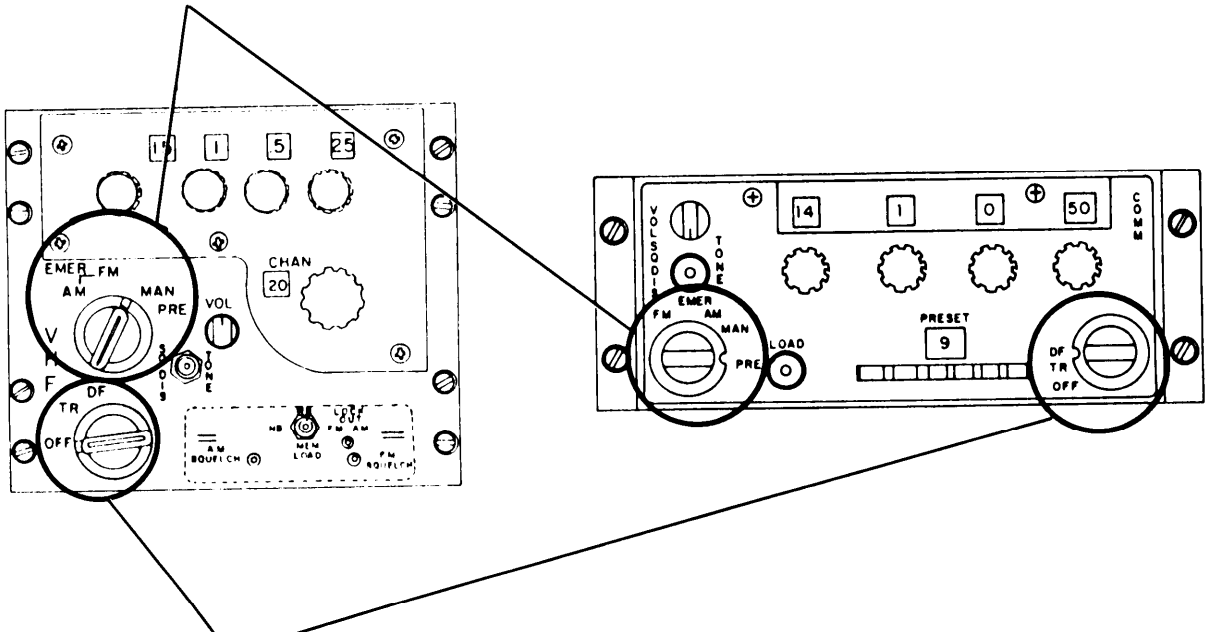
**NOTE**

If RT-1354 is being preset – remove cover by lifting it from the faceplate.

**STEP 1** Find out what frequencies you want to preset.

## 2-5. PROGRAMMING A PRESET (Continued)

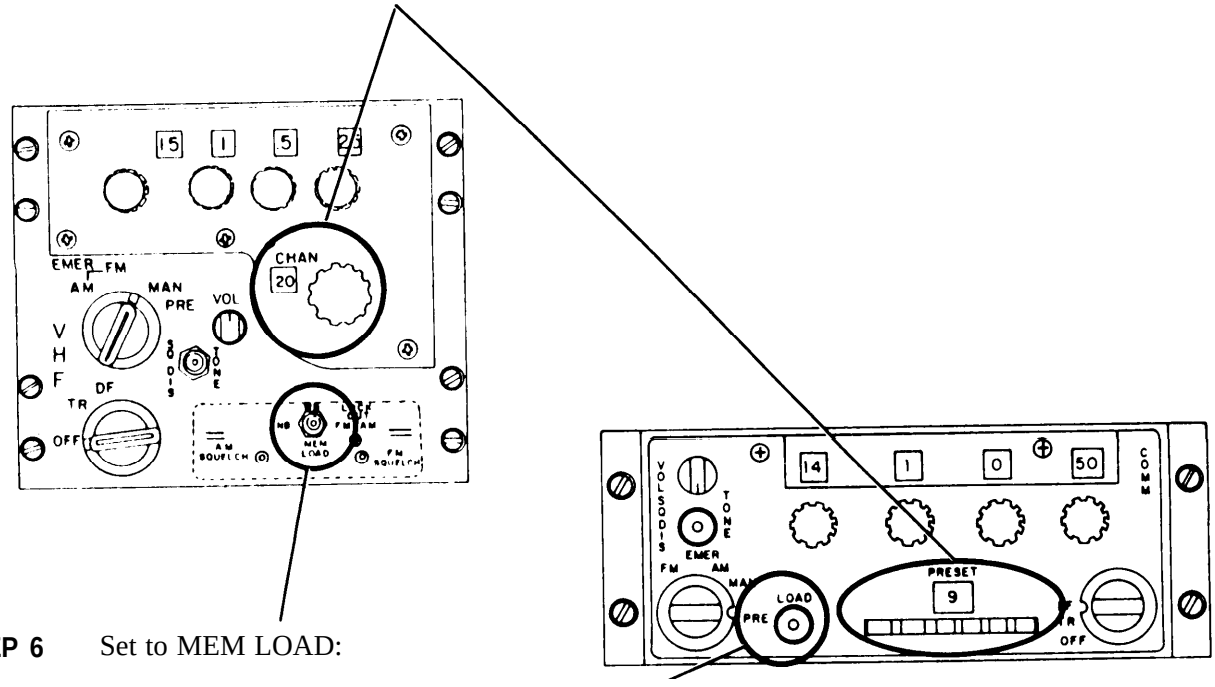
**STEP 2** Set to MAN.




**STEP 3** Set to TR.

**STEP 4** Set to frequency you want to preset.

**STEP 5** Set to channel where you want to put preset.




**STEP 6** Set to MEM LOAD:

– Then release

**or**

Press – Then release.

## 2-5. PROGRAMMING A PRESET (Continued)

**NOTE**

Repeat STEP 1 thru STEP 6 for each frequency you want to preset.

**NOTE**

If RT-1354 is being preset:

- Remove the frequency card from the cover.
- Write the preset frequencies on the card across from the channel number.
- Install the frequency card on the cover.
- Install the cover on the faceplate.

## 2-6. TRANSMITTING AND RECEIVING

**STEP 1** Turn radio set on by completing paragraph 2-3.

**STEP 2** Select frequency or preset channel you need by completing paragraph 2-4.

**CAUTION**

BE CAREFUL – you can damage the radio set by transmitting a long time.

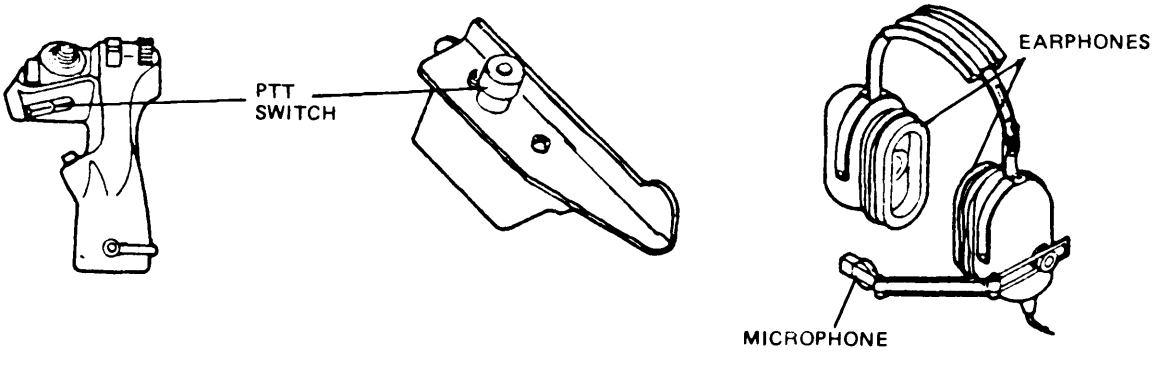
Transmissions of 1 minute or more cause the radio set to overheat, and may cause damage.

To protect the radio set – let it cool down by allowing it to receive for 5 minutes after each l-minute transmission.

**STEP 3** Press aircraft push-to-talk (PTT) switch while talking into microphone to transmit

**or**

Release PTT switch while listening to earphones to receive.



## 2-7. HOMING

**STEP 1** Turn radio set on by completing paragraph 2-3.

**STEP 2** Select frequency or preset channel you need by completing paragraph 2-4.

**NOTE**

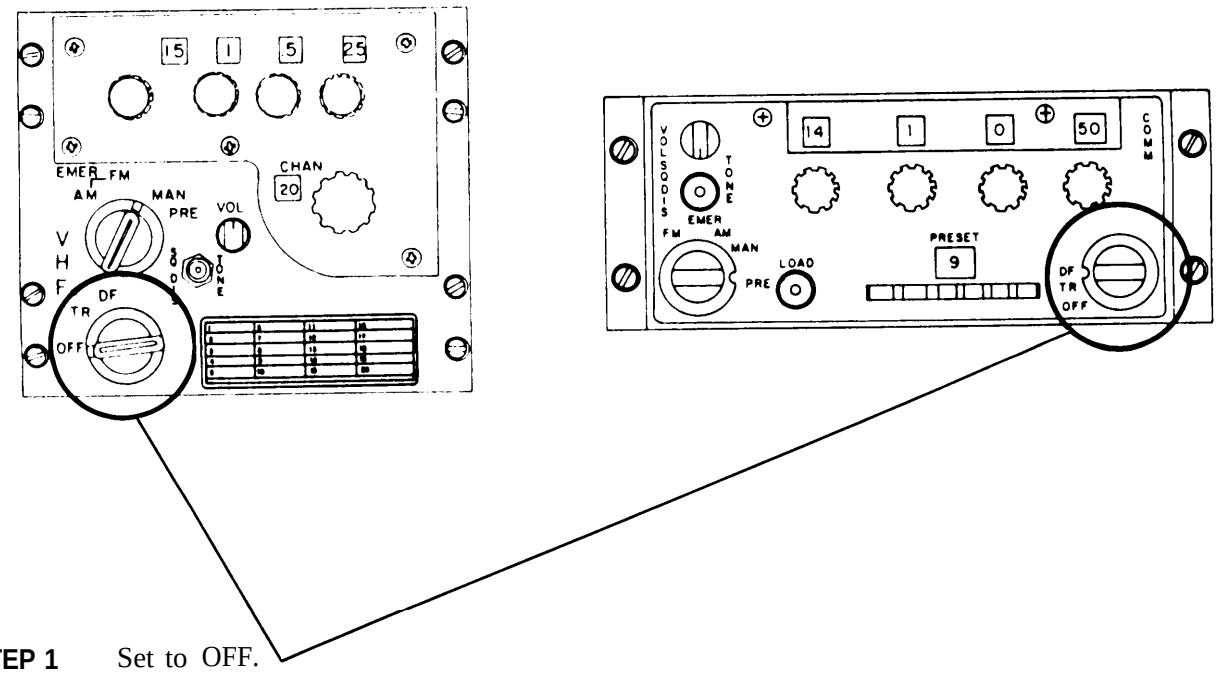
You can receive and transmit while the OFF/TR/DF switch is set to DF.

If you transmit – the radio set will turn off the homing until you stop.

The received audio may be garbled when the radio set is set to DF – this is normal.

**STEP 3** Watch aircraft indicators while navigating aircraft to homing destination.

## 2-8. TURNING THE RADIO SET OFF




**STEP 1** Set to OFF.

**STEP 2** Turn off aircraft power.

**STEP 3** Disconnect headset jack from aircraft receptacle.

## Section III. OPERATION UNDER UNUSUAL CONDITIONS

### 2-9. EMERGENCY OPERATION

Emergency operation consists of transmitting and receiving emergency information on guard frequencies.

The radio set guard frequencies can be changed but are normally 40.500 MHz for FM and 121.500 MHz for AM.

When you select EMER AM or FM, the radio set is automatically tuned to the guard frequency.

**NOTE**

Sometimes you may hear a tone in your headset after completing **STEP 2** below.

The tone tells you that the radio set won't work on the frequency you set it to.

This happens when you select:

– EMER AM on a radio set that is adjusted for FM-only operation

**or**

– EMER FM on a radio set that is adjusted for AM-only operation.

To be sure you know how the radio set is adjusted – check the avionics configuration manual for your aircraft.

**NOTE**

X-mode equipment (KY-28/58) is automatically turned off when EMER AM/FM is selected.

## 2-9. EMERGENCY OPERATION (Continued)

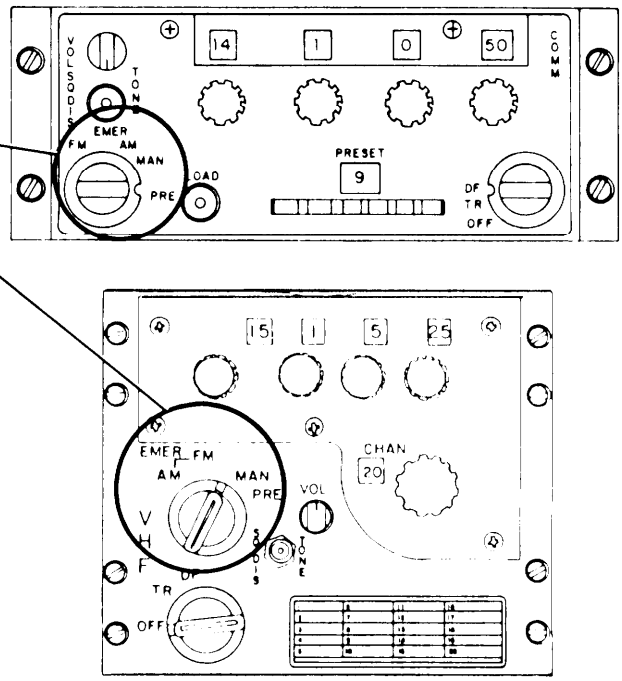
**STEP 1** Turn radio set on by completing paragraph 2-3.

**STEP 2** Set to:

EMER AM if you need to transmit/receive AM.

**or**

EMER FM if you need to transmit/receive FM.




**CAUTION**

BE CAREFUL – you can damage the radio set by transmitting a long time.

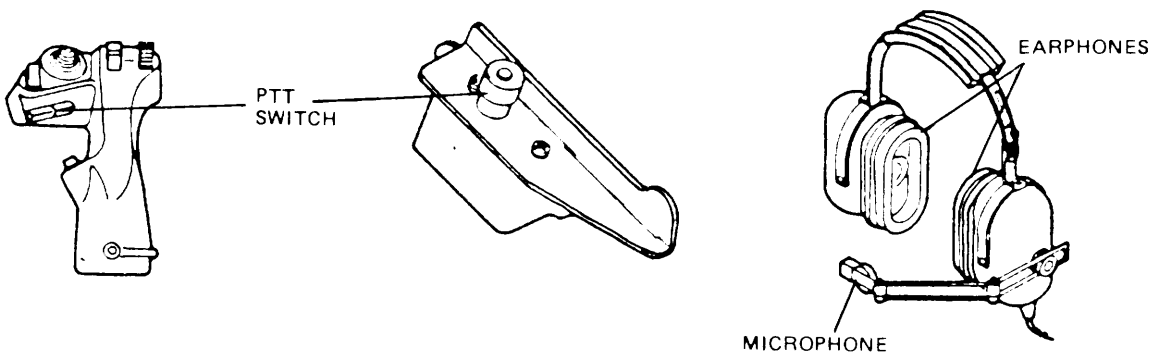
Transmissions of 1 minute or more cause the radio set to overheat, and may cause damage.

To protect the radio set – let it cool down by allowing it to receive for 5 minutes after each 1 -minute transmission.

**STEP 3** Press aircraft PTT switch while talking into microphone to transmit

**or**

Release PTT switch while listening to earphones to receive.



## 2-10. JAMMING OPERATION

a. What is Jamming?

Jamming is the transmission of strong or annoying signals on your frequency. These signals make it hard or impossible for you to communicate.

Jamming can be:

— Accidental or on purpose.

— Caused by the enemy or your own troops.

Jamming signals can be heard in your headset as:

– Noise.

– Laughter.

– Singing.

– Music.

— Tones.

— Unusual sounds.

Jamming signals can block a:

— Single frequency (this is called spot jamming).

— Band of frequencies (this is called barrage jamming).

b. What You Can Do About Jamming.

When you think your radio set is being jammed, try:

— Changing the position of the aircraft so less of the jamming signal can be received.

— Changing the setting on the VOL control. This may help you separate the jamming signal from the communication signal.

— Changing the location of the aircraft.

If none of these changes work, then:

— Check your communications-electronics operating instructions (CEOI) for other frequencies and call signs you can use. Use your CEOI procedures to switch to these frequencies/call signs.

## 2-11. SECURITY (X-MODE) OPERATION

X-mode operation is the same as operation under usual conditions.

The aircraft must have a KY-28 or KY-58 installed and keyed with the code of the day.

This installation is done by Aviation Unit Maintenance personnel.

The KY-28 and KY-58 have controls and indicators that are not part of the radio set. Your aircraft operating manual tells you how to use the controls and indicators.

# CHAPTER 3
# AVIATION UNIT MAINTENANCE INSTRUCTIONS

## CHAPTER OVERVIEW

Chapter 3 is divided into four sections.

a. Section I. Repair Parts; Special Tools; Test, Measurement, and Diagnostic Equipment (TMDE); and Support Equipment.

Tells you:

– What tools, TMDE, and support equipment you need.

– Where to find repair parts and expendable supplies.

b. Section II. Preventive Maintenance Checks and Services (PMCS).

Tells you what you have to check and service.

c. Section III. Troubleshooting.

Tells you:

— The step-by-step troubleshooting test you need to do to find a trouble.

— Where to look in Section IV for the maintenance procedures you need to repair the trouble.

d. Section IV. Maintenance Procedures.

Tells you:

– What tools, equipment, and information you need for each procedure.

— What to do after you complete a procedure.

# Section I. REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

## 3-1. COMMON TOOLS AND EQUIPMENT

The common tools you need are contained in Electronic Equipment Tool Kit TK-101/G.

## 3-2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

No special tools are needed.

These TMDE and support equipment are needed to troubleshoot and repair the aircraft's wiring:

— AN/PSM-45

— AN/URM-120

– MK-693A

– DA-75

## 3-3. REPAIR PARTS

Repair parts are listed and shown in TM 11-5821-318-20P.

Expendable supplies are listed in Appendix D.

# Section II. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Your Preventive Maintenance Checks and Services table lists items that should be inspected during aircraft periodic progressive phased maintenance (PPM) intervals. Specific intervals and items to be checked are included in your aircraft's avionics TM.

The Procedures column of your PMCS table tells you how to do the required checks and services. Carefully follow these instructions. If you do not have the tools, or if the procedure tells you to, have organizational maintenance do the work.

If your equipment does not perform as required, go to Section III, Troubleshooting. Report any troubles or failures on DA Form 2404.

| Item no. | Item to be inspected | Procedures |
|---|---|---|
| | RT-1354/C-10604/C-10606 | |
| 1 | Knobs | Check tightness on shafts. Rotate and check for free operation and proper detenting. |
| | Front panel | Clean. Inspect for cracks, breaks, and loose or missing screws. |
| | Panel lamps | Turn panel lamp control for maximum brightness and check that all front-panel indicators are clearly visible. |
| 2 | RT-1300A/1300B/1354 | Inspect case for dents, corrosion, and loose screws. |
| 3 | CM-482 | Inspect case for dents, corrosion, and loose screws. |
| 4 | CM-492 | Inspect case for dents, corrosion, and loose screws. |
| 5 | MT-6048A | Inspect for broken or missing safety wire, corrosion, and damaged cables. |
| 6 | MT-6050 | Inspector broken or missing safety wire, corrosion, and damaged cables. |
| 7 | MT-6051/6421 | Inspector broken or missing safety wire, corrosion, weak isolators, and loose screws. |
| 8 | Antenna coaxial cable | Check coax connectors and cable condition. |
| 9 | Interconnect wiring cables | Check connectors for tightness.<br>Check condition of cables. |

# Section III. TROUBLESHOOTING

## SECTION OVERVIEW

This section contains step-by-step operational checks that will help you locate a trouble in the radio set.

The operational checks tell you:

- What to do.
- What is supposed to happen.
- What to do if it doesn't happen.

Before you start troubleshooting:

- Read the troubleshooting procedure a few times to be sure you understand what you have to do.
- Make a visual inspection of the radio set. Check for obvious damage or loose or disconnected components.

## 3-4. RADIO SET TROUBLESHOOTING

THIS TASK COVERS: CHECKS AND TROUBLESHOOTING.

INITIAL SETUP

Applicable Configurations

All

Test Equipment

AN/URM-120
AN/PSM-45
DA-75

Tools and Support Equipment

Tool Kit TK-101/G
Headset-Microphone

**NOTE**

If you are going to test the homer, you need a portable FM radio set.

Personnel Required

2 Avionic Mechanics MOS 35K
One to troubleshoot, the other to operate the portable radio set

References

Avionics configuration manual for your aircraft

Chapter 2, Operating Instructions

Equipment Condition

All components installed and connected.

Special Environmental Conditions

Aircraft parked under open sky.

General Safety Instructions

- See aircraft cautions and warnings before starting test.
- Turn aircraft power OFF before replacing components.

## 3-4. RADIO SET TROUBLESHOOTING (Continued)

INITIAL SETUP (Continued)

Before you start:

Check the aircraft avionics configuration manual to be sure you know:

– What components are installed in your aircraft.

– How the radio set is used (EXAMPLE: AM and FM, AM or FM and so on).

Check that:

– KY-28 and/or KY-58 removed and jumpers installed on mounts.

– ARC-186 circuit breaker is out.

– Aircraft dimmer circuit breaker is in.

– Headset jack is connected to aircraft receptacle.

– External electrical power or aircraft auxiliary power unit (apu) is connected and operating.

**NOTE**

The RT-1300B is controlled by other equipment in the aircraft.

See the aircraft operator's manual for instructions on how to operate this equipment.

When control settings are called out in the checks – do these settings on the aircraft radio set control equipment.

OPERATOR'S CONTROL SETTINGS

Set operator's controls as follows:

| | |
|---|---|
| – Frequency selectors | Unused FM frequency (If FM not connected — use AM frequency. ) |
| – VOL | Centered |
| – EMER AM/FM/MAN/PRE | MAN |
| – CHAN | Any position |
| – OFF/TR/DF | OFF |

**3-4. RADIO SET TROUBLESHOOTING (Continued)**

OPERATOR'S CONTROL CHECKS

Check operator's controls for loose or missing knobs.

? Are all knobs: there; tight?

NO → Replace component installed in aircraft:
RT-1354 (para 3-5)
**or**
C-10604 (para 3-6)
**or**
C-10606 (para 3-6).

YES

- Check faceplate for cracks, breaks, scratches, unreadable names.
- Rotate frequency selector switches, CHAN switch while checking frequency indicator, channel windows for unreadable numbers.

? Is faceplate okay?

? Numbers, letters readable?

NO → Replace component installed in aircraft:
RT-1354 (para 3-5)
**or**
C-10604 (para 3-6)
**or**
C-10606 (para 3-6).

YES

- Rotate all switches while checking for binding, smooth operation, stopping at each position.
- Rotate VOL control while checking for binding, jerky operation.

? Do switches, VOL control work okay?

NO → Replace component installed in aircraft:
RT-1354 (para 3-5)
or
C-10604 (para 3-6)
or
C-10606 (para 3-6).

YES

**3-4. RADIO SET TROUBLESHOOTING (Continued)**

RECEIVER-TRANSMITTER CHECKS

**CAUTION**

If you hear sidetone when the radio set is not keyed, immediately set OFF/TR/DF switch to OFF.

- Set aircraft power bus to on.
- Push ARC-186 circuit breaker in.
- Don't key radio set.
- Talk into microphone — listen for sidetone while setting OFF/TR/DF switch to TR.

? Is sidetone heard?

YES

If RT-1300A with MT-6050/6421 or RT-1300B or RT-1354 installed – go to TROUBLE 3-1

**or**

If RT-1300A with MT-6048A installed – go to TROUBLE 3-2

**or**

If RT-1300A with MT-6050 installed – go to TROUBLE 3-3.

NO

? Does ARC-186 circuit breaker stay in?

NO

If RT-1300A with MT-6051/6421 or RT-1300A or RT-1354 installed – go to TROUBLE 3-4

**or**

If RT-1300A with MT-6048A installed – go to TROUBLE 3-5

**or**

If RT-1300A with MT-6050 installed – go to TROUBLE 3-6.

YES

Turn aircraft dimmer control from dim to bright while checking faceplate.

? Do faceplate lamps: light up, get brighter?

NO

If RT-1354 installed – go to TROUBLE 3-7

**or**

If C-10604 installed – go to TROUBLE 3-8

**or**

If C-10606 installed – go to TROUBLE 3-9.

YES

**3-4. RADIO SET TROUBLESHOOTING (Continued)**

RECEIVER-TRANSMITTER CHECKS (Continued)

- Set SQ DIS/TONE switch to SQ DIS.
- Turn VOL control while listening for rushing noise in headset.

? Do you hear rushing noise?

NO

If RT-1300B or RT-1354 installed – go to TROUBLE 3-10

**or**

If RT-1300A with MT-6048A installed – go to TROUBLE 3-11

**or**

If RT-1300A with MT-6050 installed – go to TROUBLE 3-12

**or**

If RT-1300A with MT-6051/6421 installed — go to TROUBLE 3-13.

YES

**NOTE**

If your radio set is not connected for FM – skip next block – continue checks.

- Set frequency selector switches to local FM frequency.
- Key radio set — establish communication with local station.
- Set VOL control for comfortable listening level.

? Are transmissions received by local station "loud and clear"?

? Is sidetone "loud and clear"?

? Are transmissions you are receiving "loud and clear"?

NO

If RT-1300A or RT-1300B with MT-6051/6421 or RT-1354 installed – go to TROUBLE 3-14

**or**

If RT-1300A with MT-6048A installed – go to TROUBLE 3-15.

YES

**3-4. RADIO SET TROUBLESHOOTING (Continued)**

RECEIVER-TRANSMITTER CHECKS (Continued)

**NOTE**

If your radio set is not connected for AM – skip next block - continue checks.

- Set frequency selector switches to local vhf AM frequency.
- Key radio set – establish communication with local station.
- Set VOL control for comfortable listening level.
- ? Are transmissions received by local station "loud and clear"?
- ? Is sidetone "loud and clear"?
- ? Are transmissions you are receiving "loud and clear"?

NO

If RT-1300A or RT-1300B with MT-6051/6421 or RT-1354 installed - go to TROUBLE 3-14

**or**

If RT-1300A with MT-6050 installed - go to TROUBLE 3-16.

YES

**3-4. RADIO SET TROUBLESHOOTING (Continued)**

GUARD CHANNEL CHECKS

**WARNING**

Do these checks only if guard channel is thought to be bad.

Transmission on guard channels (40.500 and 121.500 MHz) is normally made only in emergencies.

Do these checks as quickly as possible to free the channels for emergency use.

Transmitting on these channels could cause someone to think there was an emergency.

**NOTE**

If your radio set is not connected for FM – skip next block – continue checks.

- Call the local station and tell them you need to do these checks.
- Set EMER AM/FM/MAN/PRE switch to EMER FM.
- Key radio set – establish communication with local radio station.

? Are transmissions received by local radio station “loud and clear”?

? Is sidetone “loud and clear”?

? Are transmissions you are receiving “loud and clear”?

NO → Go to TROUBLE 3-17.

YES

**3-4. RADIO SET TROUBLESHOOTING (Continued)**

GUARD CHANNEL CHECKS (Continued)

**NOTE**

If your radio set is not connected for AM – skip next block – continue checks.

- Call the local station and tell them you need to do these checks.
- Set EMER AM/FM/MAN/PRE switch to EMER AM.
- Key radio set — establish communication with local station.

**?** Are transmissions received by local radio station "loud and clear"?

**?** Is sidetone "loud and clear"?

**?** Are transmissions you are receiving "loud and clear"?

NO → Go to TROUBLE 3-17.

YES ↓

**3-4. RADIO SET TROUBLESHOOTING (Continued)**

TONE CHECK

- Set EMER AM/FM/MAN/PRE switch to MAN.
- Set frequency selector switches to unused frequency.
- Set SQ DIS/TONE switch to TONE.

? Is tone heard in headset loud and clear?

NO

If RT-1300B or RT-1354 installed – go to TROUBLE 3-18

or

If RT-1300A with MT-6048A installed – go to TROUBLE 3-19

or

If RT-1300A with MT-6050 installed – go to TROUBLE 3-20

or

If RT-1300A with MT-6051/6421 installed — go to TROUBLE 3-21.

YES

PRESET CHECK

- Program the local station's frequency into a preset channel. (Paragraph 2-5 tells you how.)
- Be sure frequency selector switches are set to unused frequency.
- Key radio set – establish communication with local station using preset channel.

? Are transmissions between you and local station loud and clear?

NO

Go to TROUBLE 3-22.

YES

**3-4. RADIO SET TROUBLESHOOTING (Continued)**

FM HOMING CHECK

**NOTE**

The homing test is done by two people.

— One operates the radio set in the aircraft.

— The other operates the FM portable radio.

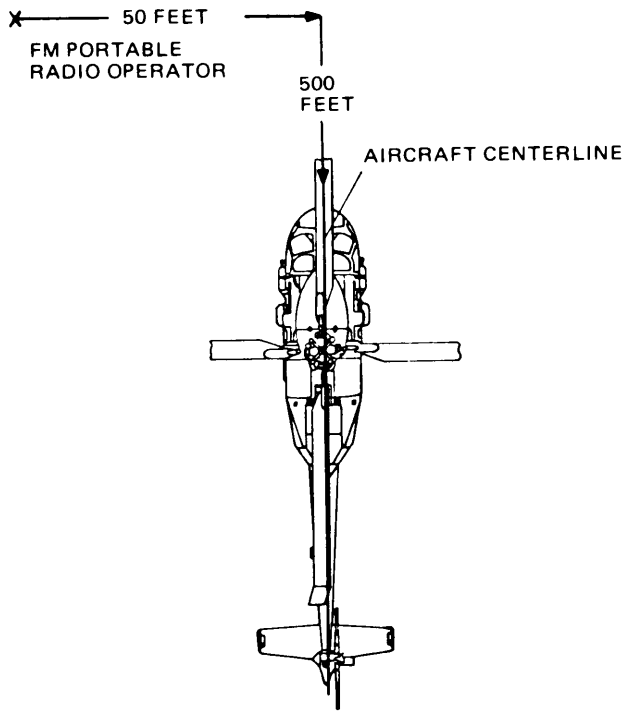
During this test, the FM portable radio set operator transmits then moves to a new position when asked by the aircraft radio set operator.

The aircraft radio set operator:

— Watches the aircraft homing indicator to check that it works okay.

— Tells the FM portable radio set operator when to transmit and when to move.

The FM portable radio set operator begins the test by standing 500 feet in front, and 50 feet to the left of the aircraft centerline.



**3-4. RADIO SET TROUBLESHOOTING (Continued)**

FM HOMING CHECK (Continued)

- Set ON/TR/DF switch to DF.
- Set frequency selector switches to portable radio's frequency.
- Key radio set – ask for long count.
- During long count, watch homing indicator.

? Does the flag, signal strength, or steering pointer move?

NO

If CM-482 with RT-1300B or RT-1354 installed — go to TROUBLE 3-23

**or**

If CM-482 with RT-1300A and MT-6048A installed — go to TROUBLE 3-24

**or**

If CM-482 with RT-1300A and MT-6051/6421 installed – go to TROUBLE 3-25

**or**

If CM-492 with RT-1300B, RT-1354, or RT-1300A with MT-6051/6421 installed – go to TROUBLE 3-26.

YES

? Does the flag go out of sight?

NO

If CM-482 with RT-1300B or RT-1354 installed — go to TROUBLE 3-27

**or**

If CM-482 with RT-1300A and MT-6048A installed — go to TROUBLE 3-28

**or**

If CM-482 with RT-1300A and MT-6051/6421 installed – go to TROUBLE 3-29

**or**

If CM-492 with RT-1300B, RT-1354, or RT-1300A with MT-6051/6421 installed – go to TROUBLE 3-30.

YES

**3-4. RADIO SET TROUBLESHOOTING (Continued)**

FM HOMING CHECK (Continued)

**?** Is signal strength pointer centered?

NO

If CM-482 with RT-1300B or RT-1354 installed — go to TROUBLE 3-31

**or**

If CM-482 with RT-1300A and MT-6048A installed — go to TROUBLE 3-32

**or**

If CM-482 with RT-1300A and MT-6051/6421 installed – go to TROUBLE 3-33

**or**

If CM-492 with RT-1300B, RT-1354, or RT-1300A with MT-6051/6421 installed – go to TROUBLE 3-34.

YES

**?** Does steering pointer swing left?

NO

If CM-482 with RT-1300A, RT-1300B, or RT-1354 installed – go to TROUBLE 3-35

**or**

If CM-482 with RT-1300A and MT-6048A installed — go to TROUBLE 3-36

**or**

If CM-492 with RT-1300B, RT-1354, or RT-1300A with MT-6051/6421 installed – go to TROUBLE 3-37.

YES

- Key radio set – ask portable FM radio operator to move 50 feet right of aircraft centerline.
- Key radio set – ask for long count from new location.
- During long count, watch homing indicator.

**?** Does steering pointer swing right?

NO

If CM-482 with RT-1300B or RT-1354 installed — go to TROUBLE 3-38

**or**

If CM-482 with RT-1300A and MT-6048A installed — go to TROUBLE 3-39

**or**

If CM-482 with RT-1300A and MT-6051/6421 installed - go to TROUBLE 3-40

**or**

If CM-492 with RT-1300B, RT-1354, or RT-1300A with MT-6051/6421 installed – go to TROUBLE 3-41.

YES

**3-4. RADIO SET TROUBLESHOOTING (Continued)**

FM HOMING CHECK (Continued)

- Key radio set — ask portable FM radio operator to move to aircraft centerline.
- Key radio set — ask for long count from new location.
- During long count, watch homing indicator.

? Does steering pointer center?

NO — Go to TROUBLE 3-42.

YES

X-MODE CHECK

**NOTE**

If your radio set is not connected for X-mode – skip next block – continue checks.

**NOTE**

To do this check you must have a KY-28 or KY-58 in your aircraft adjusted for the code of the day.

You also need another aircraft or local station set up the same way.

**3-4. RADIO SET TROUBLESHOOTING (Continued)**

X-MODE CHECK (Continued)

- Set the KY-28 or KY-58 PLAIN/ CIPHER switch to CIPHER.
- Key radio set – establish communication with local X-mode station.

? Are transmissions received by local X-mode station "loud and clear"?

? Are transmissions you are receiving "loud and clear"?

NO

If RT-1300B or RT-1354 installed – go to TROUBLE 3-43

**or**

If RT-1300A with MT-6048A installed – go to TROUBLE 3-44

**or**

If RT-1300A with MT-6050 installed – go to TROUBLE 3-45

**or**

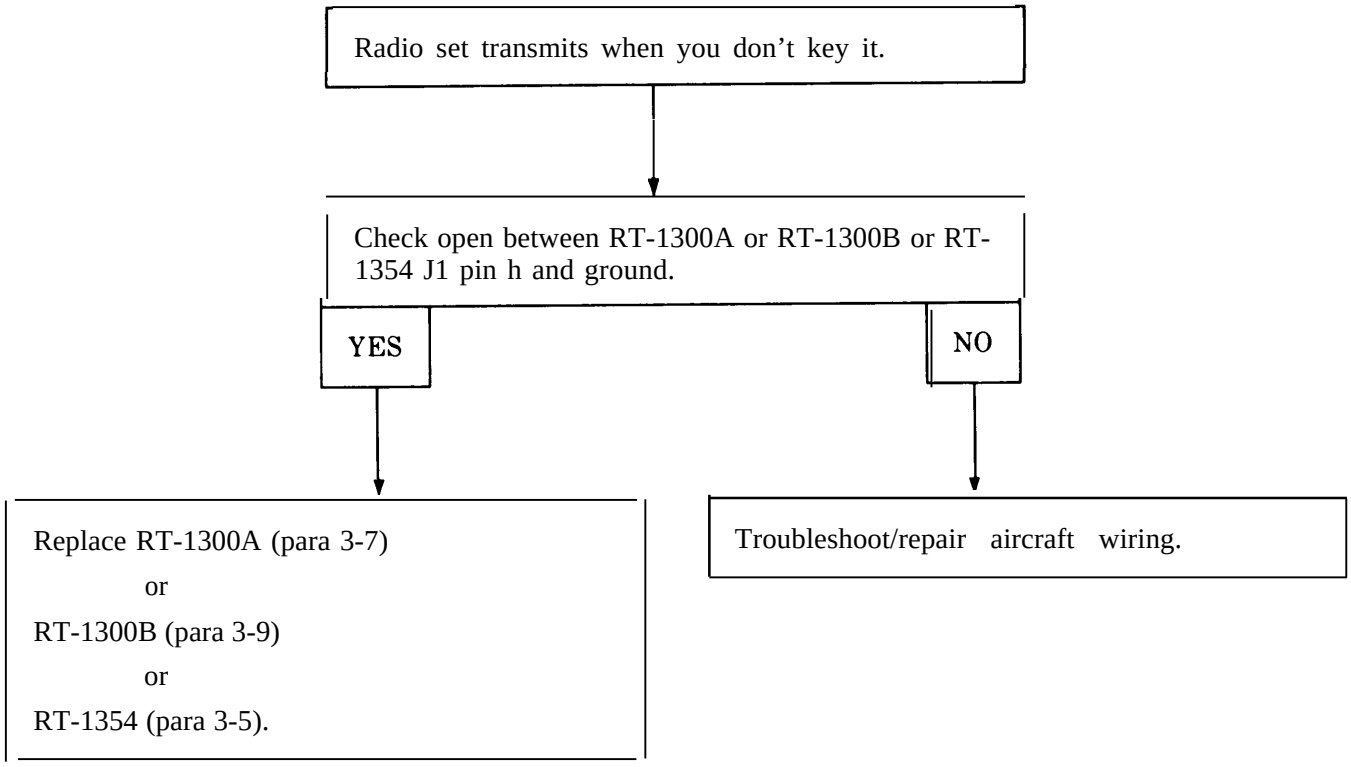
If RT-1300A with MT-6051/6421 installed — go to TROUBLE 3-46.

YES

- You have completed testing
- If your radio set is still not operating — notify your supervisor.
- If everything is okay – set the OFF/ TR/DR switch to OFF.
- Shut down the apu or external electrical power.
- Complete maintenance forms.

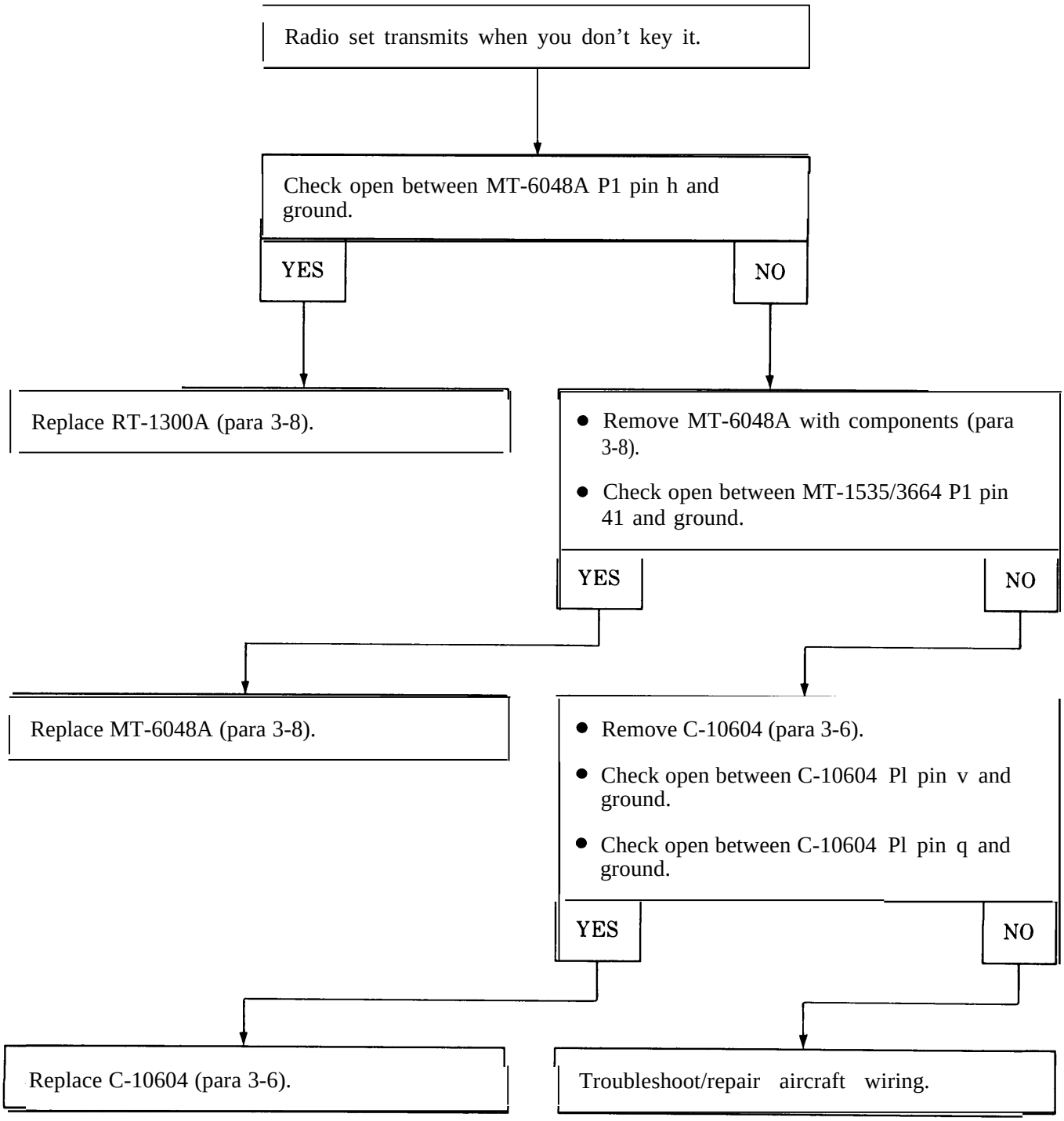
## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-1



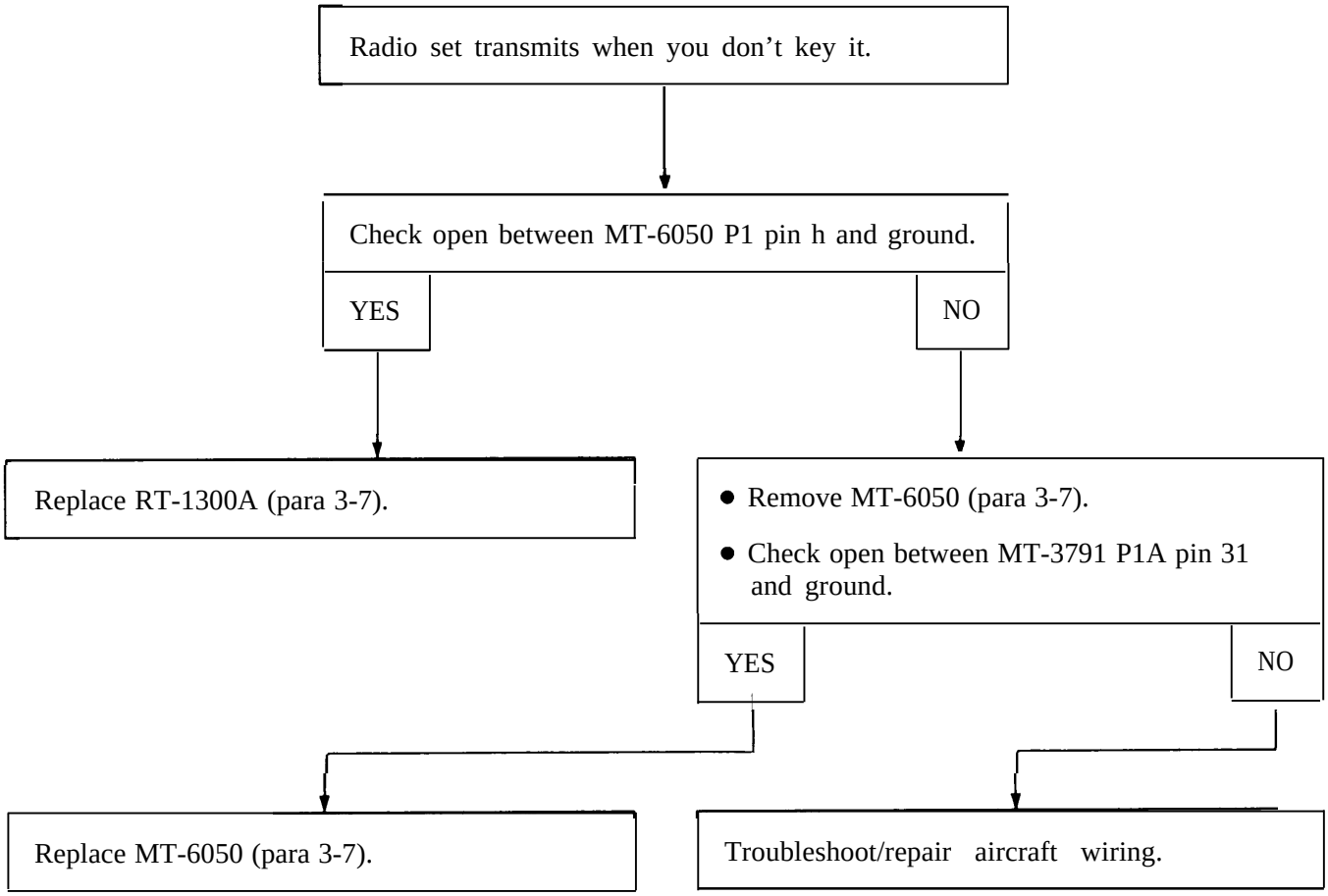
## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-2



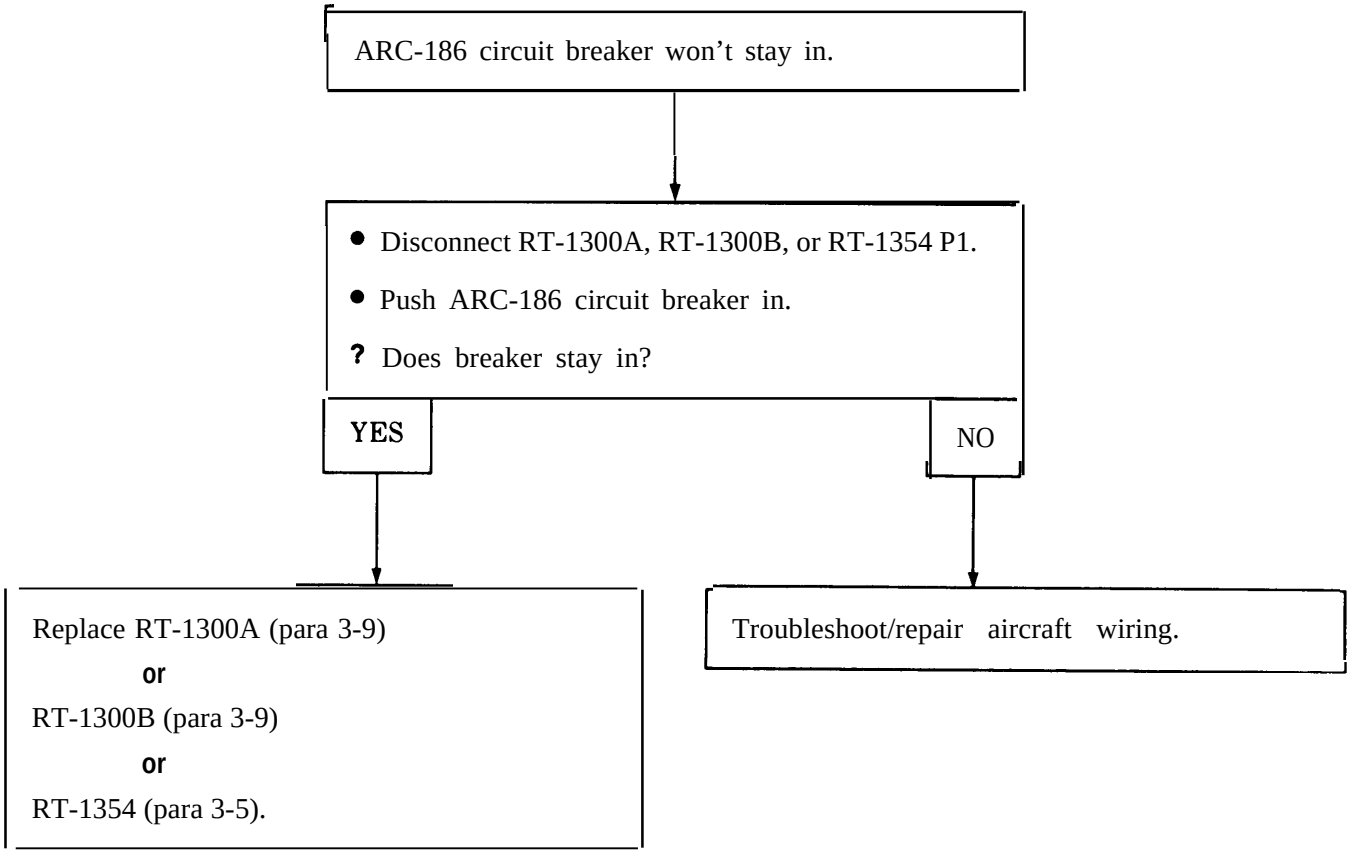
## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-3



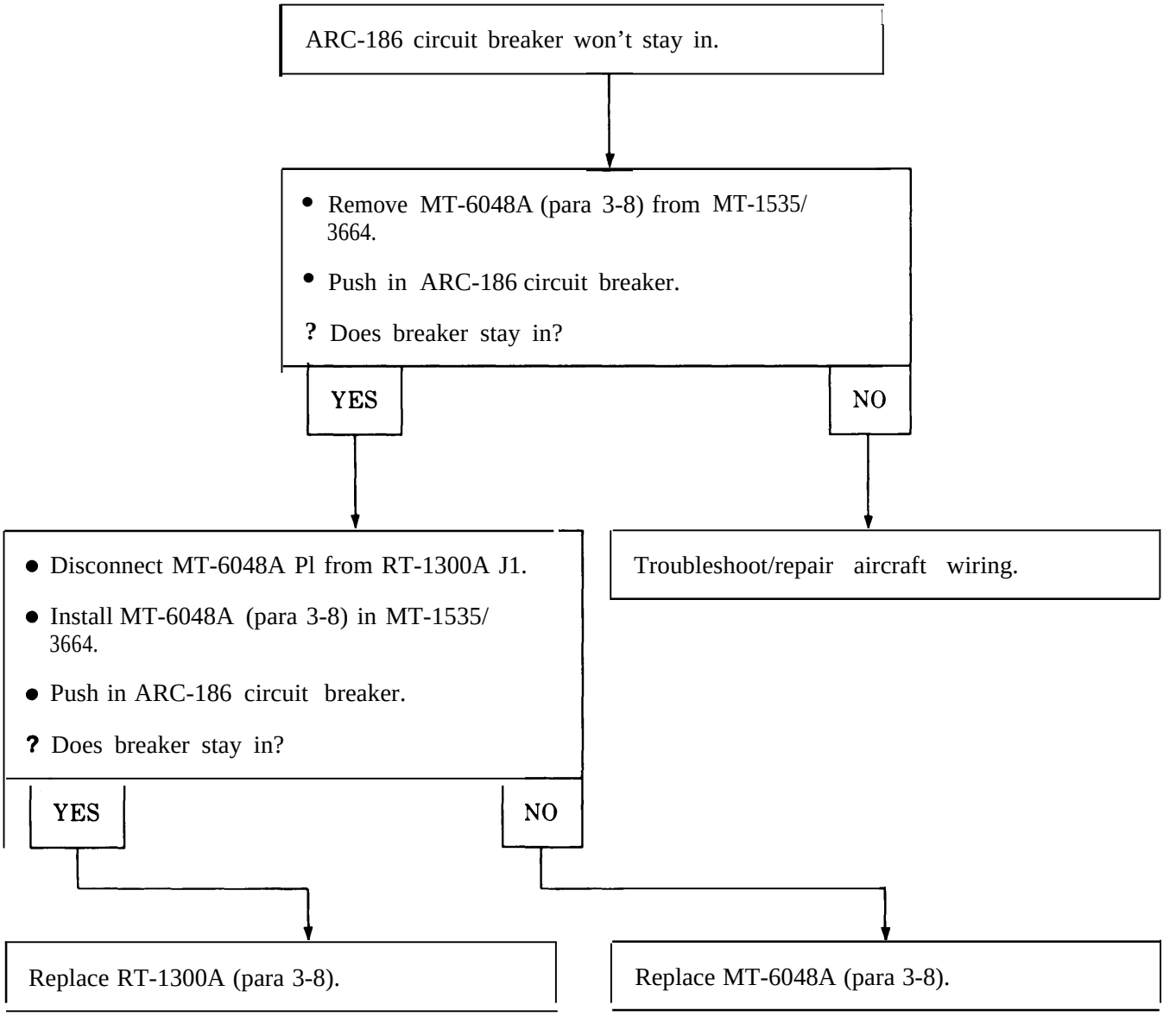
## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-4



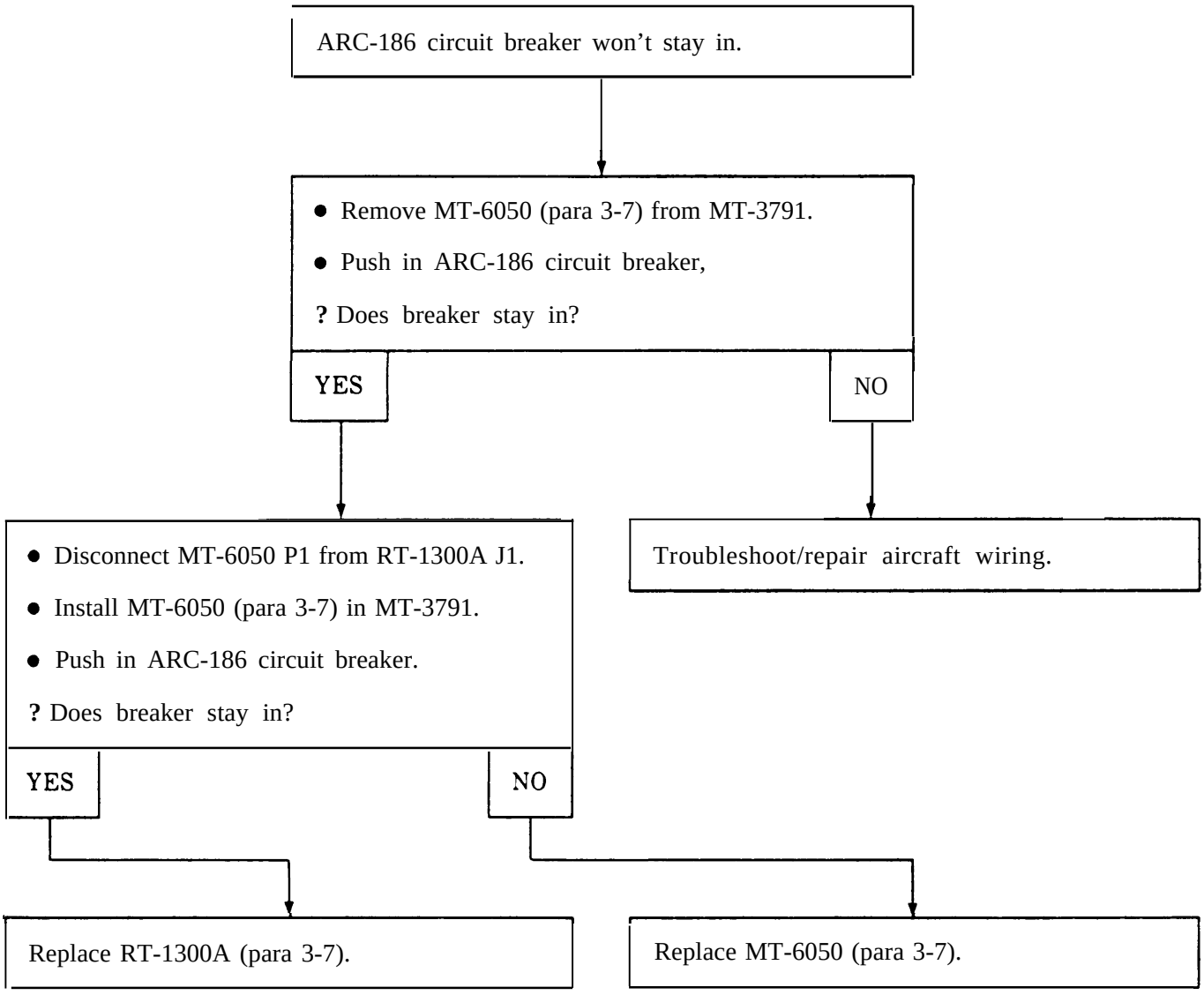
**3-4. RADIO SET TROUBLESHOOTING (Continued)**

TROUBLE 3-5



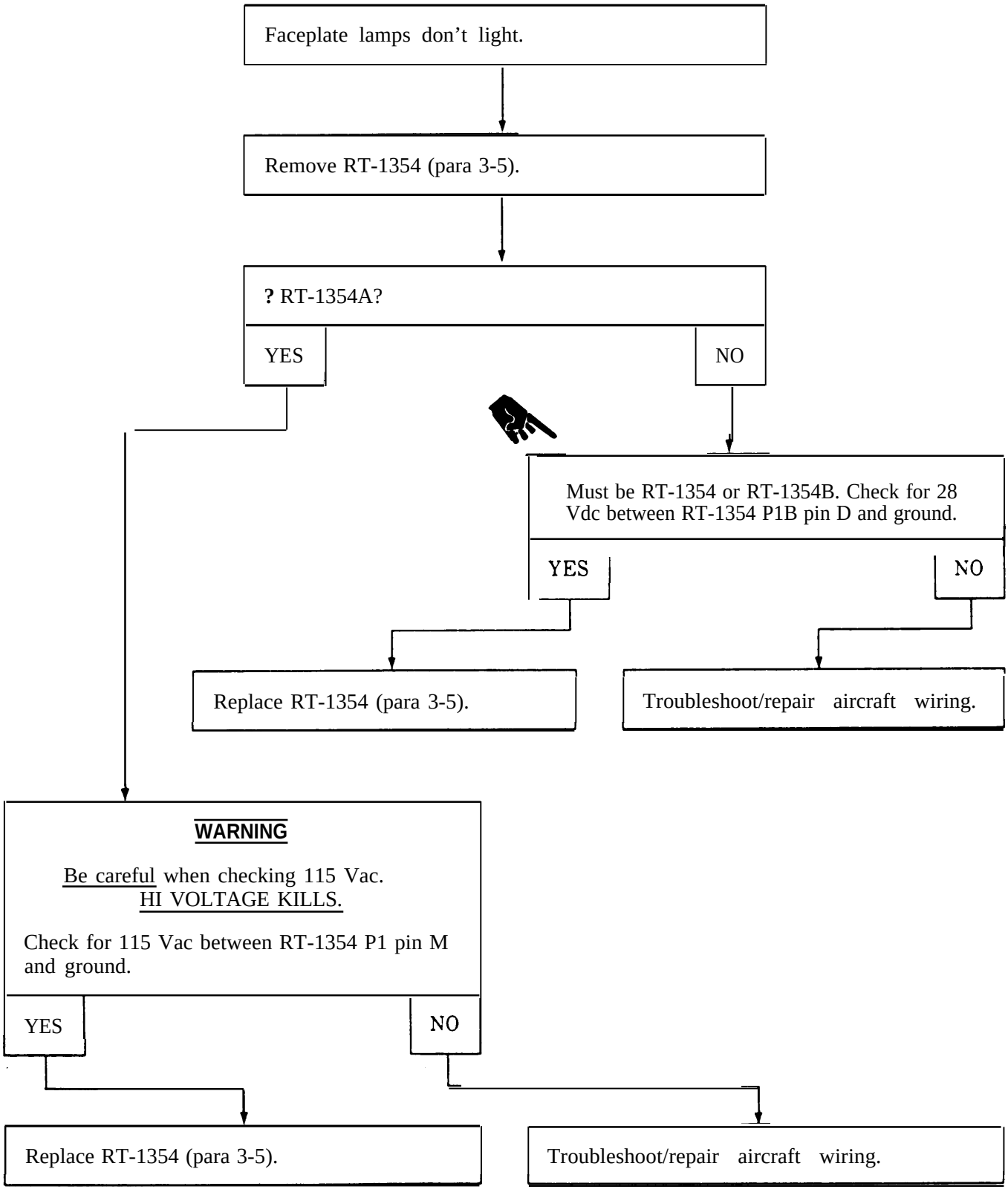
**3-4. RADIO SET TROUBLESHOOTING (Continued)**

TROUBLE 3-6



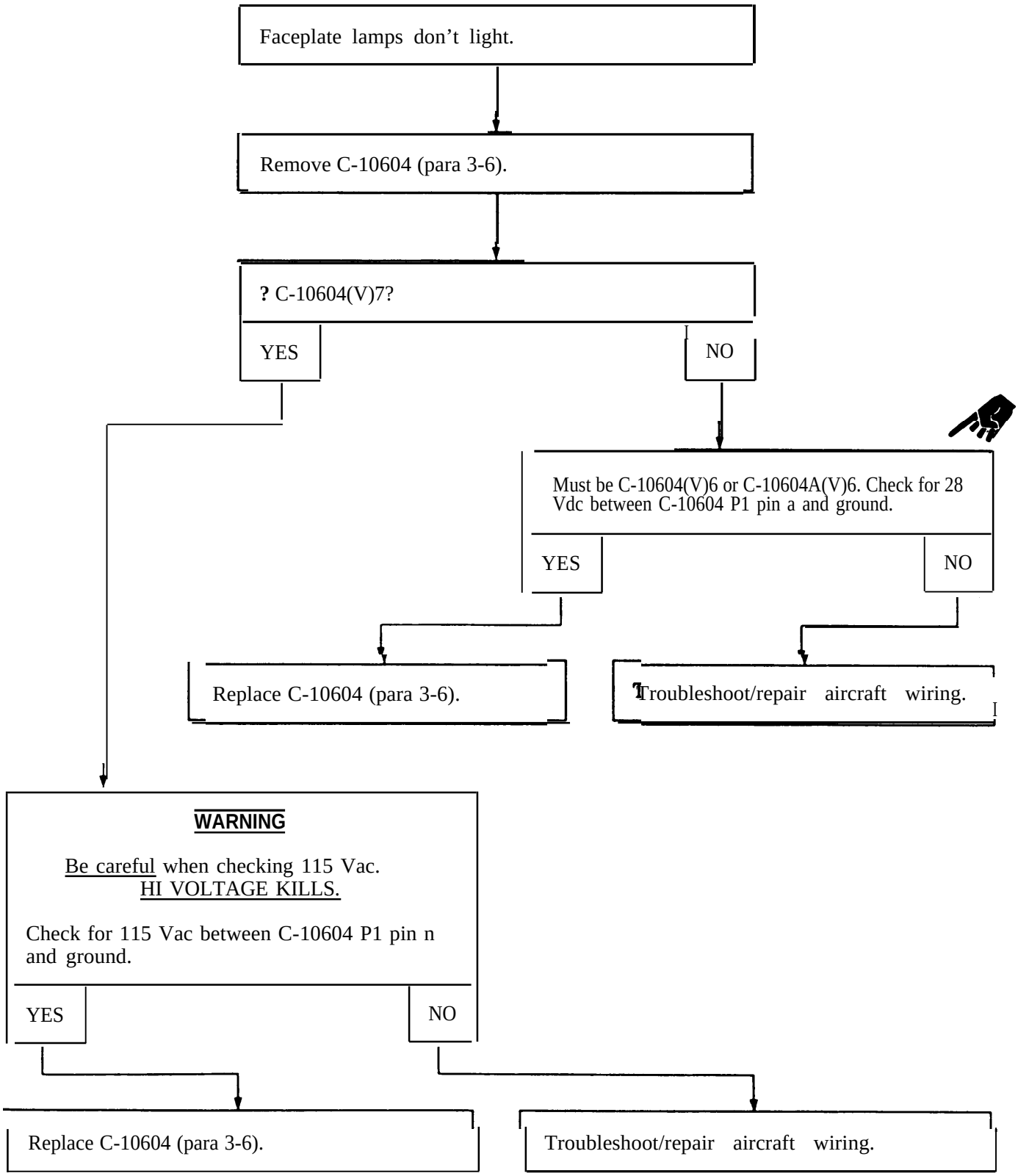
**3-4. RADIO SET TROUBLESHOOTING (Continued)**

TROUBLE 3-7



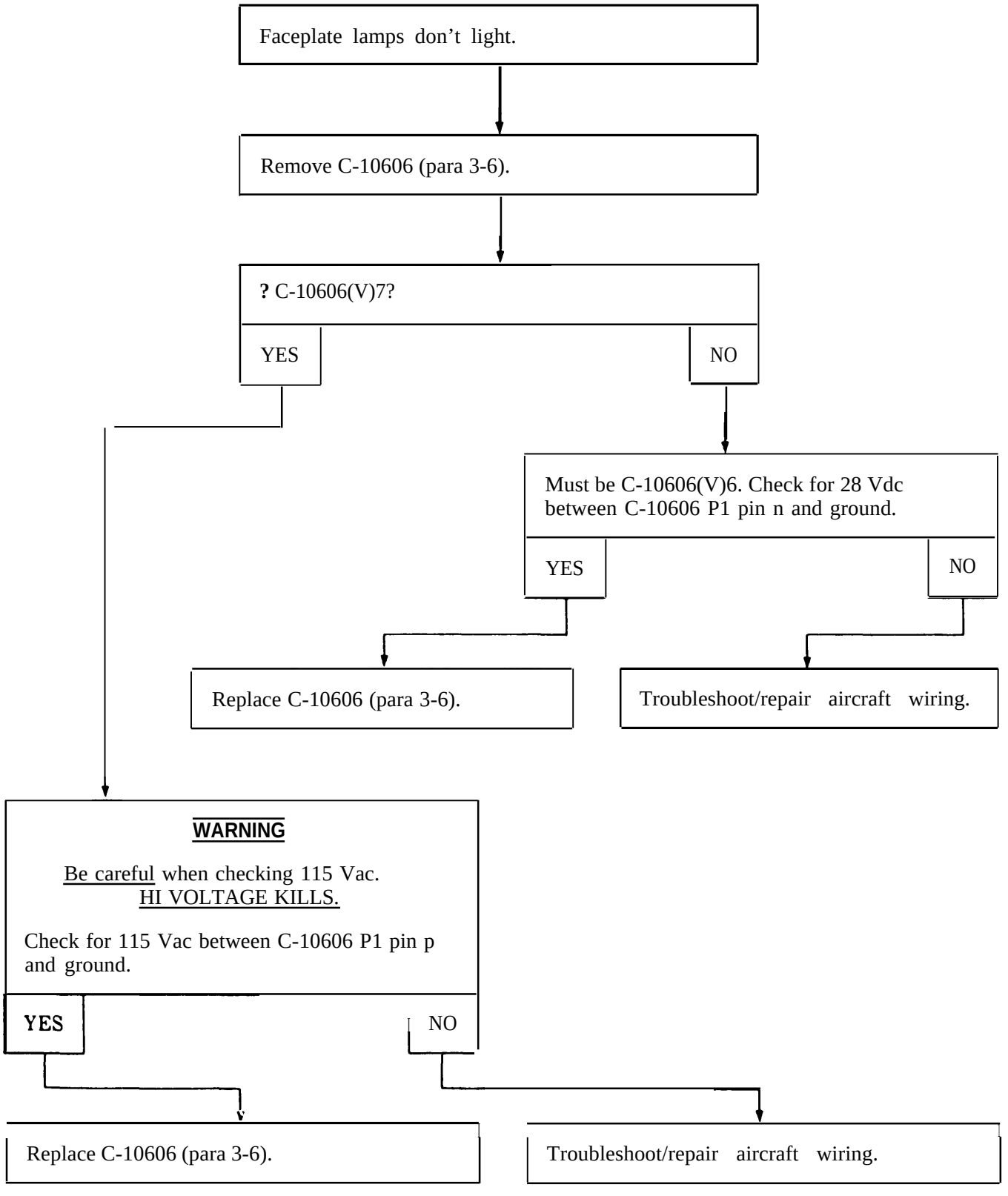
**3-4. RADIO SET TROUBLESHOOTING (Continued)**

TROUBLE 3-8



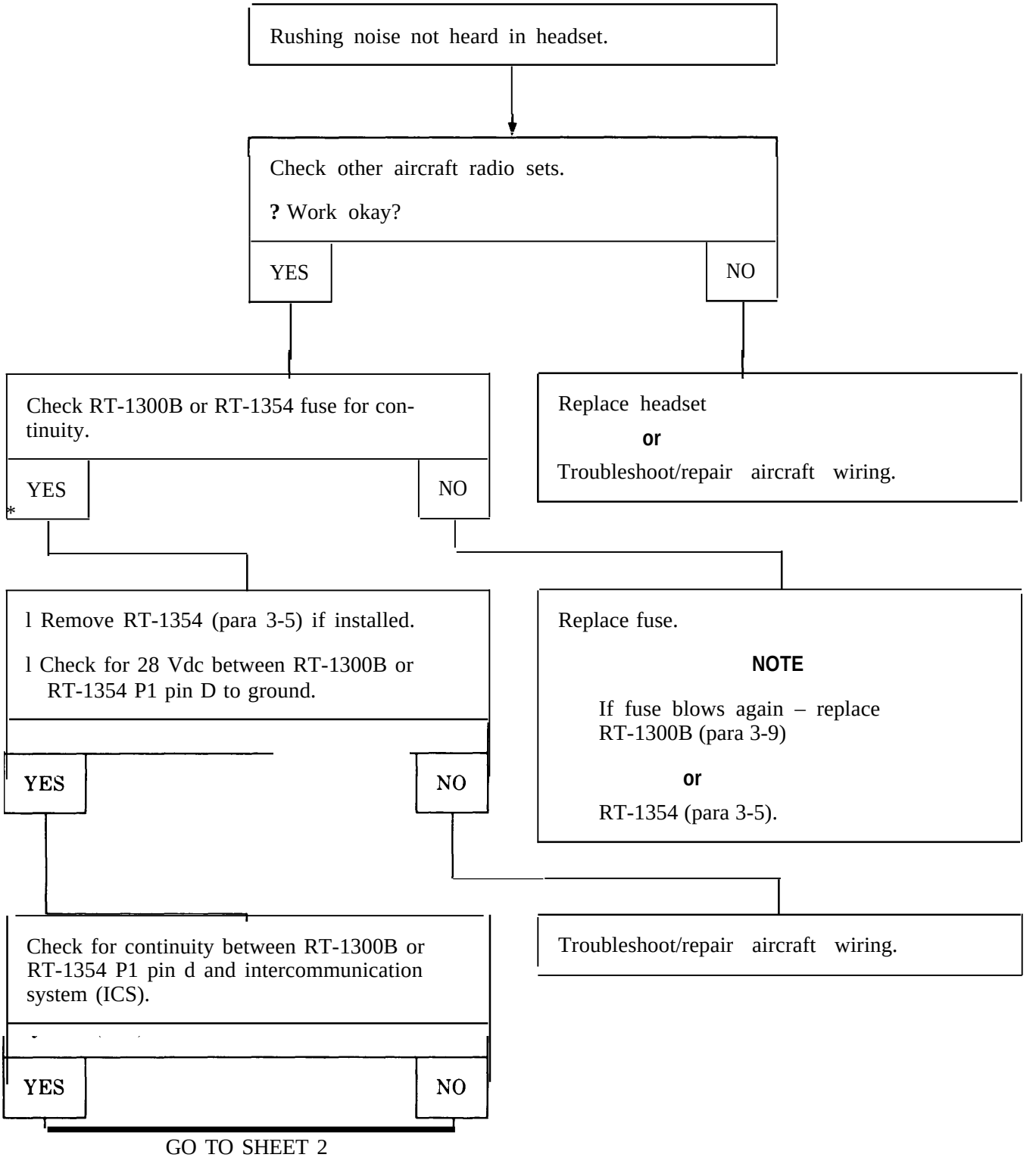
## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-9



## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-10 (SHEET 1)



**3-4. RADIO SET TROUBLESHOOTING (Continued)**

**TROUBLE 3-10 (SHEET 2)**

YES

? Is RT-1300B installed?

YES

Replace RT-1300B (para 3-9).

**NOTE**

If RT-1300B was replaced and trouble remains — troubleshoot/repair aircraft data bus system.

NO

Replace RT-1354 (para 3-5).

NO

Troubleshoot/repair aircraft wiring.

TROUBLE 3-11 (SHEET 1)

Rushing noise not heard in headset.

Check other aircraft radio sets.

? Work okay?

YES

Check RT-1300A fuse for continuity.

YES

GO TO SHEET 2

NO

NO

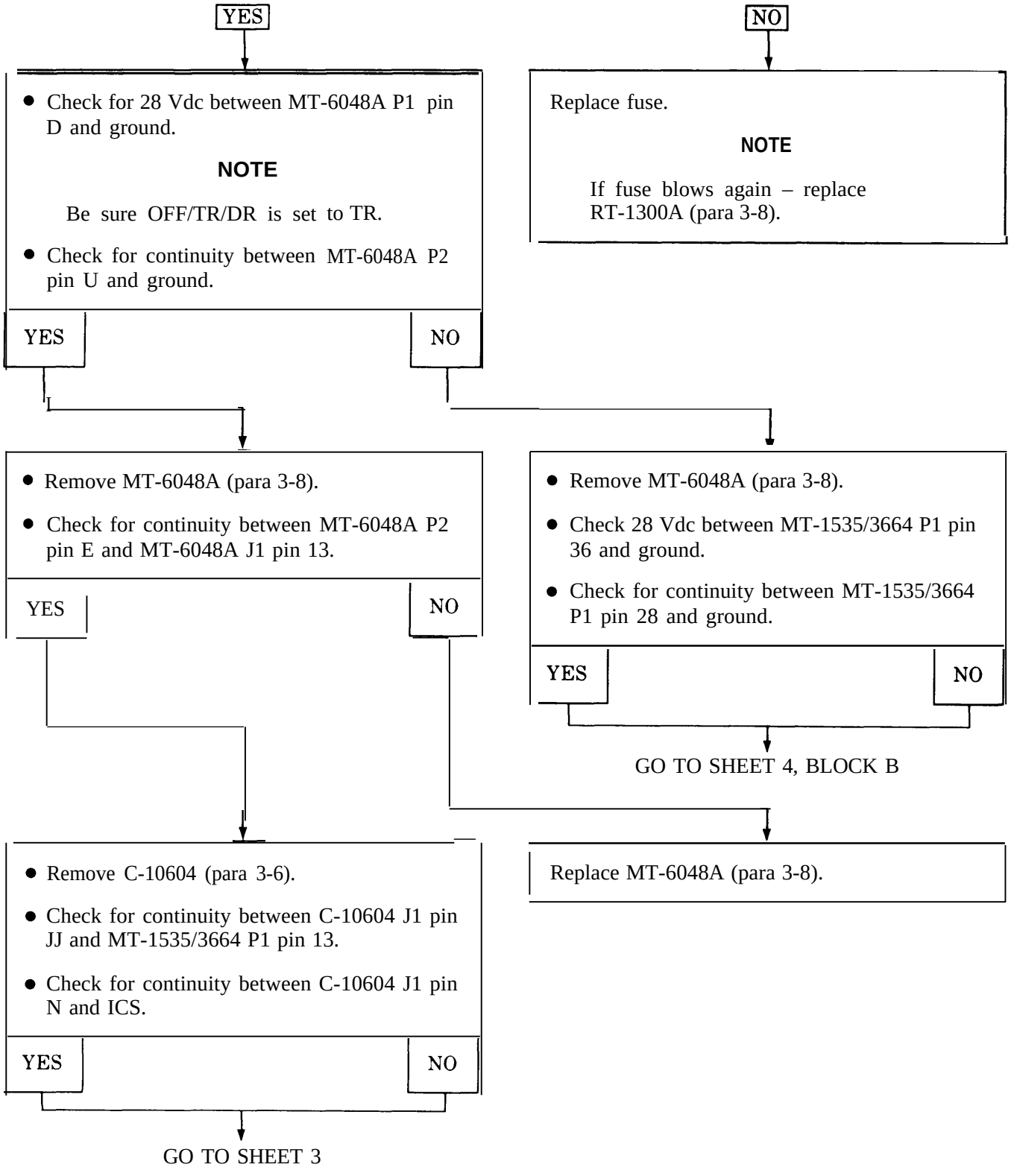
Replace headset

**or**

Troubleshoot/repair aircraft wiring.

**3-4. RADIO SET TROUBLESHOOTING (Continued)**

TROUBLE 3-11 (SHEET 2)



## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-11 (SHEET 3)

YES

Replace RT-1300A (para 3-8).

**NOTE**

If RT-1300A was replaced – and trouble remains – go to the block below – continue testing.

- Remove MT-6048A (para 3-8).
- Check for continuity between:

MT-6048A P2 and MT-6048A J1

| | |
|---|---|
| T | 29 |
| M | 25 |
| L | 24 |
| K | 23 |
| J | 22 |

YES

Check for continuity between:

MT-3664 P1 and C-10604 P1

| | |
|---|---|
| 29 | J |
| 25 | BB |
| 24 | CC |
| 23 | G |

YES

GO TO SHEET 4

NO

Troubleshoot/repair aircraft wiring.

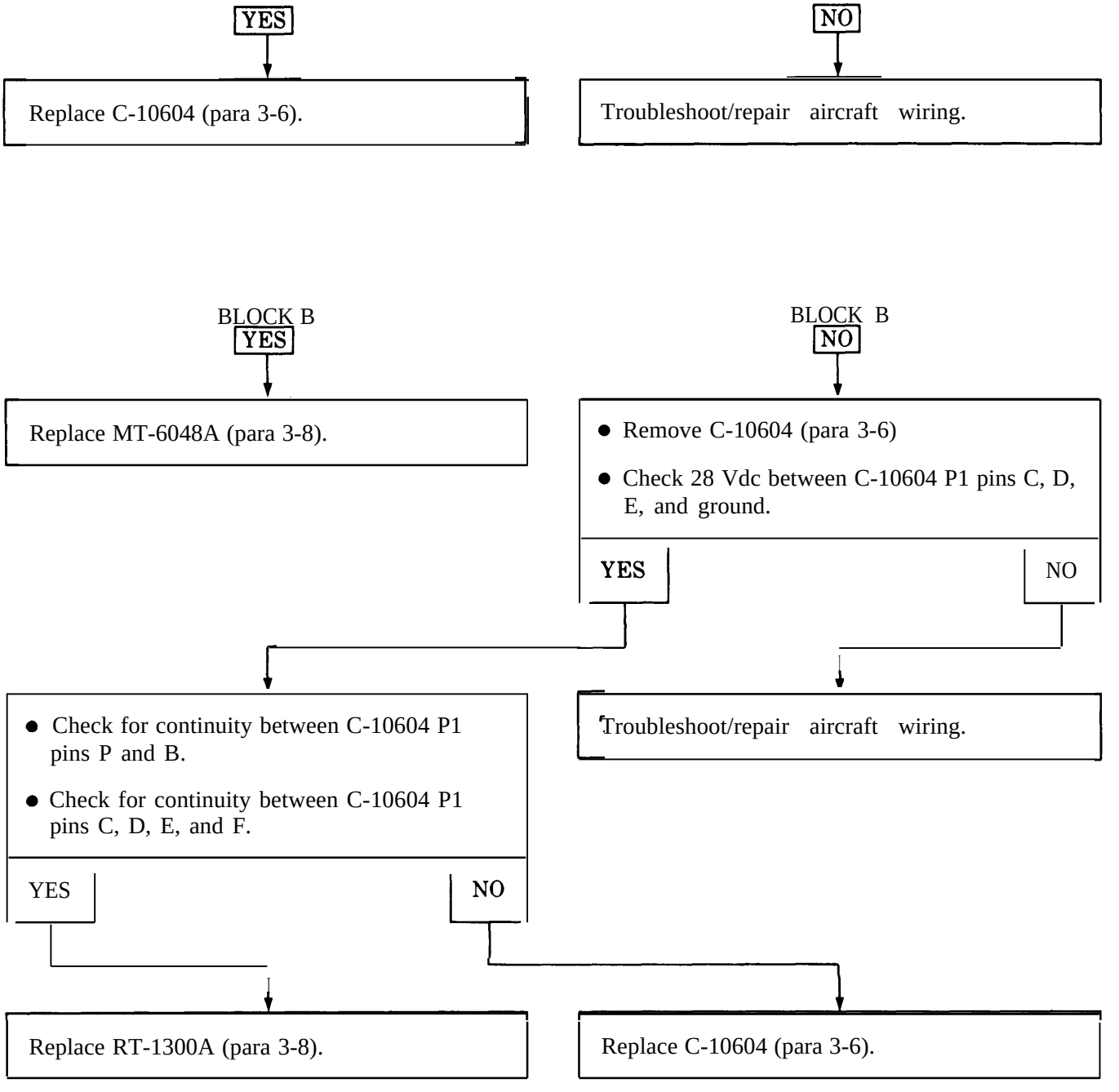
NO

Replace MT-6048A (para 3-8).

NO

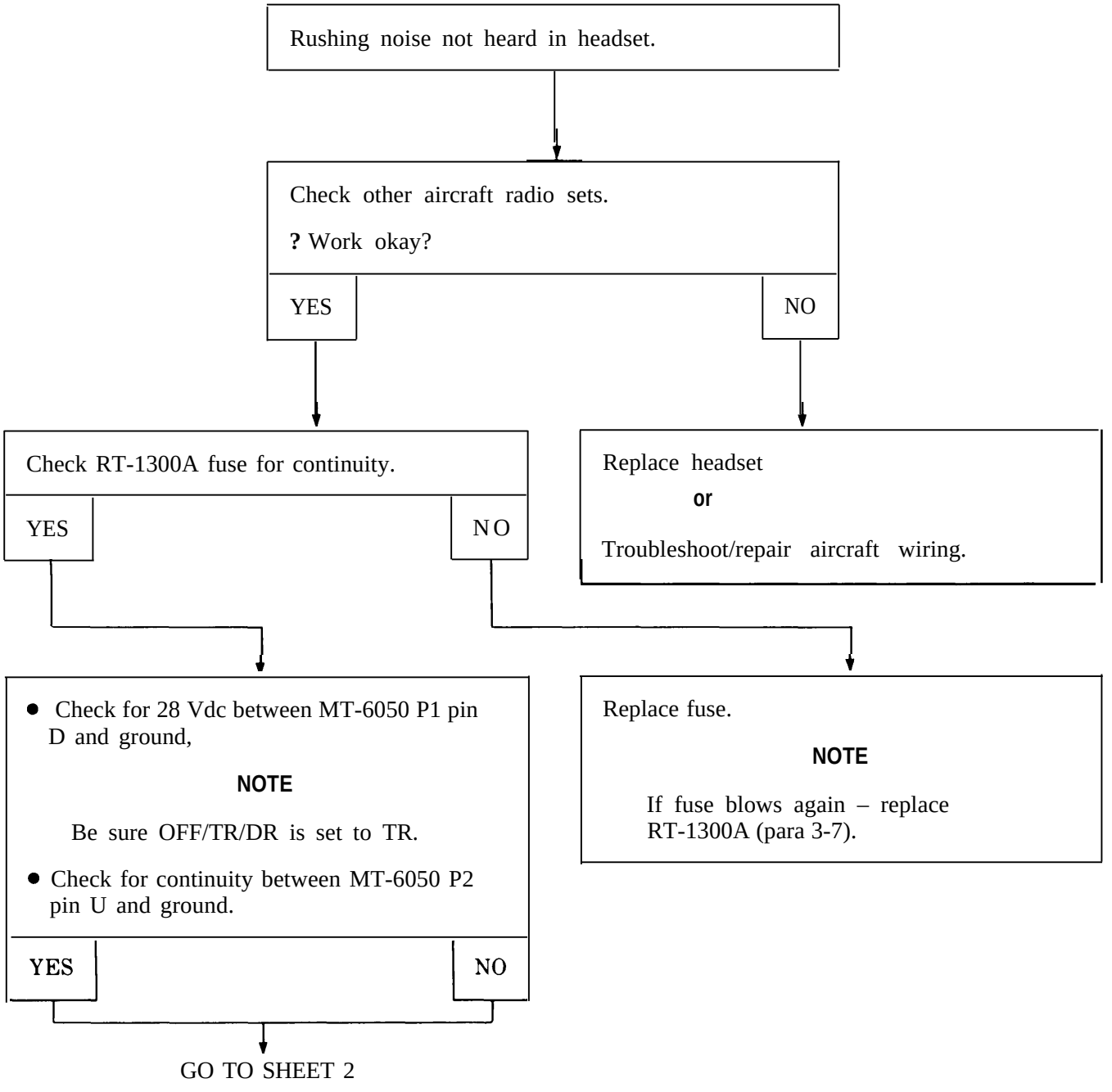
**3-4. RADIO SET TROUBLESHOOTING (Continued)**

TROUBLE 3-11 (SHEET 4)



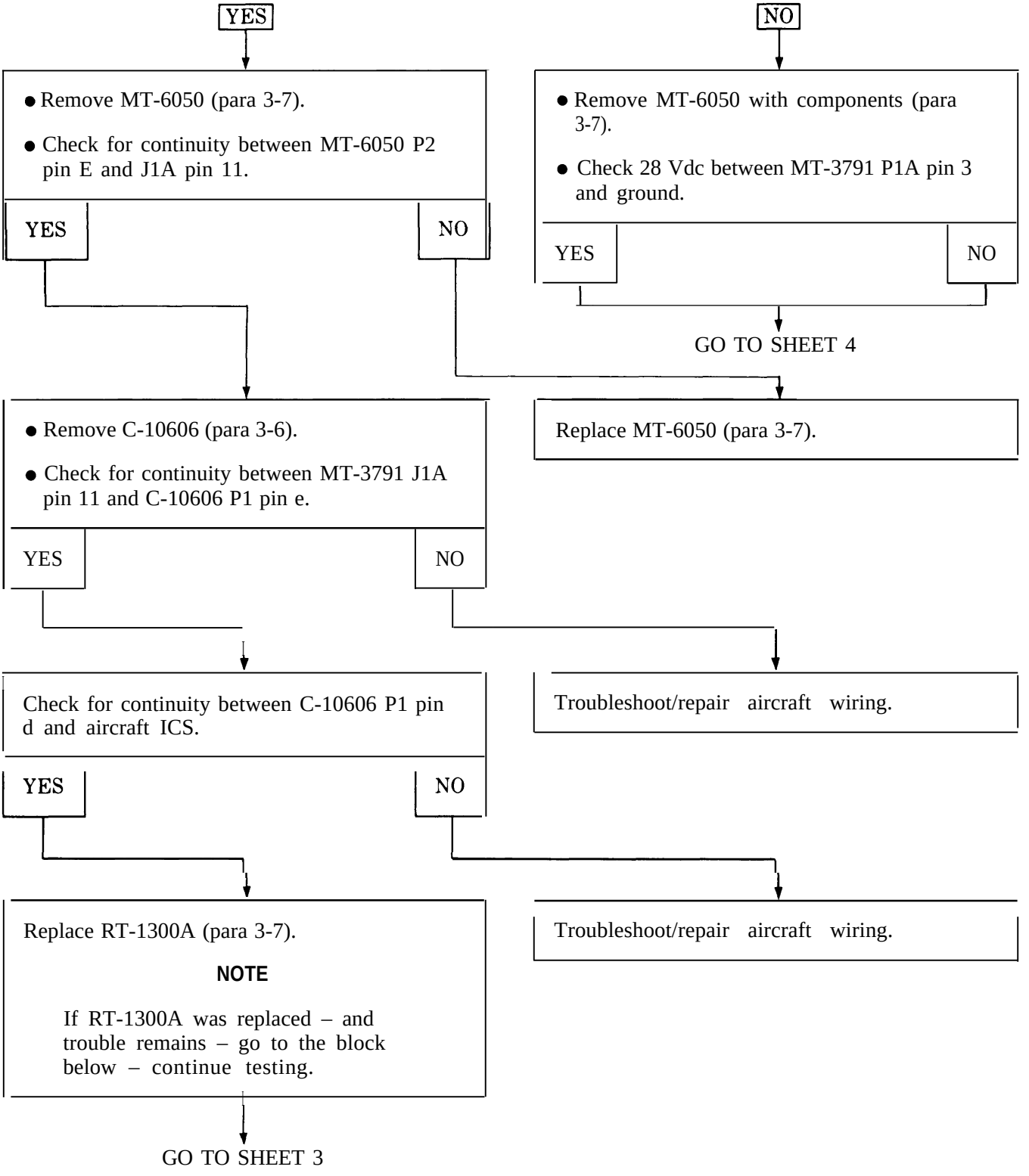
**3-4. RADIO SET TROUBLESHOOTING (Continued)**

TROUBLE 3-12 (SHEET 1)



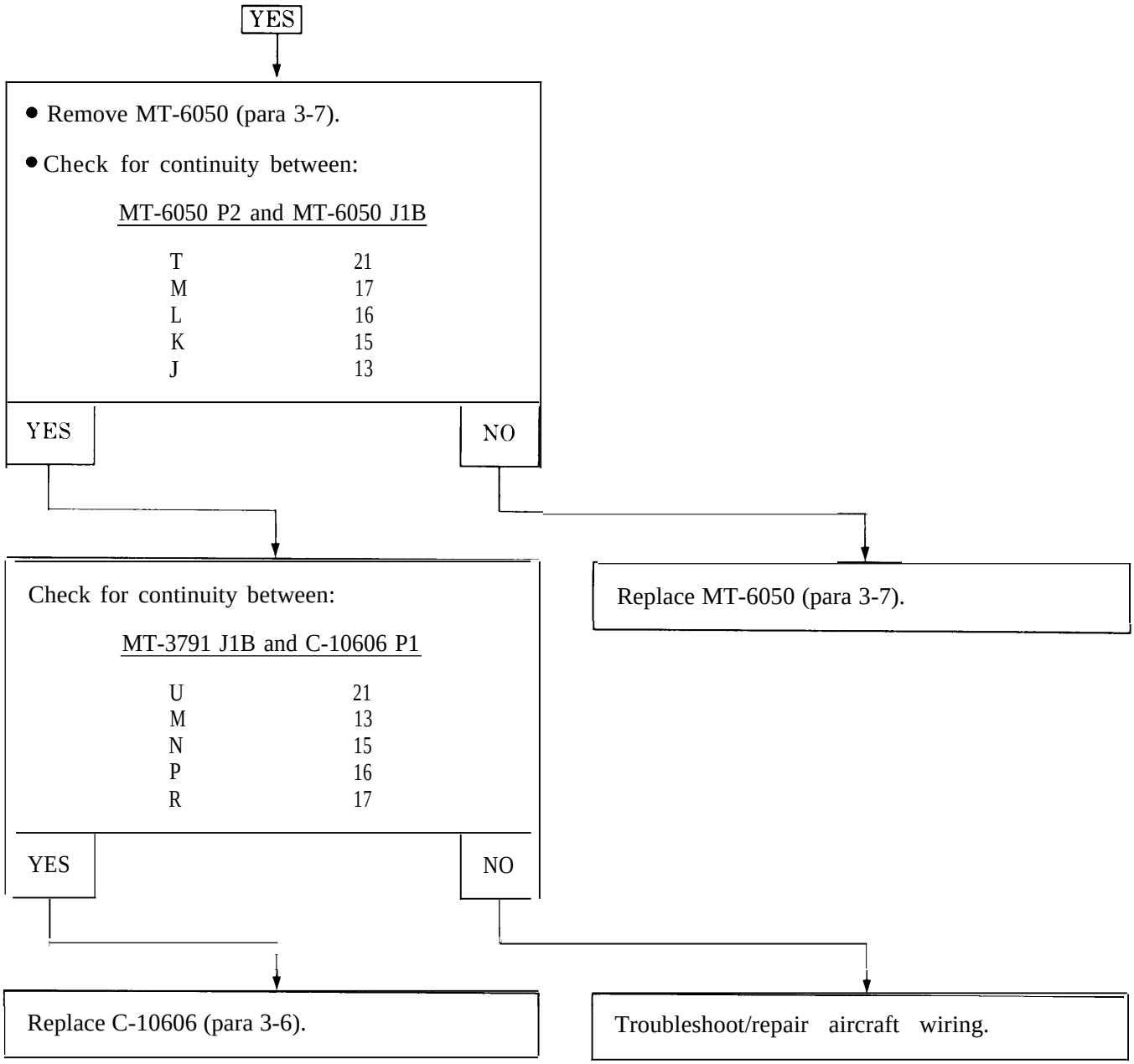
## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-12 (SHEET 2)



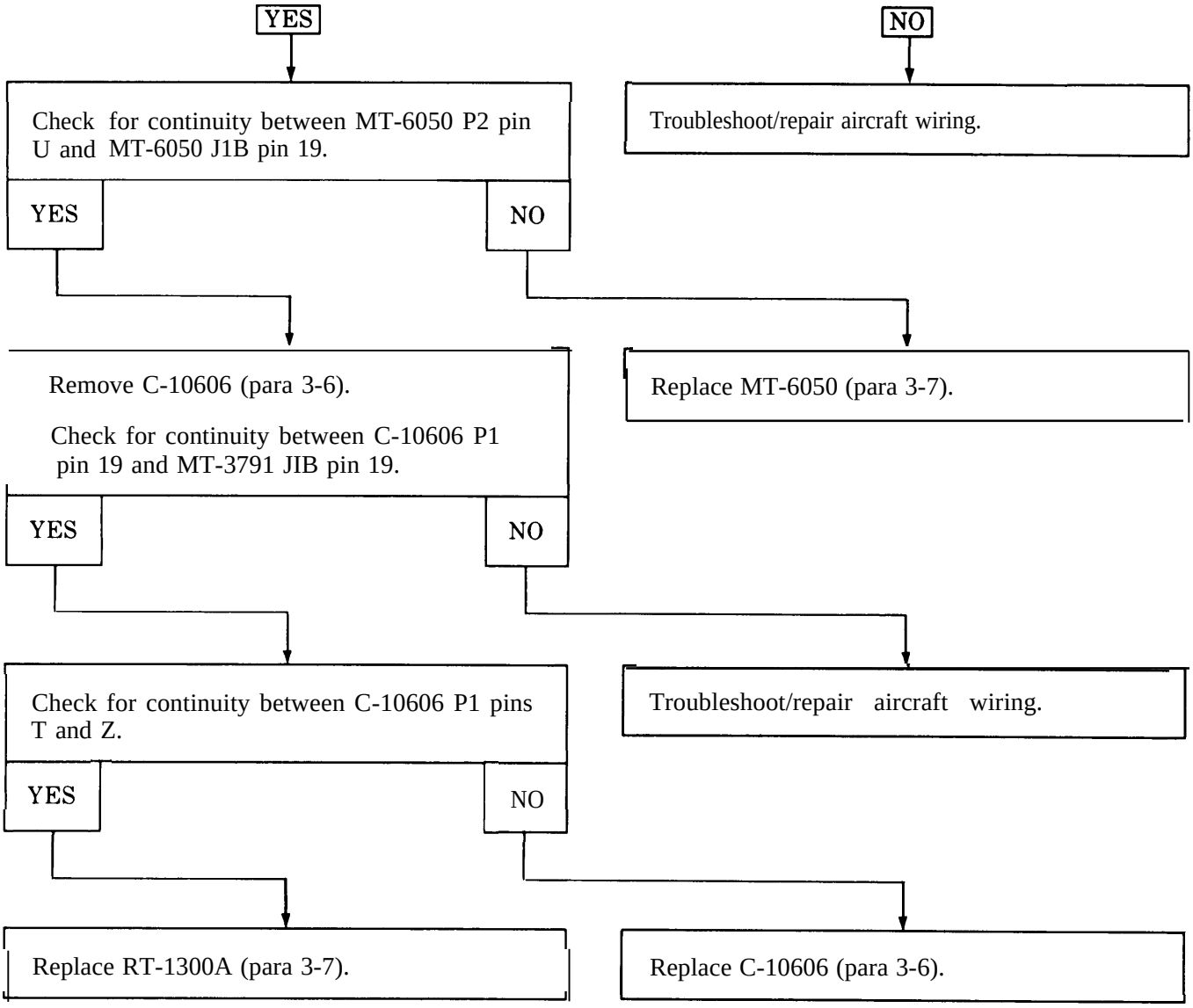
**3-4. RADIO SET TROUBLESHOOTING (Continued)**

TROUBLE 3-12 (SHEET 3)



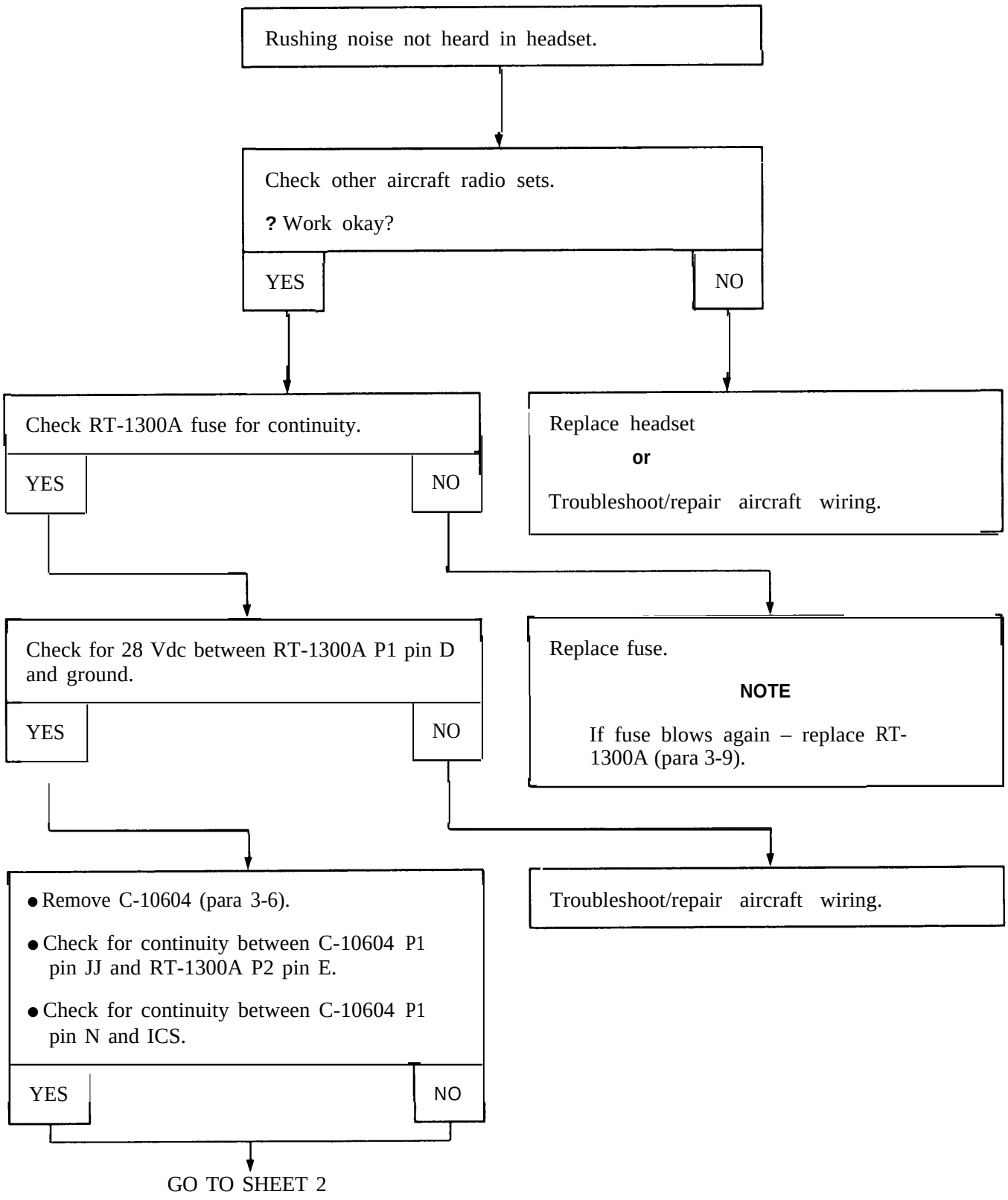
**3-4. RADIO SET TROUBLESHOOTING (Continued)**

TROUBLE 3-12 (SHEET 4)



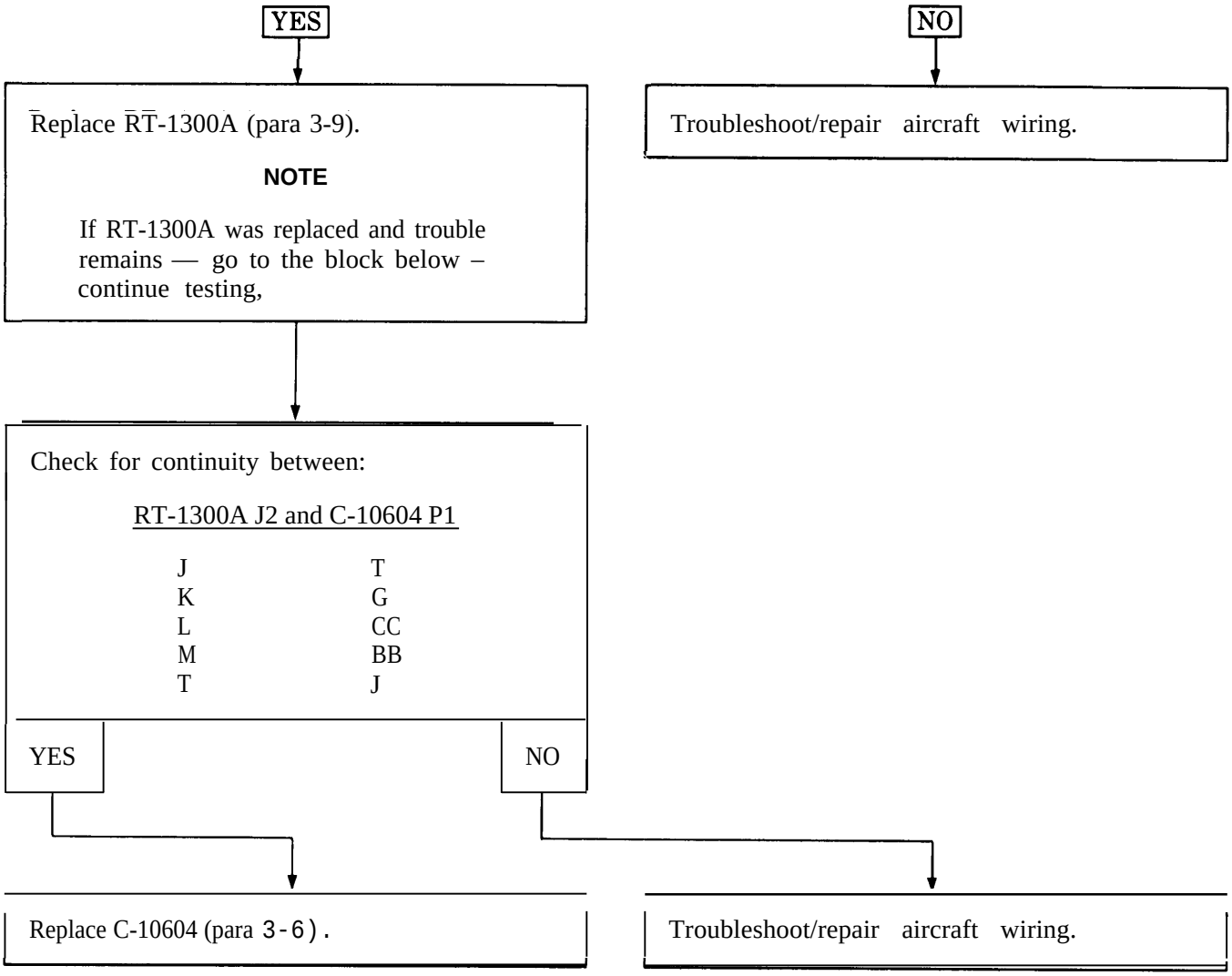
## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-13 (SHEET 1)



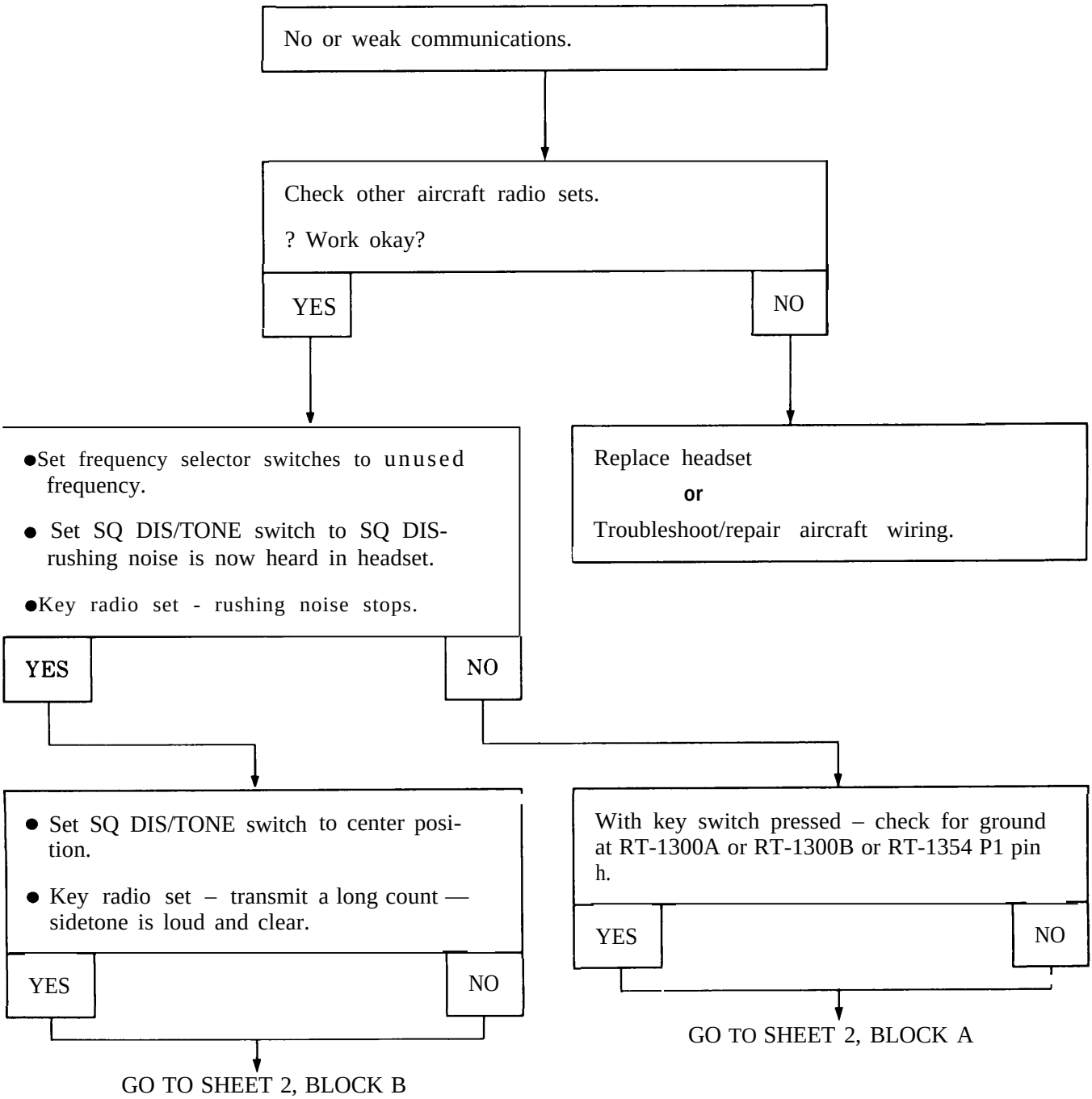
## 13-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-13 (SHEET 2)



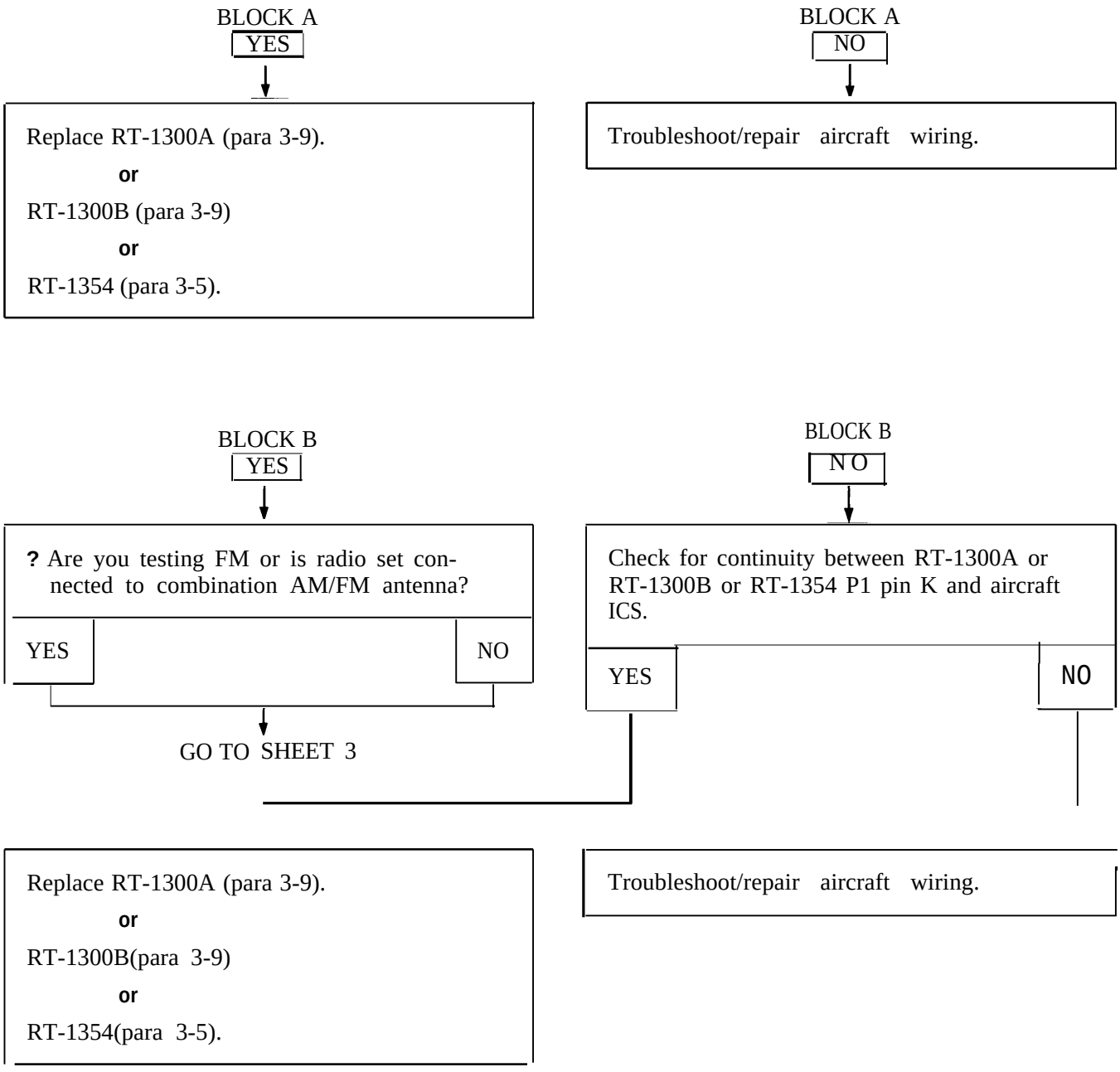
## 13-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-14 (SHEET 1)



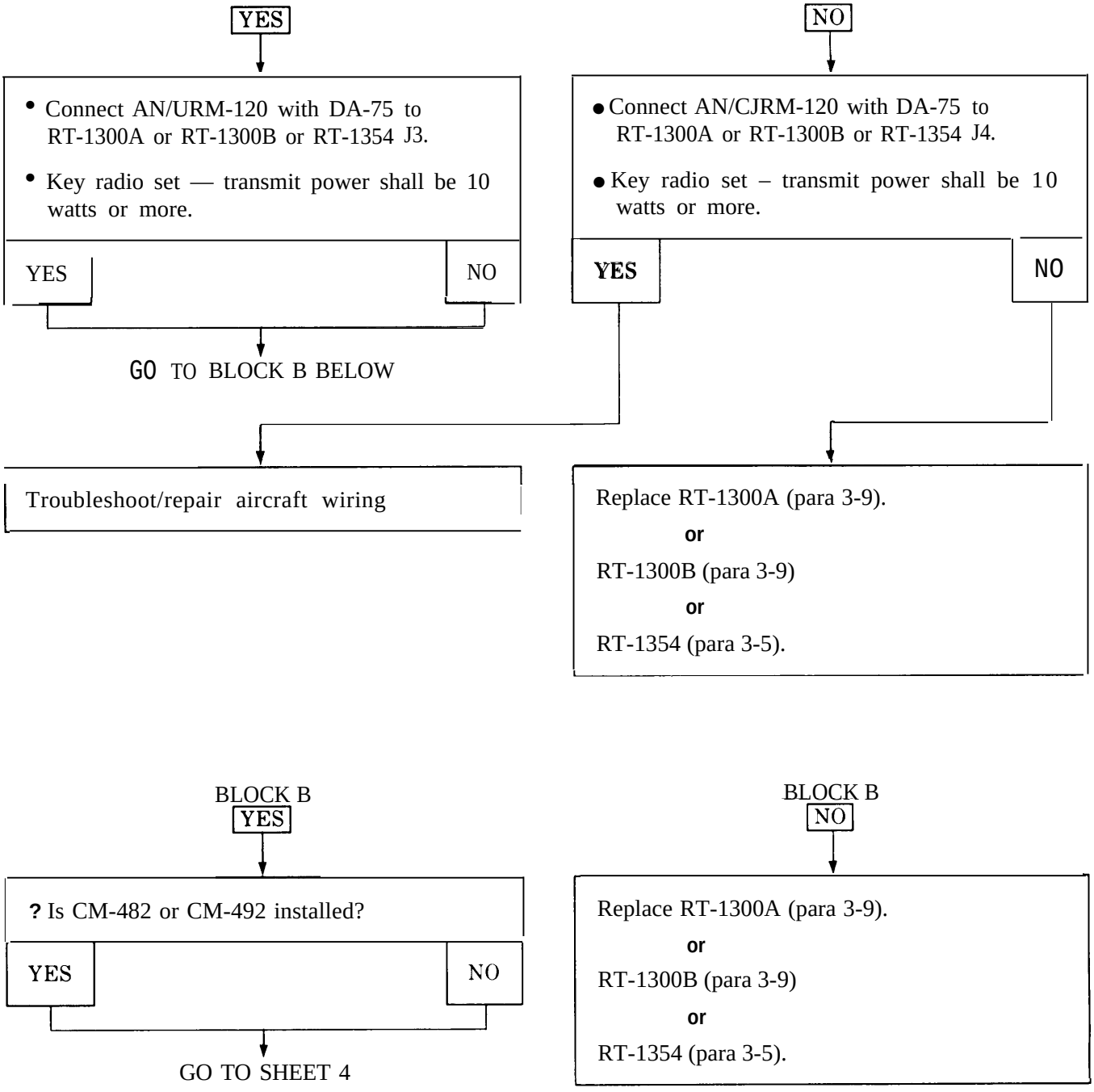
## 3-4. RADIO SET TROUBLESHOOTING (continued)

TROUBLE 3-14 (SHEET 2)



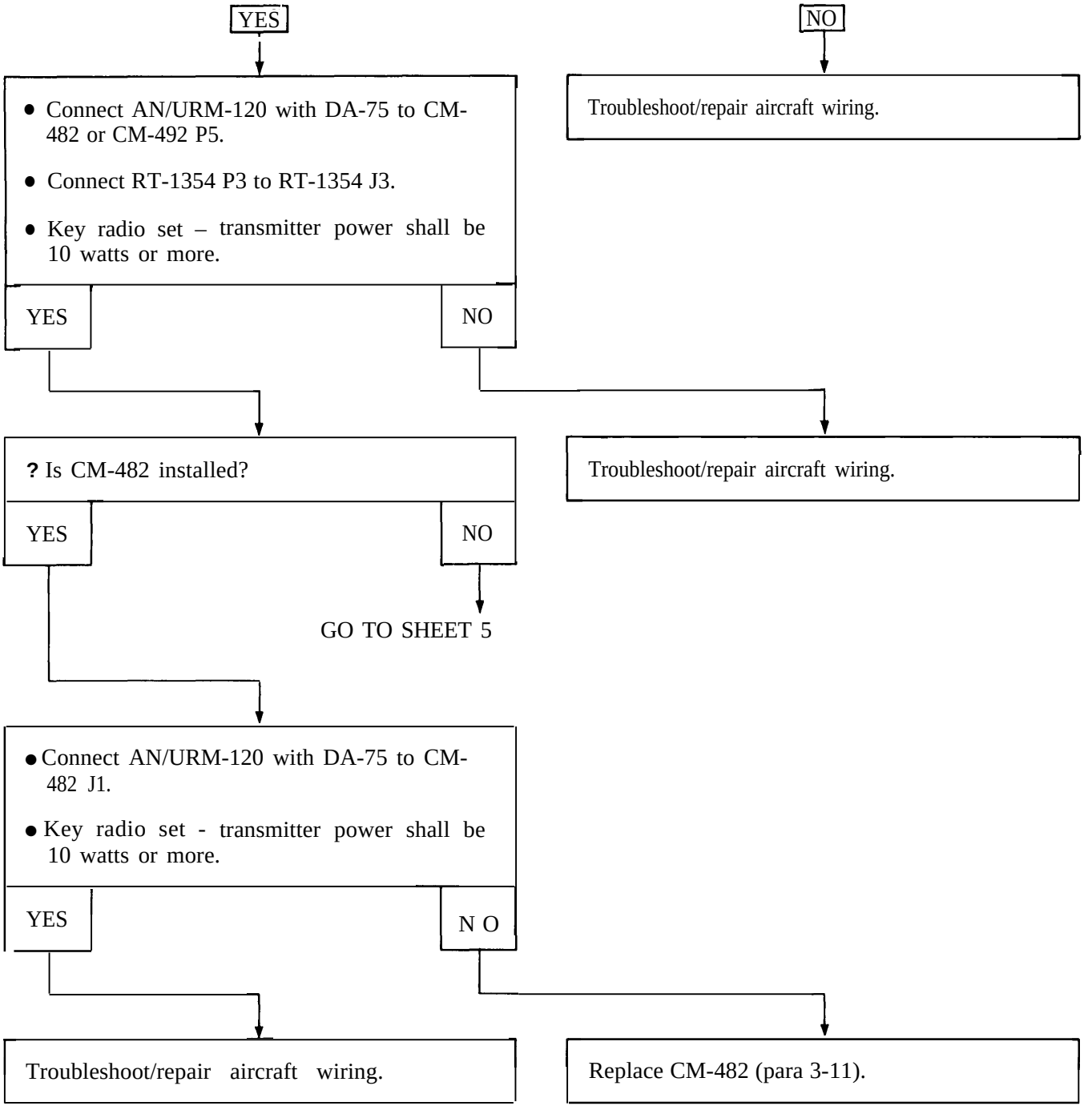
## 13-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-14 (SHEET 3)



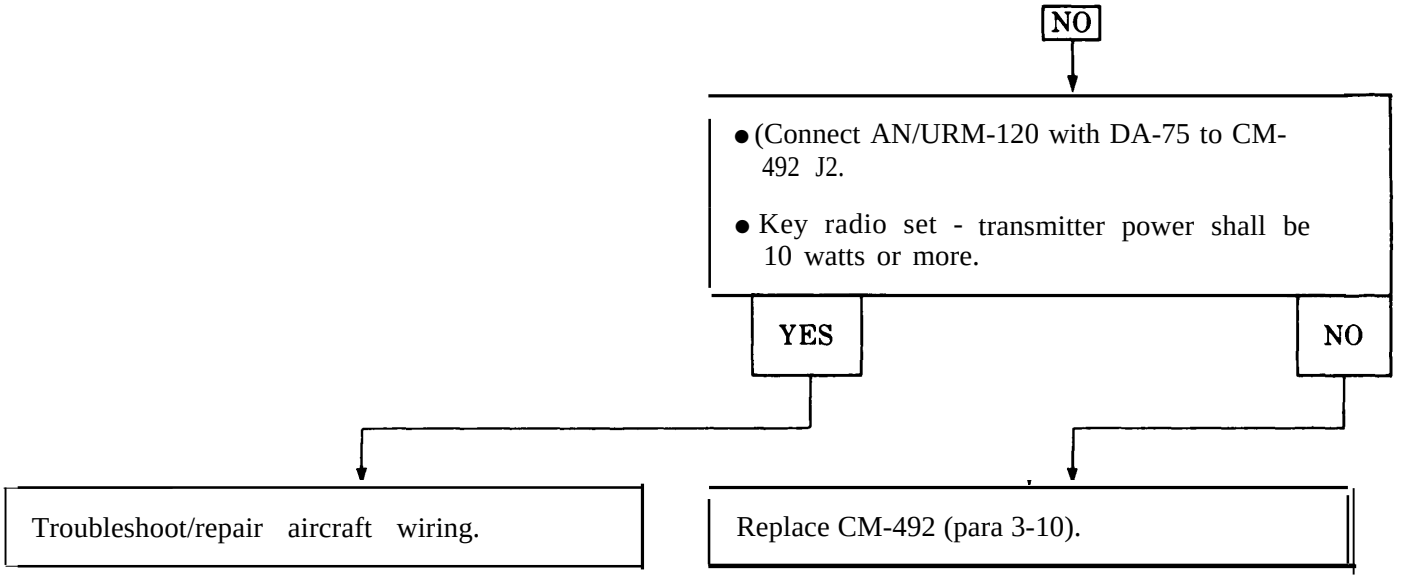
## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-14 (SHEET 4)

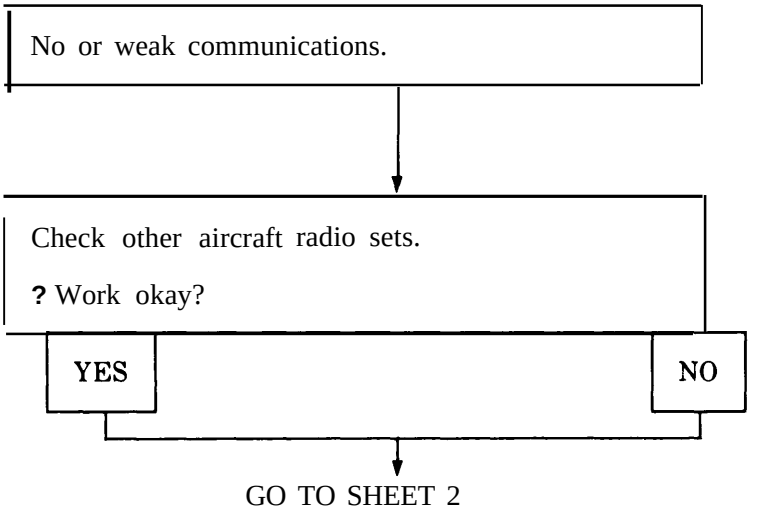


**3-4. RADIO SET TROUBLESHOOTING (Continued)**

TROUBLE 3-14 (SHEET 5)

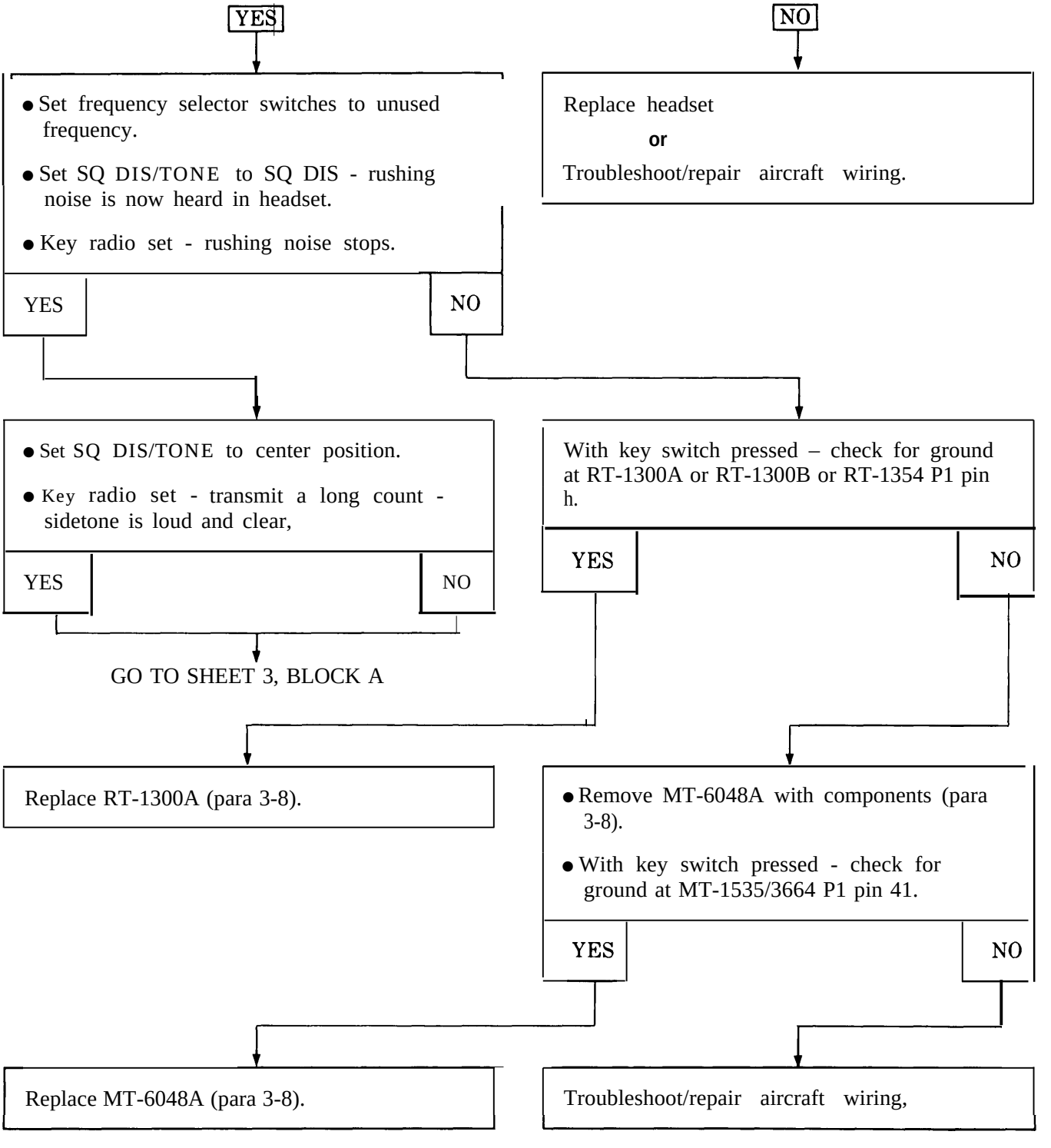



TROUBLE 3-15 (SHEET 1)



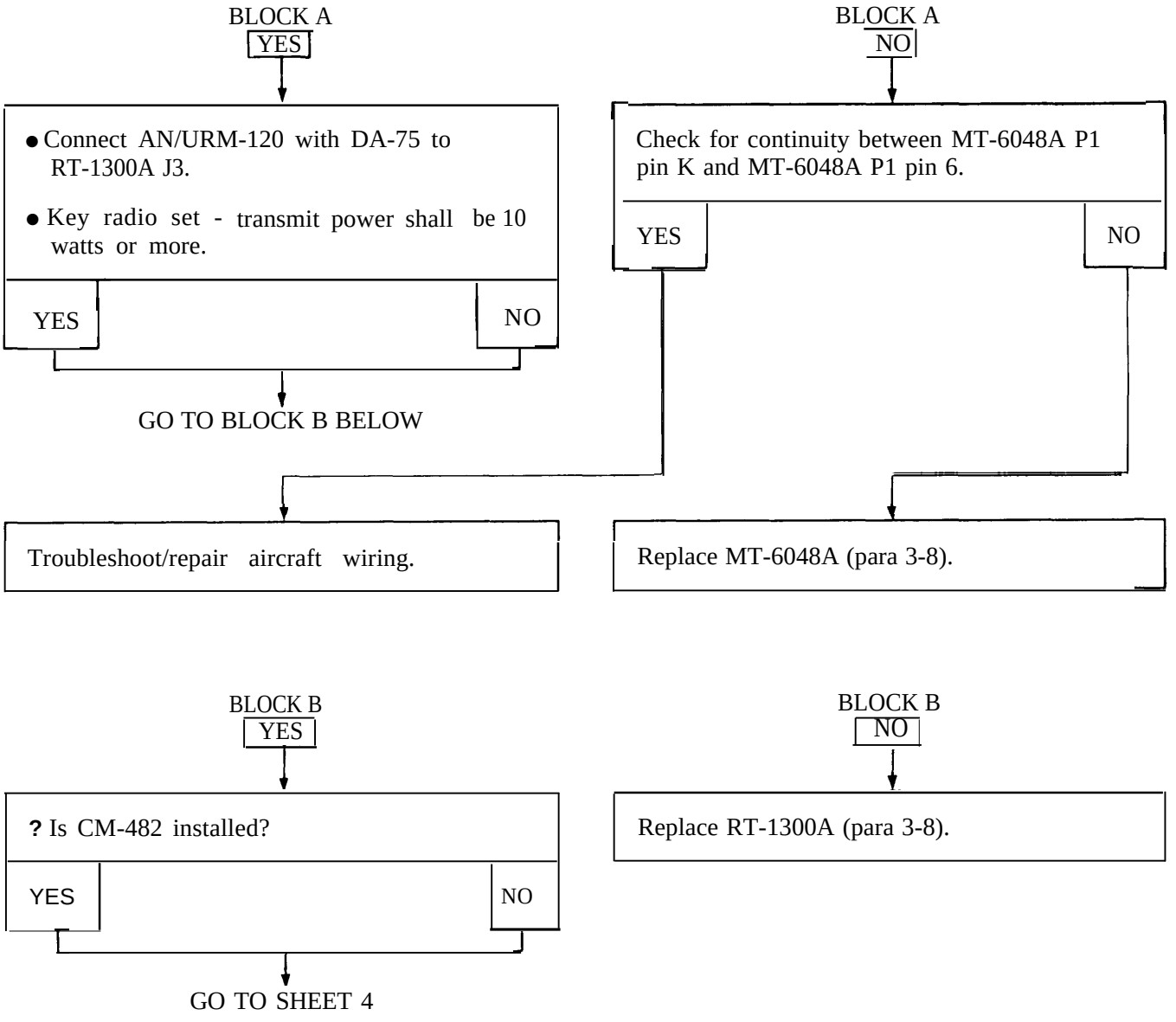
**3-4. RADIO SET TROUBLESHOOTING (Continued)**

TROUBLE 3-15 (SHEET 2)



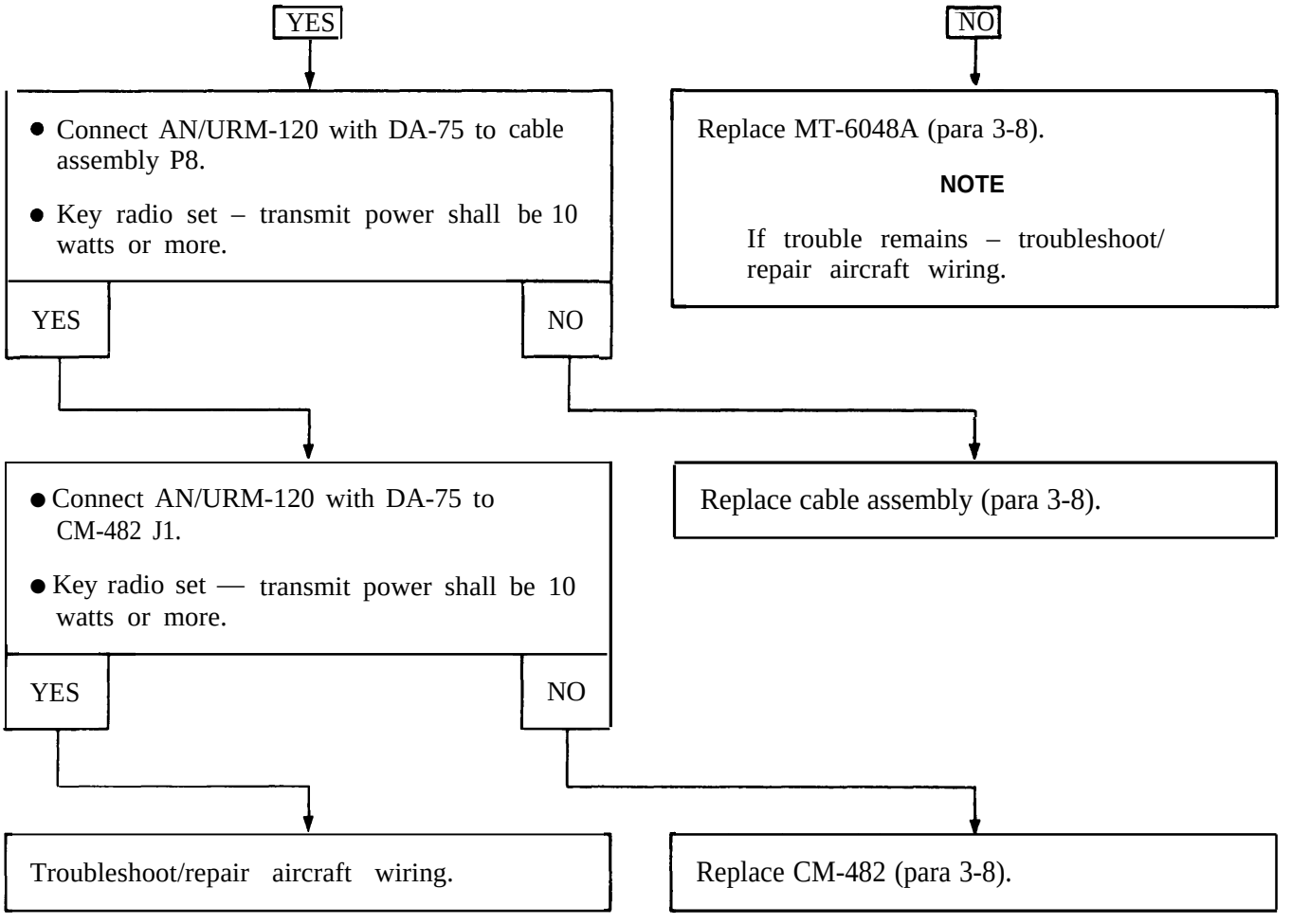
**3-4. RADIO SET TROUBLESHOOTING (Continued)**

TROUBLE 3-15 (SHEET 3)



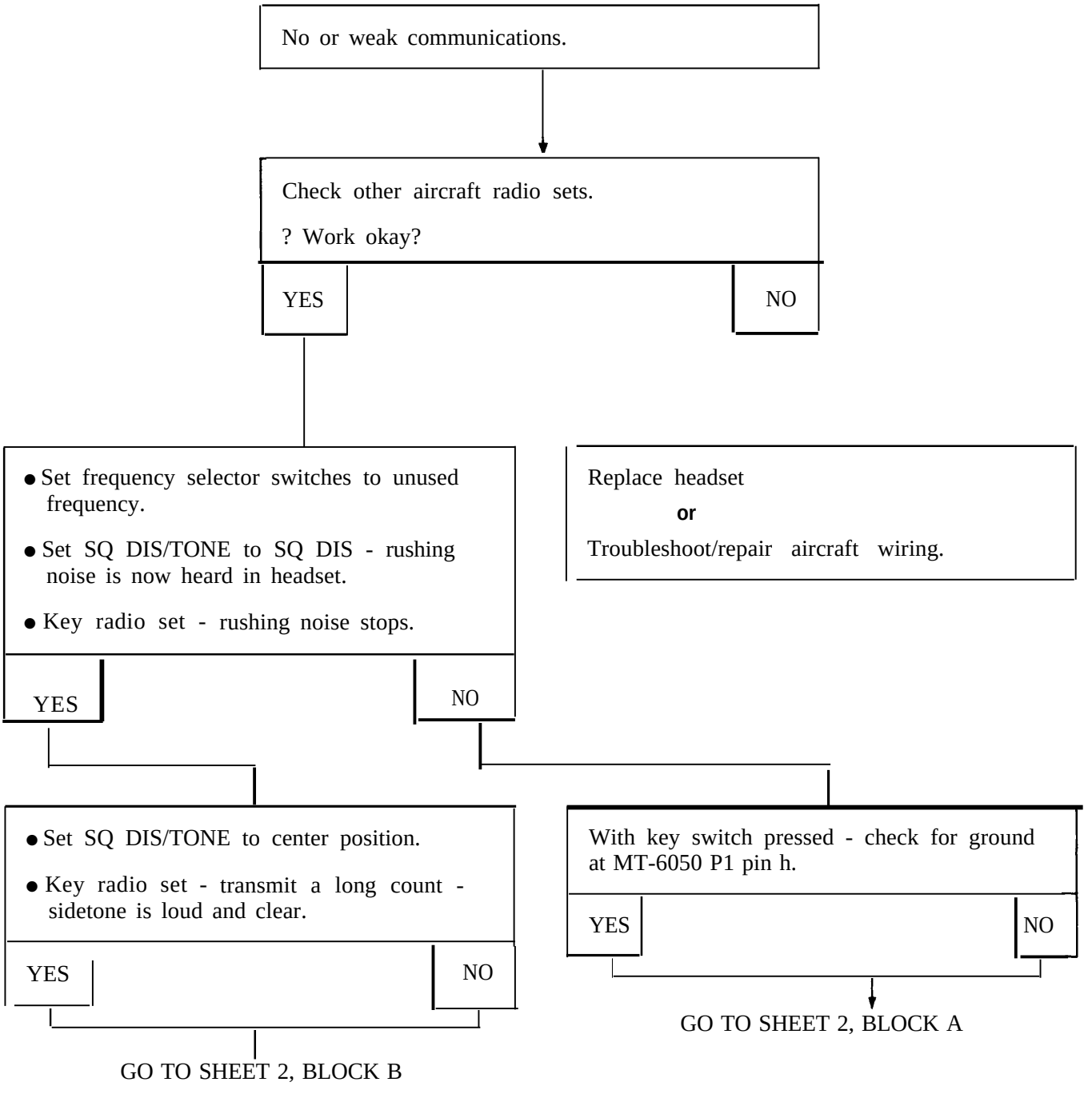
**3-4. RADIO SET TROUBLESHOOTING (Continued)**

TROUBLE 3-15 (SHEET 4)



**3-4. RADIO SET TROUBLESHOOTING (Continued)**

TROUBLE 3-16 (SHEET 1)



## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-16 (SHEET 2)

BLOCK A

YES

Replace RT-1300A (para 3-7).

BLOCK A

NO

- Remove MT-6050 with components (para 3-7).
- With key switch pressed - check for ground at MT-3791 J1A pin 31.

YES

Replace MT-6050 (para 3-7).

Troubleshoot/repair aircraft wiring.

BLOCK B

YES

- Connect AN/URM-120 with DA-75 to RT-1300A J4.

**NOTE**

If radio set is using a combination AM/FM antenna – connect AN/URM-120 to RT-1300A J3.

- Key radio set — transmit power shall be 10 watts or more.

YES

NO

GO TO SHEET 3, BLOCK B

BLOCK B

NO

- Remove MT-6050 with components (para 3-7).
- Check for continuity between MT-6050 P1 pin k and MT-6050 J1A pin 30.

YES

NO

GO TO SHEET 3, BLOCK A

## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-16 (SHEET 3)

BLOCK A

Check for continuity between MT-6050 P1A pin 30 and aircraft ICS.

YES

Replace RT-1300A (para 3-7).

NO

Troubleshoot/repair aircraft wiring.

BLOCK A

NO

Replace MT-6050 (para 3-7).

BLOCK B

YES

Replace MT-6050 (para 3-7).

**NOTE**

If MT-6050 was replaced and trouble remains - troubleshoot/repair aircraft wiring.

BLOCK B

NO

Replace RT-1300A (para 3-7).

**3-4. RADIO SET TROUBLESHOOTING (Continued)**

TROUBLE 3-17

No communications on guard channel.

Replace receiver-transmitter installed:

RT-1300A (para 3-7, 3-8, or 3-9)

**or**

RT-1300B (para 3-9)

**or**

RT-1354 (para 3-5)

**NOTE**

If receiver-transmitter was replaced and trouble remains - replace C-10604 (para 3-6) or C-10606 (para 3-6) if installed.

TROUBLE 3-18

No tone transmission.

**?** RT-1354 installed?

NO

Replace RT-1354(para 3-5).

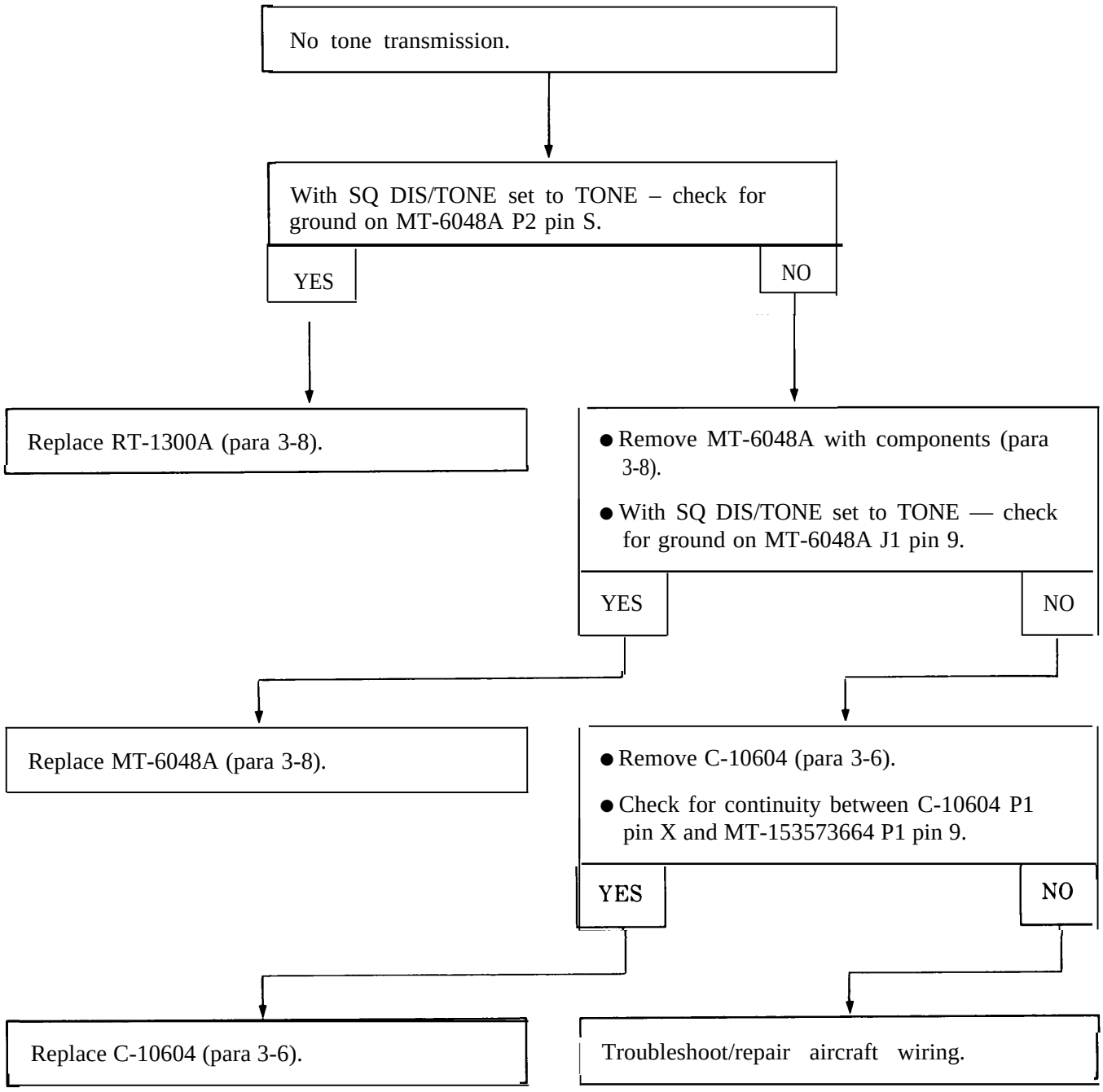
Replace RT-1300B (para 3-9).

**NOTE**

If RT-1300B was replaced and trouble remains — troubleshoot/repair aircraft data bus system.

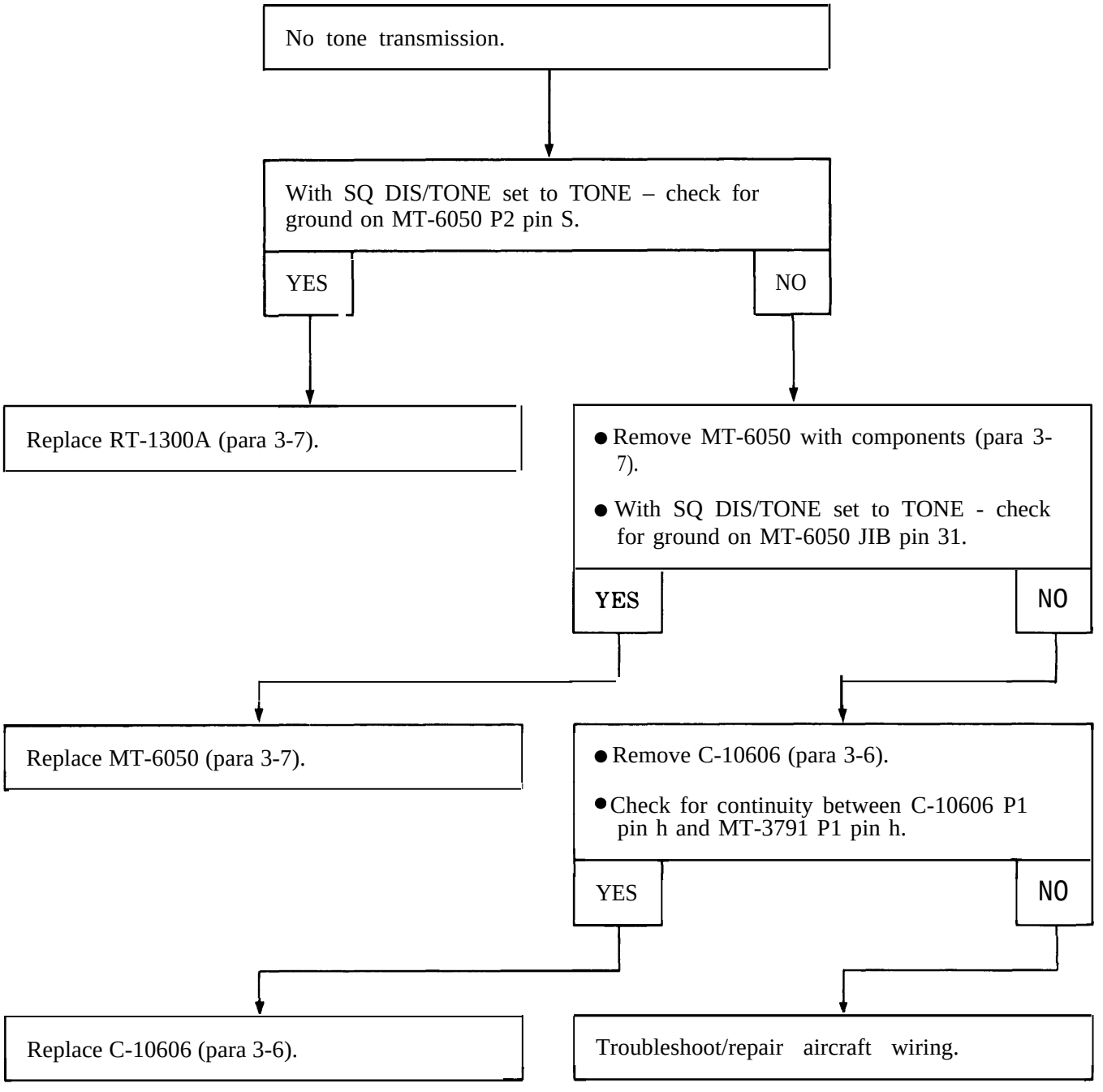
**3-4. RADIO SET TROUBLESHOOTING (Continued)**

TROUBLE 3-19



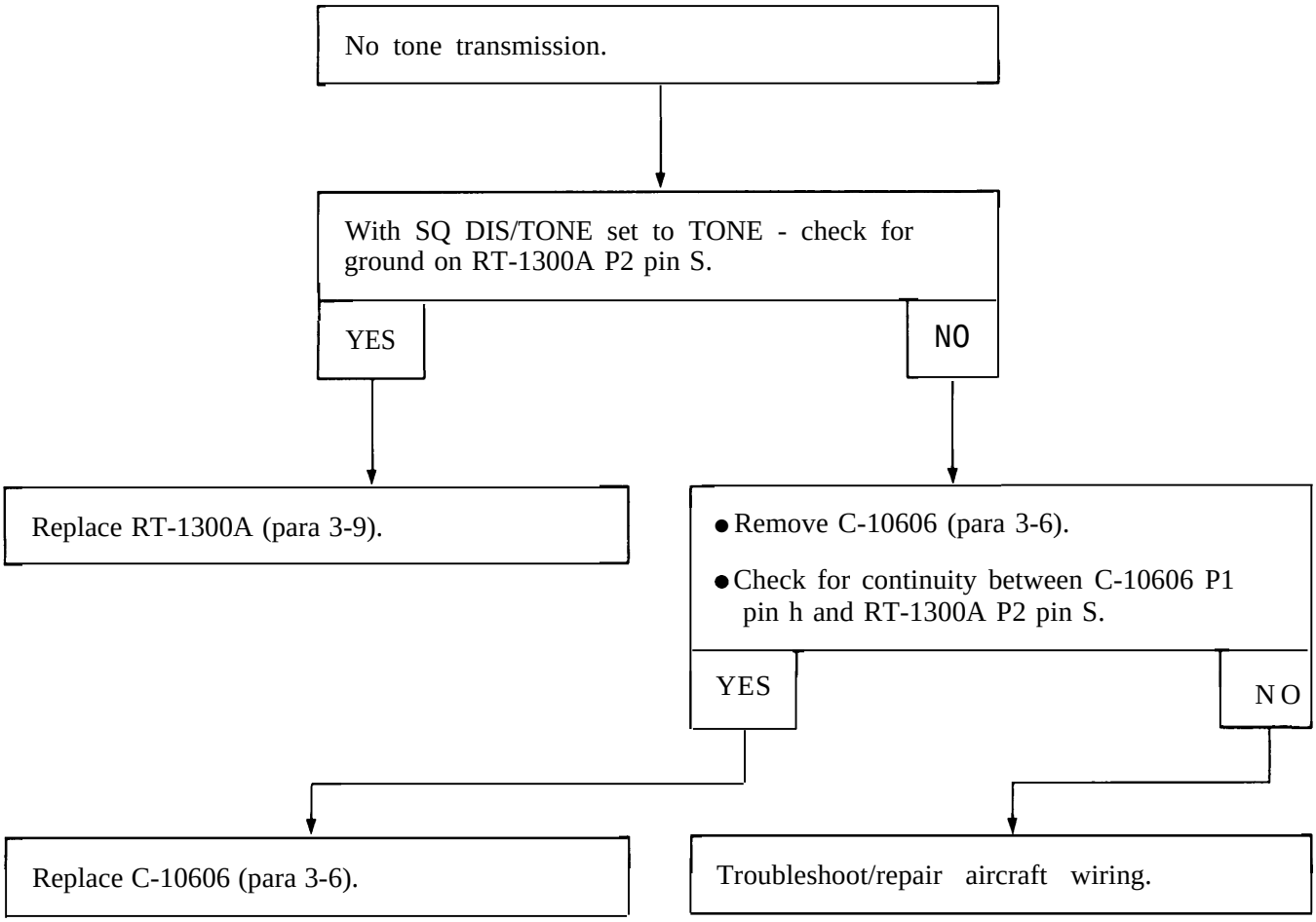
**3-4. RADIO SET TROUBLESHOOTING (Continued)**

TROUBLE 3-20



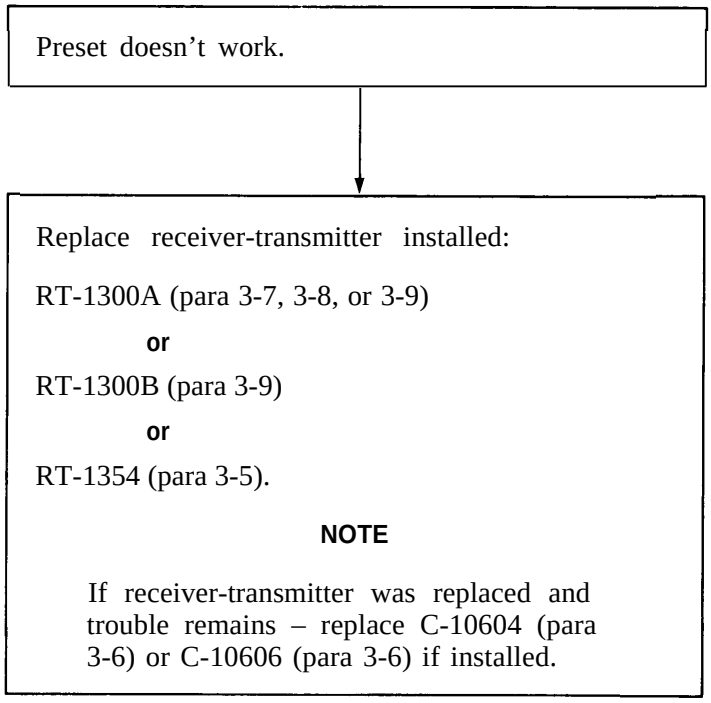
## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-21



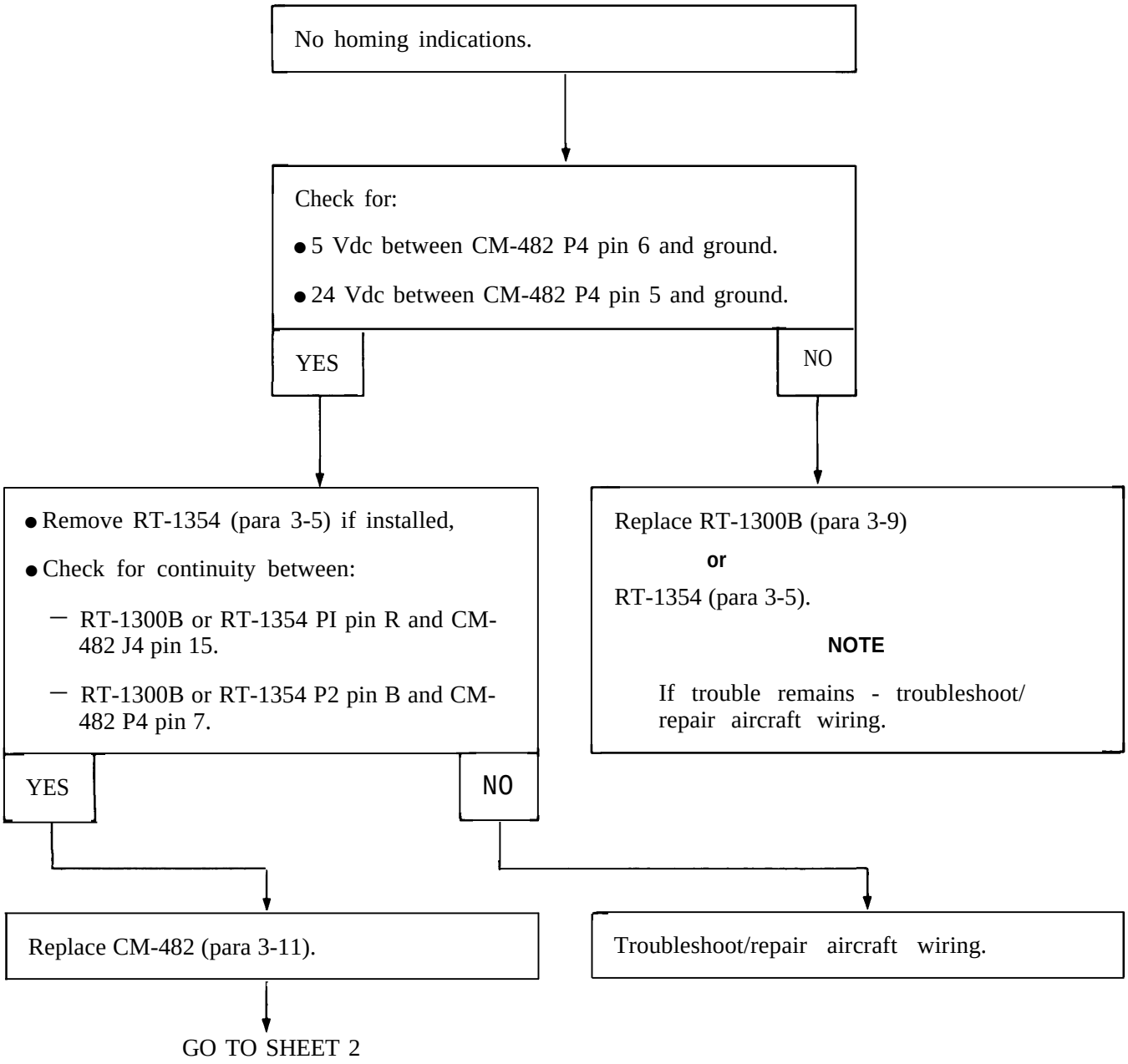
## 3-4. RADIO SET TROUBLESHOOTING (Continued

TROUBLE 3-22



## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-23 (SHEET 1)




GO TO SHEET 2

**3-4. RADIO SET TROUBLESHOOTING (Continued)**

TROUBLE 3-23 (SHEET 2)

YES

If trouble remains – replace:

- RT-1300B (para 3-9)

**or**

- RT-1354 (para 3-5).

If trouble still remains troubleshoot/repair aircraft:

- Homing antennas and wiring

**or**

- Homing indicator and wiring

**or**

- Data bus system (RT-1300 only).

TROUBLE 3-24 (SHEET 1)

No homing indications.

Check for:

- 5 Vdc between MT-6048A P6 pin 6 and ground.
- 24 Vdc between MT-6048A P6 pin 5 and ground.

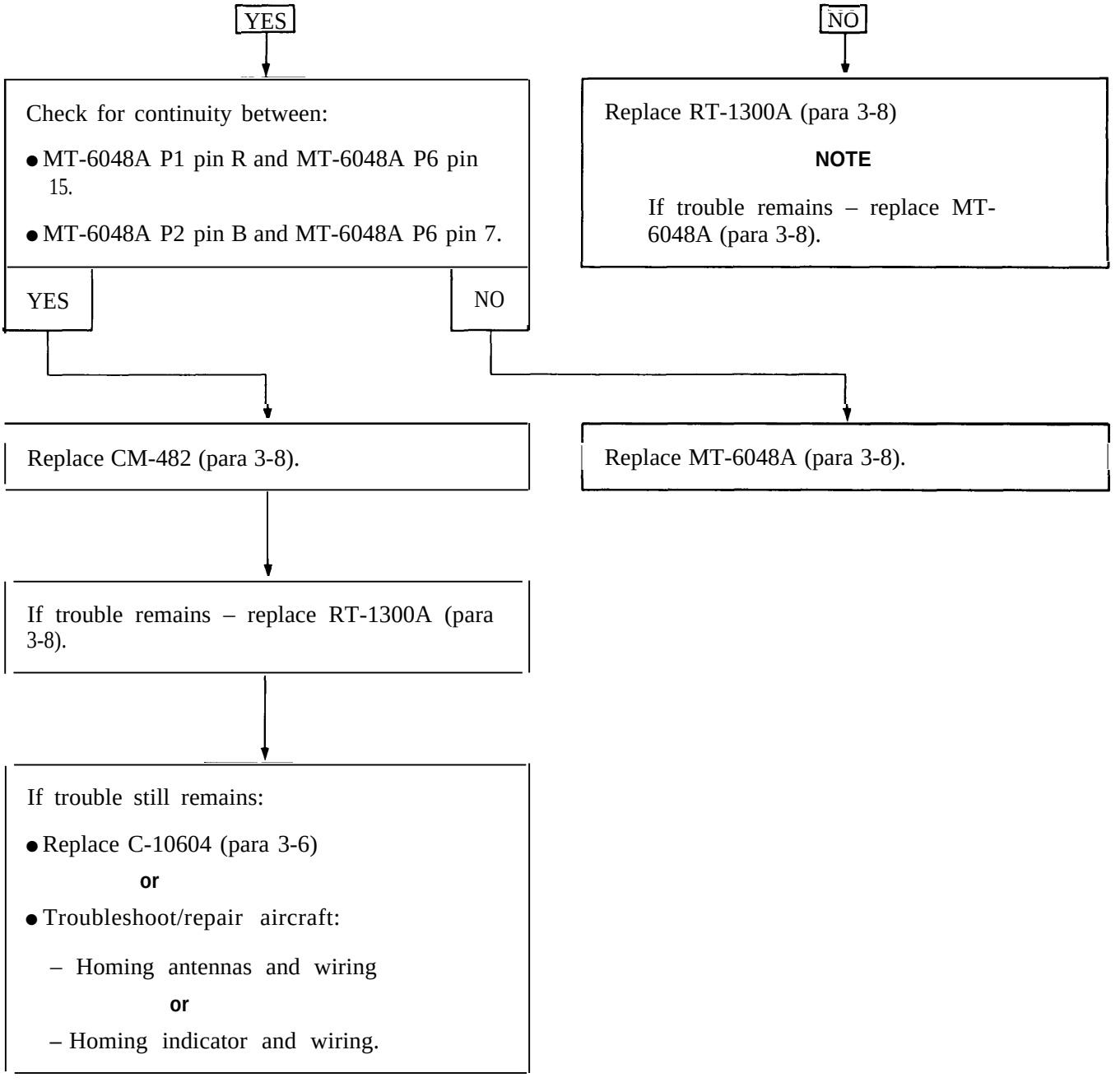
YES

NO

GO TO SHEET 2

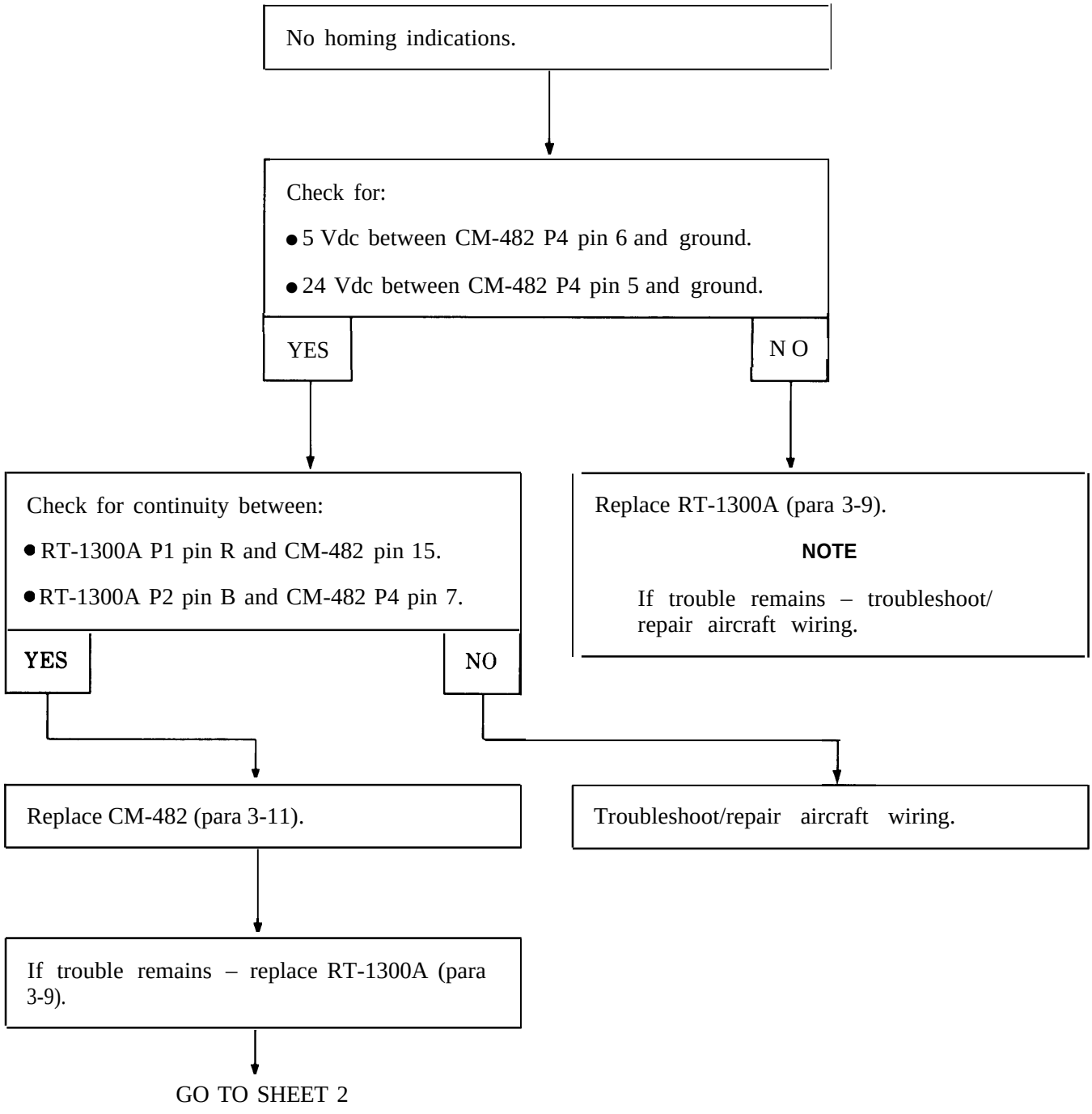
## 13-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-24 (SHEET 2)



## 13-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-25 (SHEET 1)



**3-4. RADIO SET TROUBLESHOOTING (Continued)**

TROUBLE 3-25 (SHEET 2)

YES

If trouble still remains:

- Replace C-10604 (para 3-6)

**or**

- Troubleshoot/repair aircraft:
  - Homing antennas and wiring

**or**

  - Homing indicator and wiring.

TROUBLE 3-26 (SHEET 1)

No homing indications.

Check for:

- 5 Vdc between CM-492 P6 pin W and ground.
- 24 Vdc between CM-492 P6 pin D and ground.

YES

NO

- Remove RT-1354 (para 3-5) if installed.
- Check for continuity between:
  - RT-1300A, RT-1300B, or RT-1354 P1 pin R and CM-492 P6 pin R.
  - RT-1300A, RT-1300B, or RT-1354 P2 pin B and CM-492 P6 pin U.

YES

NO

GO TO SHEET 2

Replace RT-1300A (para 3-9)

**or**

RT-1300B (para 3-9)

**or**

RT-1354 (para 3-5).

**NOTE**

If trouble remains – troubleshoot/ repair aircraft wiring.

## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-26 (SHEET 2)

YES

Replace CM-492 (para 3-10).

If trouble remains – replace:

- RT-1300A (para 3-9)

**or**

- RT-1300B (para 3-9)

**or**

- RT-1354 (para 3-5).

**NOTE**

Skip this block – go to next one if RT-1300B or RT-1354 installed.

If trouble still remains – replace C-10604 (para 3-6).

If trouble still remains – troubleshoot/repair aircraft:

- Homing antennas and wiring

**or**

- Homing indicator and wiring

**or**

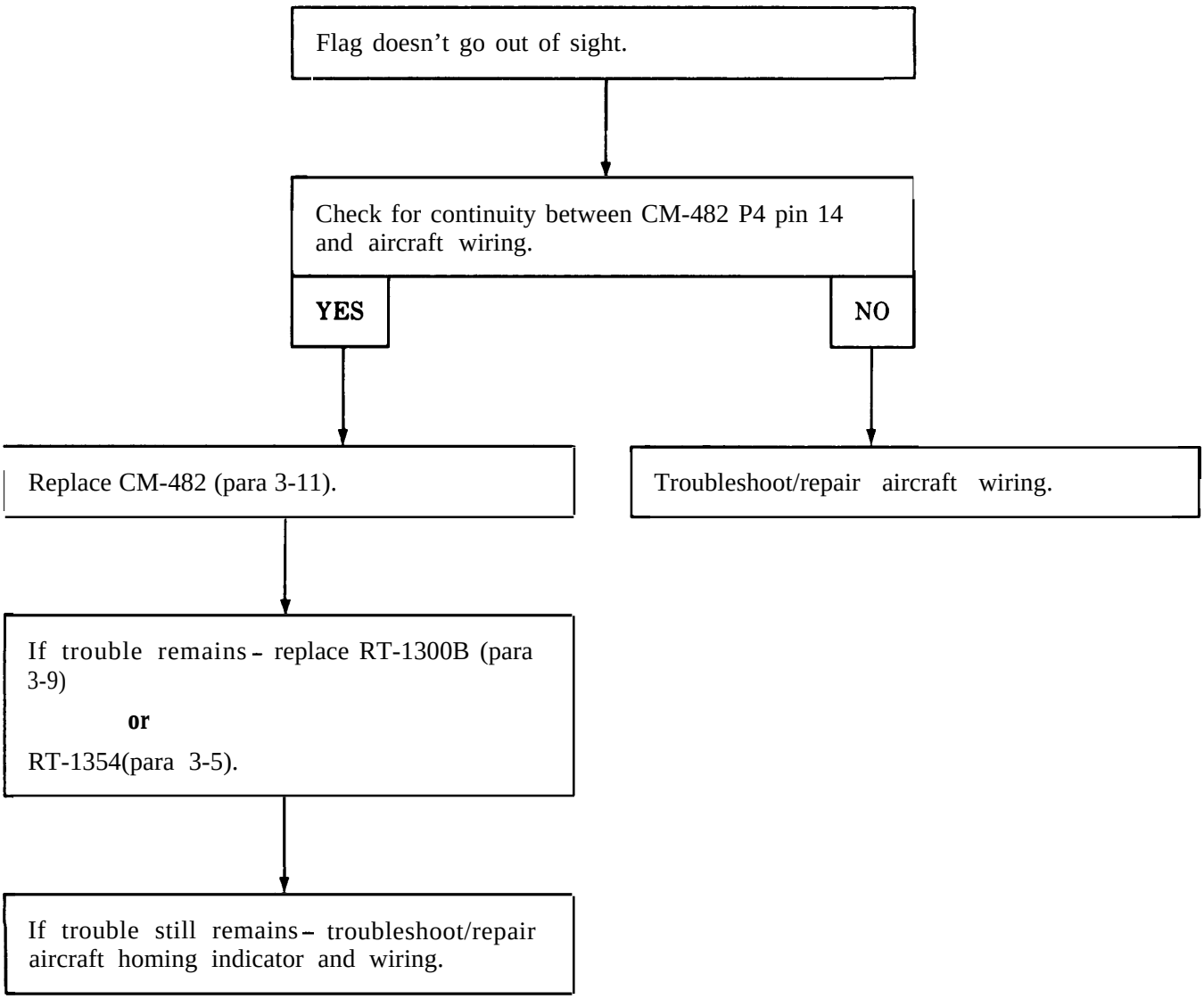
- Data bus system (RT-1300B only).

NO

Troubleshoot/repair aircraft wiring.

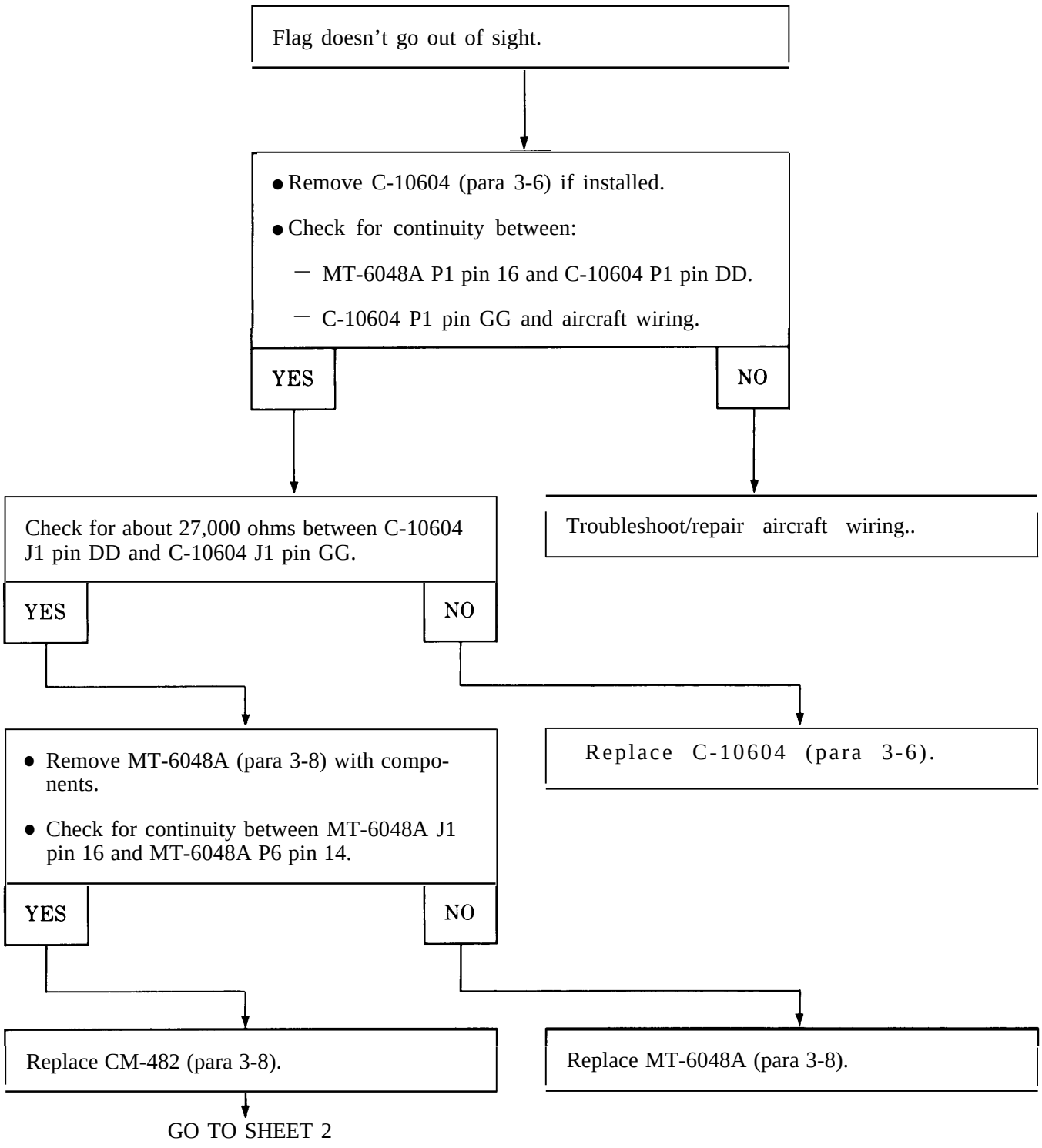
## 3-4 RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-27



**3-4. RADIO SET TROUBLESHOOTING (Continued)**

TROUBLE 3-28 (SHEET 1)



## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-28 (SHEET 2)

YES

If trouble remains – replace RT-1300A (para 3-8).

If trouble still remains – troubleshoot/repair aircraft homing indicator and wiring.

TROUBLE 3-29 (SHEET 1)

Flag doesn't go out of sight.

- Remove C-10604 (para 3-6) if installed.
- Check for continuity between:
  - CM-482 J4 pin 14 and C-10604 P1 pin DD.
  - C-10604 P1 pin GG and aircraft wiring.

YES | NO

Check for about 27,000 ohms between C-10604 J1 pin DD and C-10604 J1 pin GG.

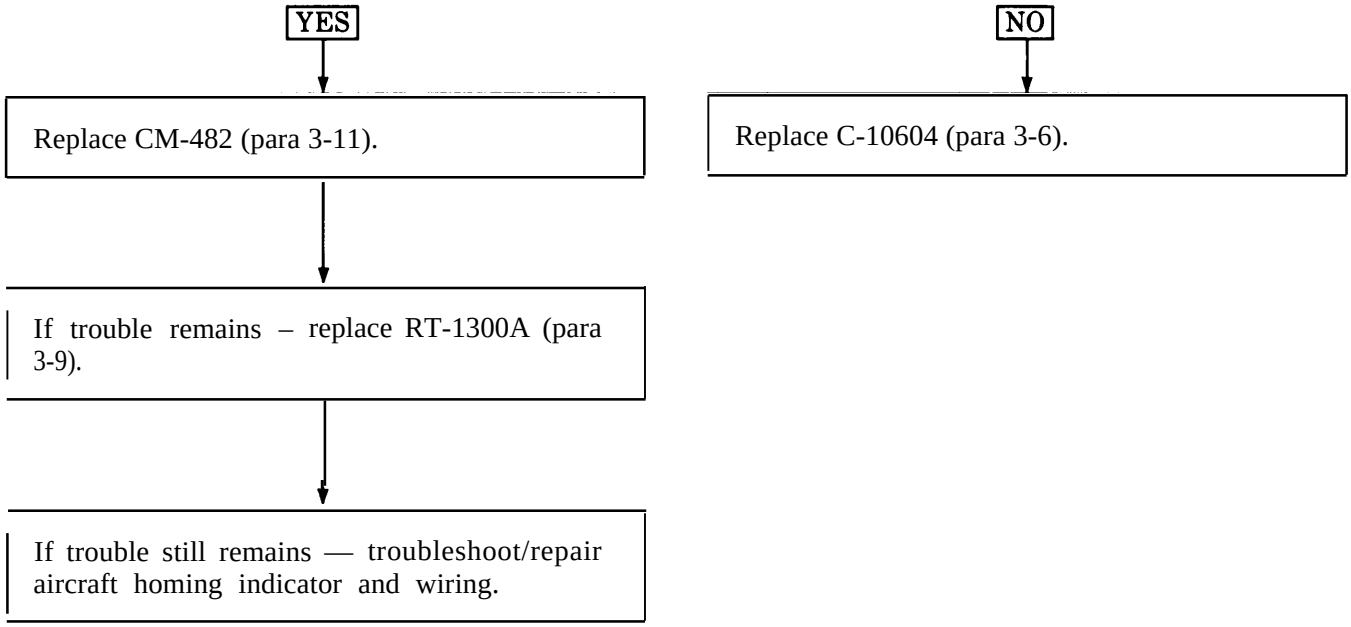
YES | NO

GO TO SHEET 2

Troubleshoot/repair aircraft wiring.

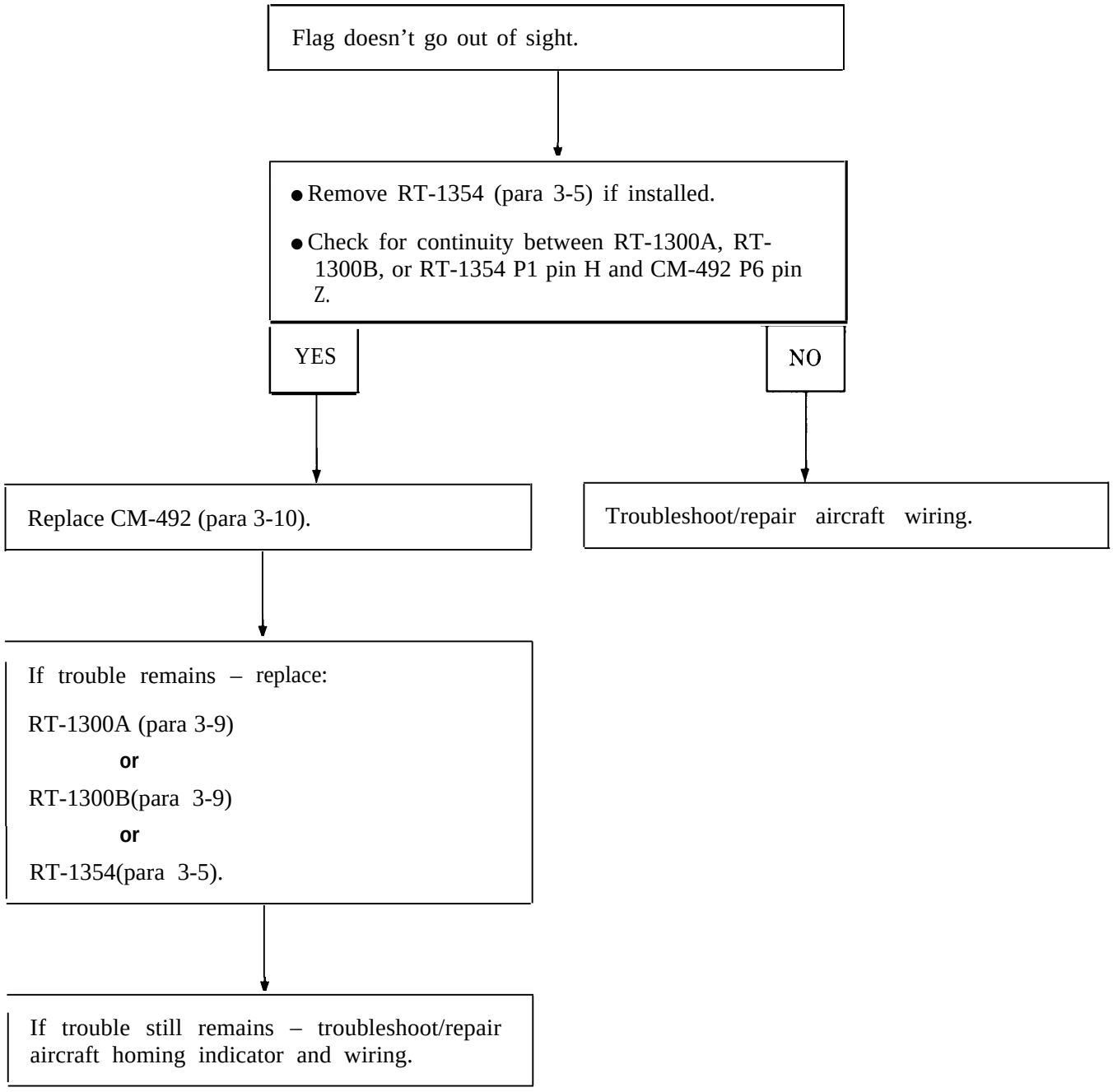
**3-4. RADIO SET TROUBLESHOOTING (Continued)**

TROUBLE 3-29 (SHEET 2)



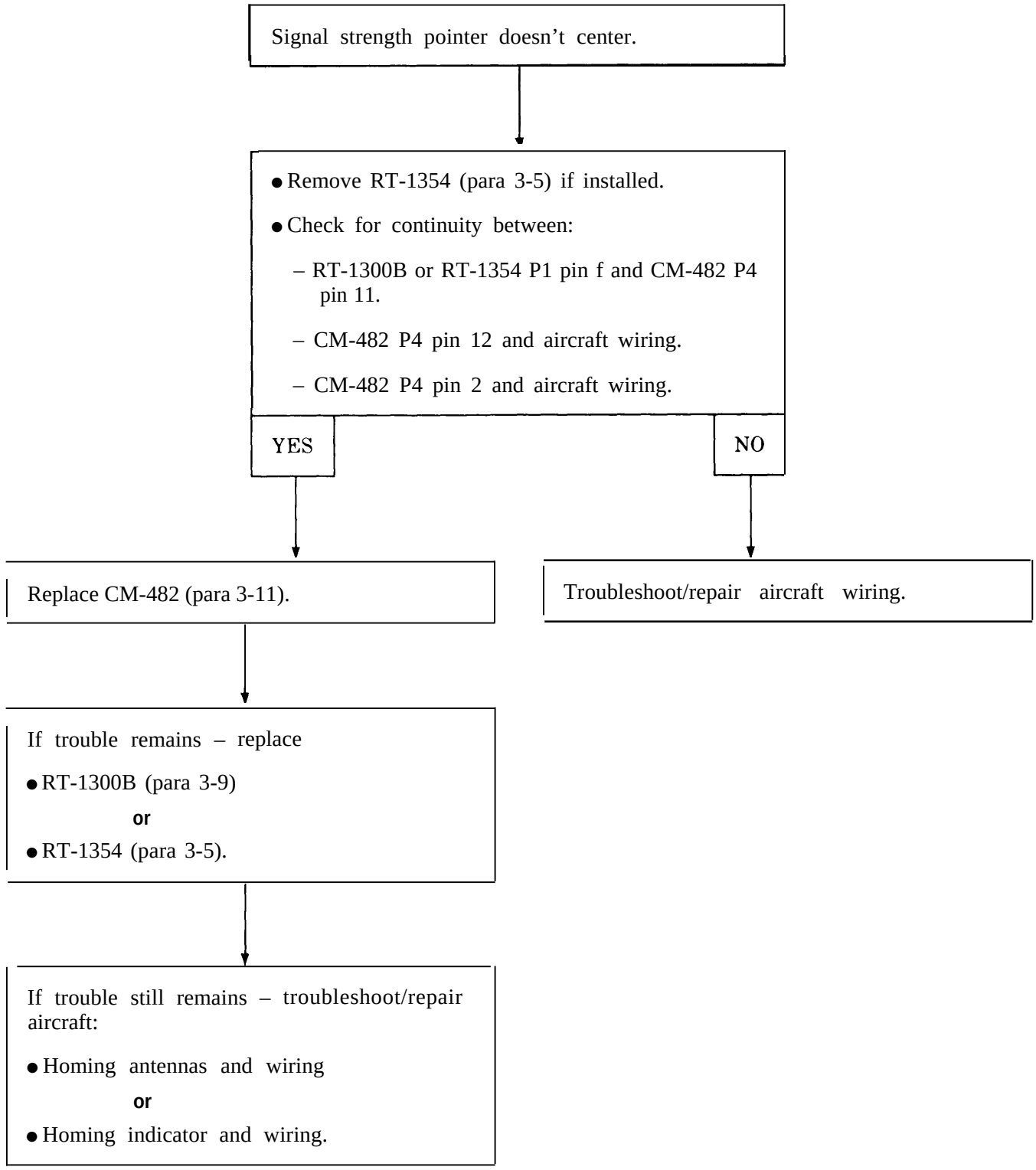
## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-30



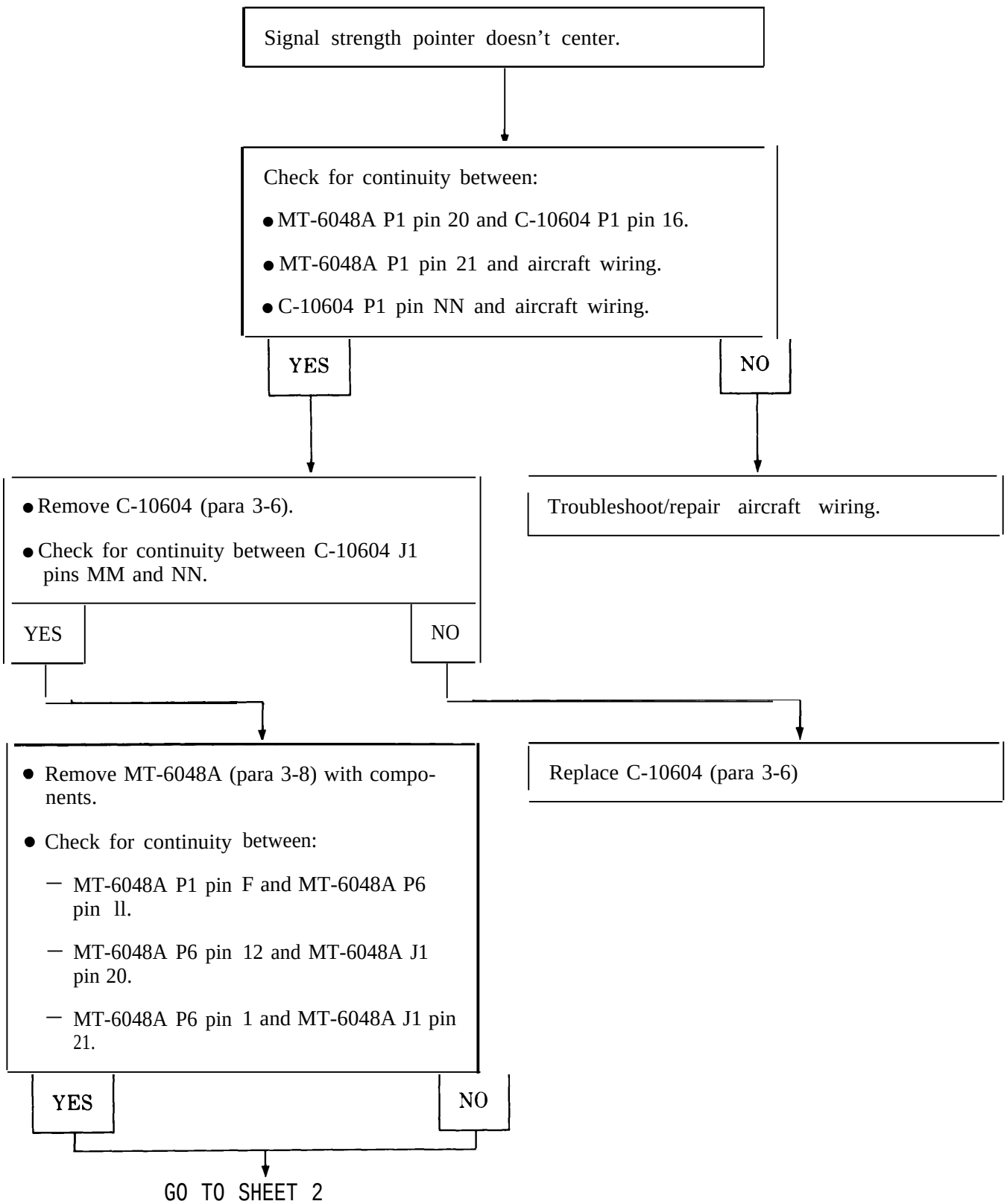
**13-4. RADIO SET TROUBLESHOOTING (Continued)**

TROUBLE 3-31



## 13-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-32 (SHEET 1)



**3-4. RADIO SET TROUBLESHOOTING (Continued)**

TROUBLE 3-32 (SHEET 2)

YES

Replace CM-482 (para 3-8).

If trouble remains — replace RT-1300A (para 3-8).

If trouble still remains – troubleshoot/repair aircraft:

- Homing antennas and wiring

**or**

- Homing indicator and wiring.

NO

Replace MT-6048A (para 3-8).

TROUBLE 3-33 (SHEET 1)

Signal strength pointer doesn't center.

Check for continuity between:

- RT-1300A P1 pin F and and CM-482 P4 pin 11.
- CM-482 P4 pin 12 and C-10604 P1 pin MM.
- CM-482 P4 pin 1 and aircraft wiring.
- C-10604 P1 pin NN and aircraft wiring.

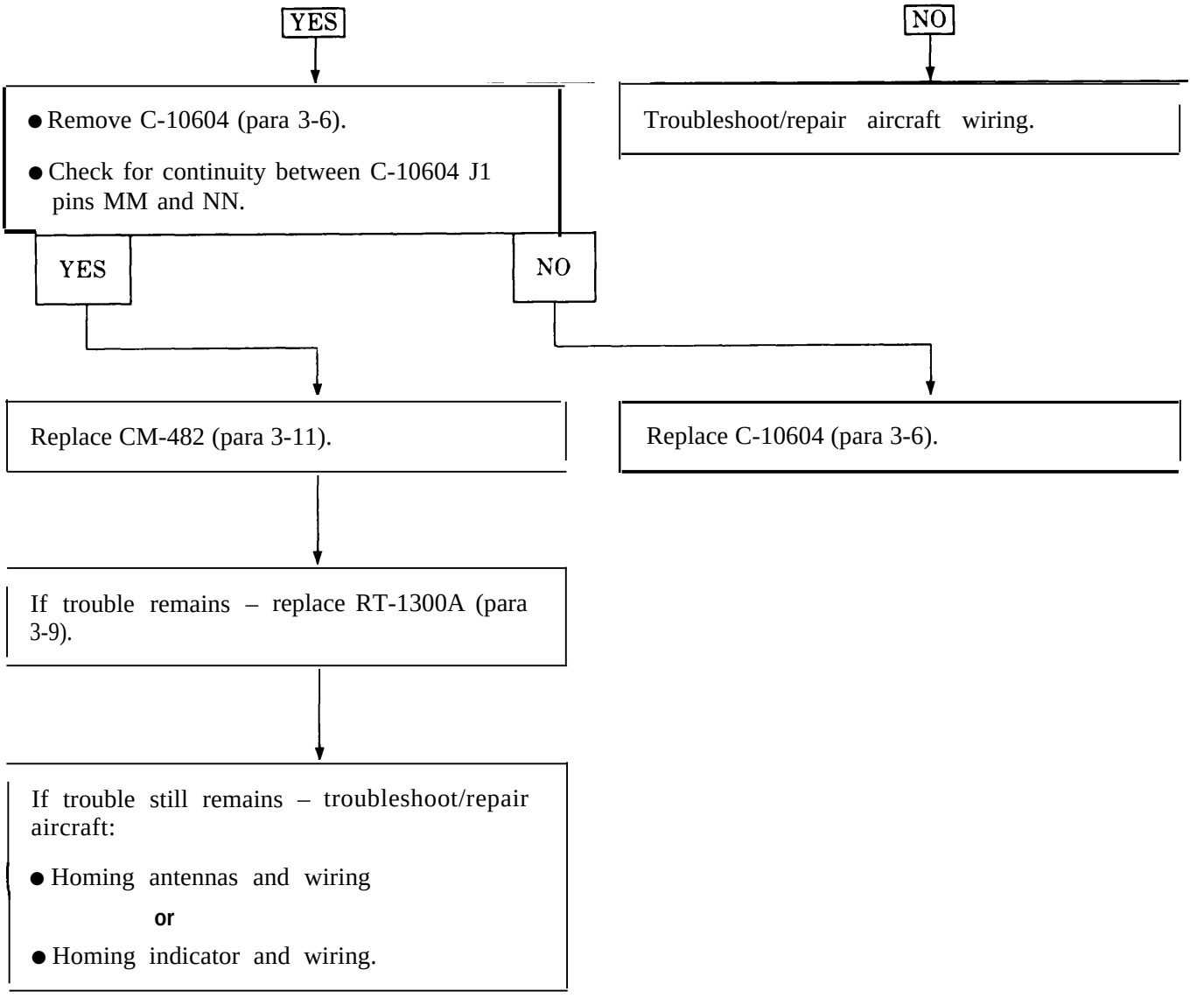
YES

NO

GO TO SHEET 2

## 13-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-33 (SHEET 2)



## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-34

Signal strength pointer doesn't center.

- Remove RT-1354 (para 3-5) if installed.
- Check for continuity between RT-1300A, RT-1300B, or RT-1354 P1 pin F and CM-492 P1 pin F.

YES

Replace CM-492 (para 3-10).

If trouble remains – replace:

- RT-1300A (para 3-9)

**or**

- RT-1300B (para 3-9)

**or**

- RT-1354 (para 3-5).

If trouble still remains – troubleshoot/repair aircraft:

- Homing antennas and wiring

**or**

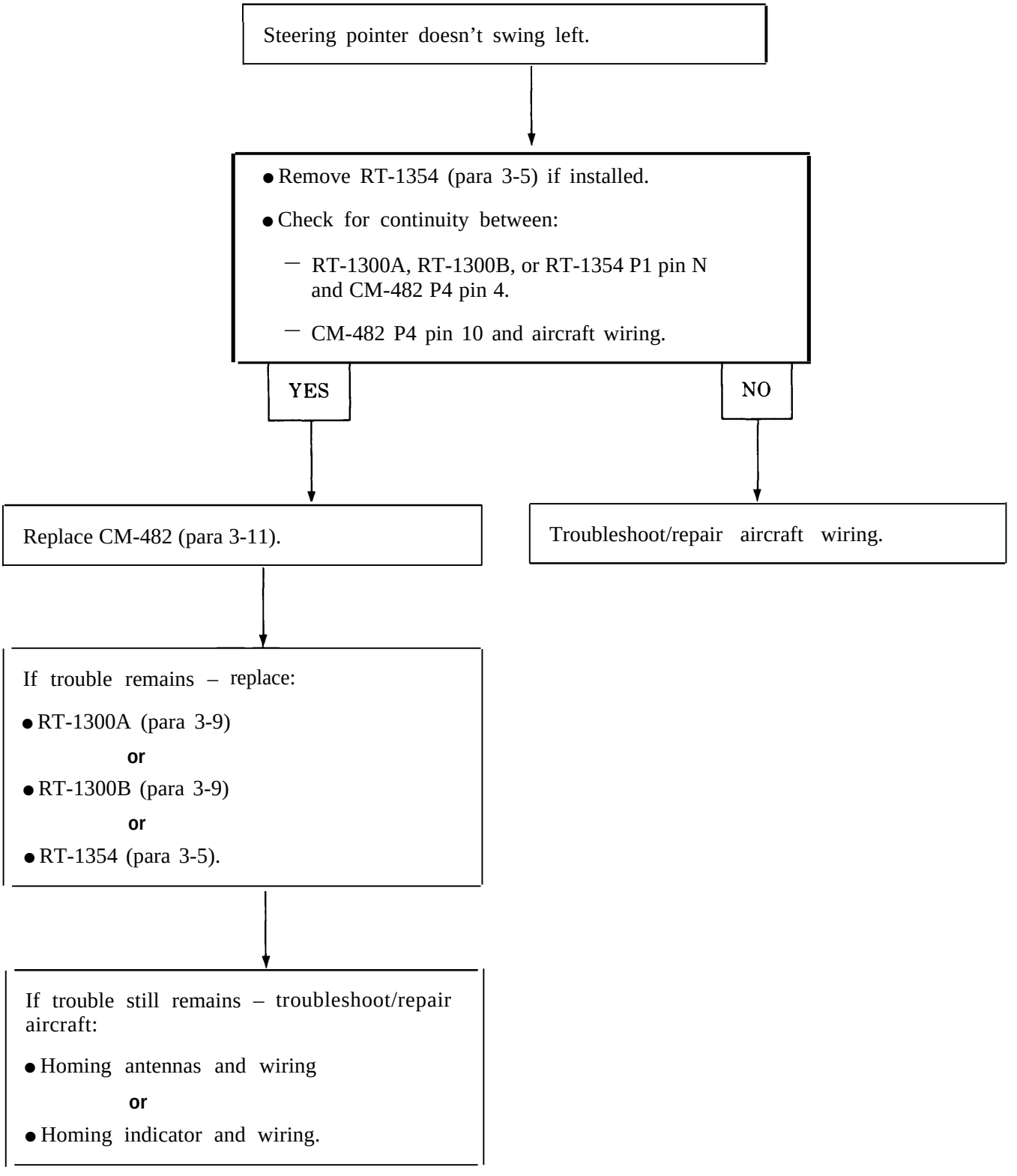
- Homing indicator and wiring.

NO

Troubleshoot/repair aircraft wiring.

## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-35



## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-36

Steering pointer doesn't swing left.

Check for continuity between MT-6048A P1 pin 19 and aircraft wiring.

YES

- Remove MT-6048A (para 3-8) from MT-1535/3664.
- Check continuity between:
  - MT-6048A P1 pin N and MT-6048A P6 pin 4.
  - MT-6048A P6 pin 10 and MT-6048A J1 pin 19.

YES

Replace CM-482 (para 3-8).

If trouble remains – replace RT-1300A (para 3-8).

If trouble still remains – troubleshoot/repair aircraft:

- Homing antennas and wiring

**or**

- Homing indicator and wiring.

NO

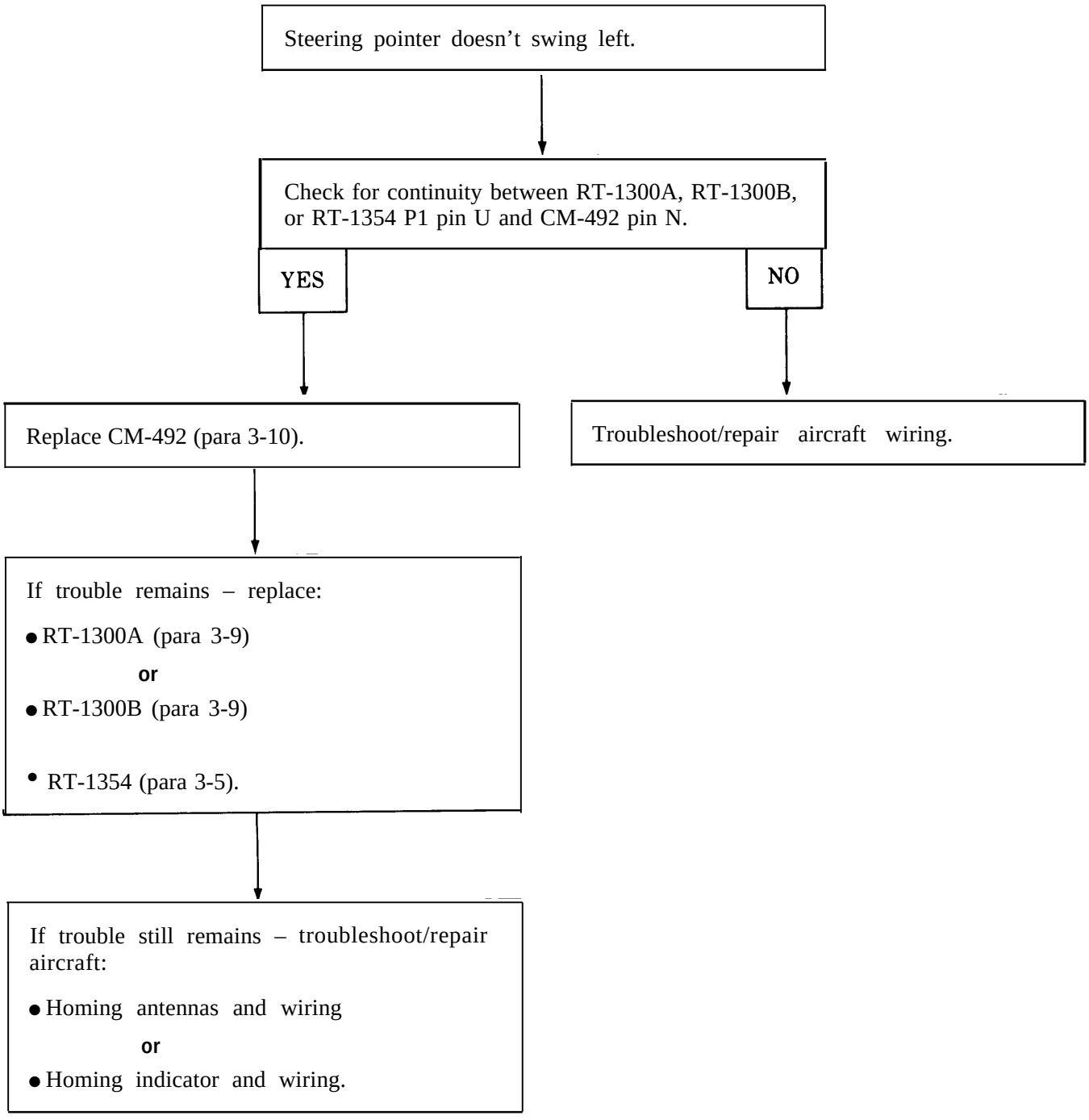
Troubleshoot/repair aircraft wiring.

NO

Replace MT-6048A (para 3-8).

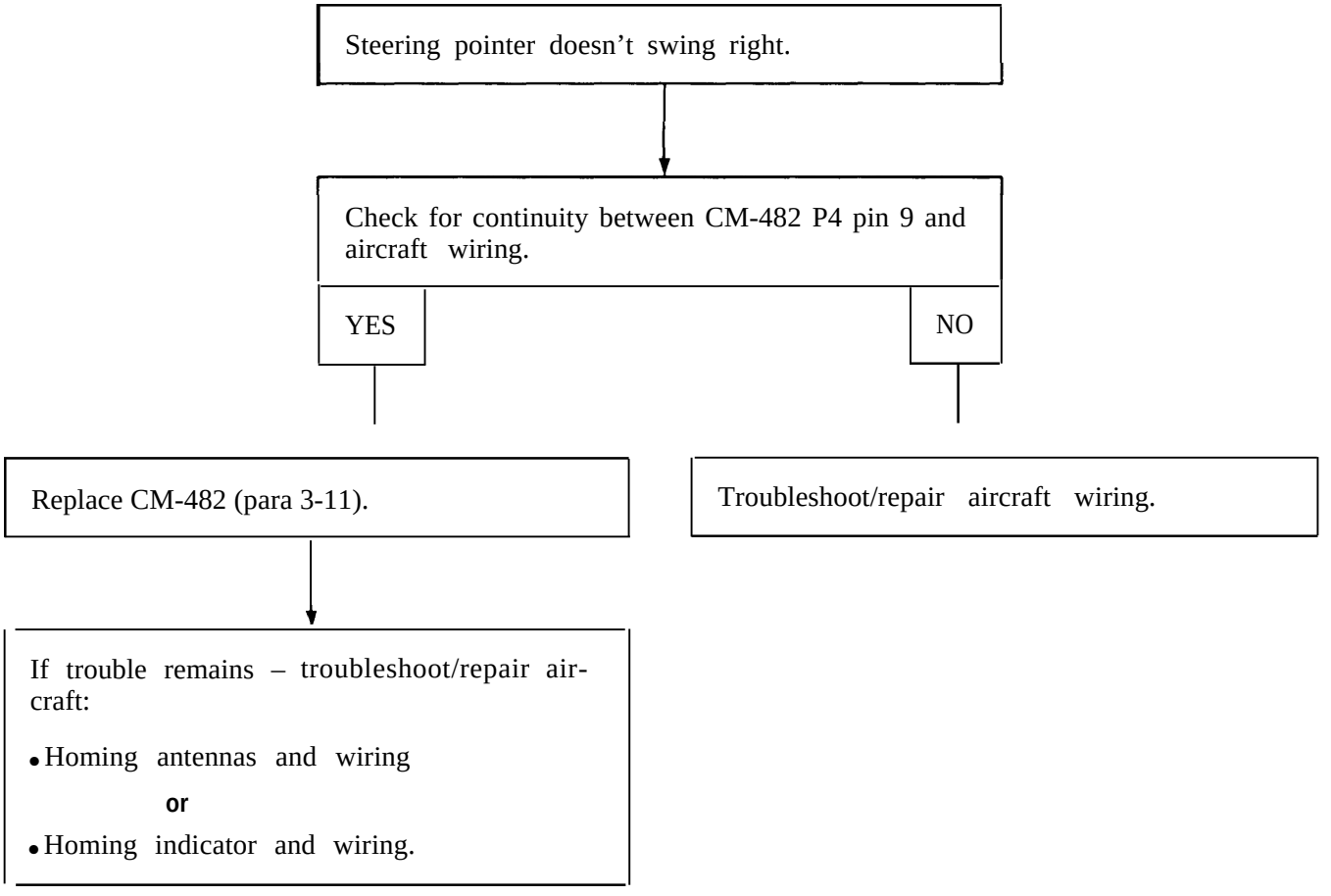
## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-37

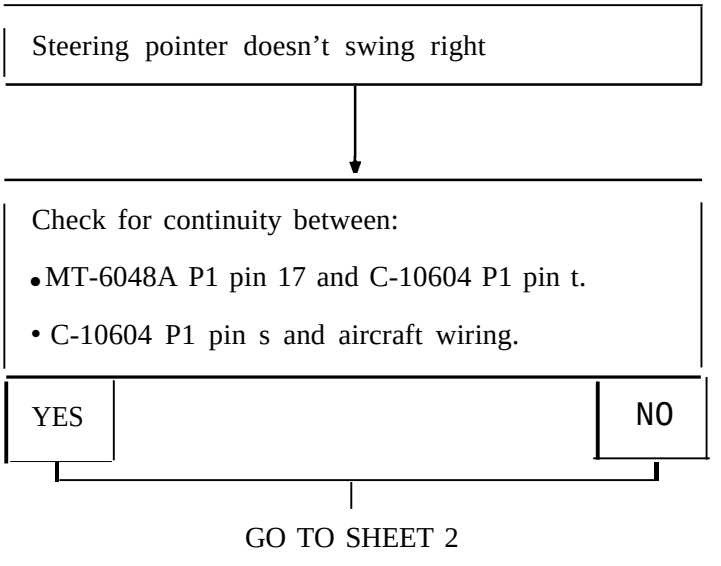


## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-38

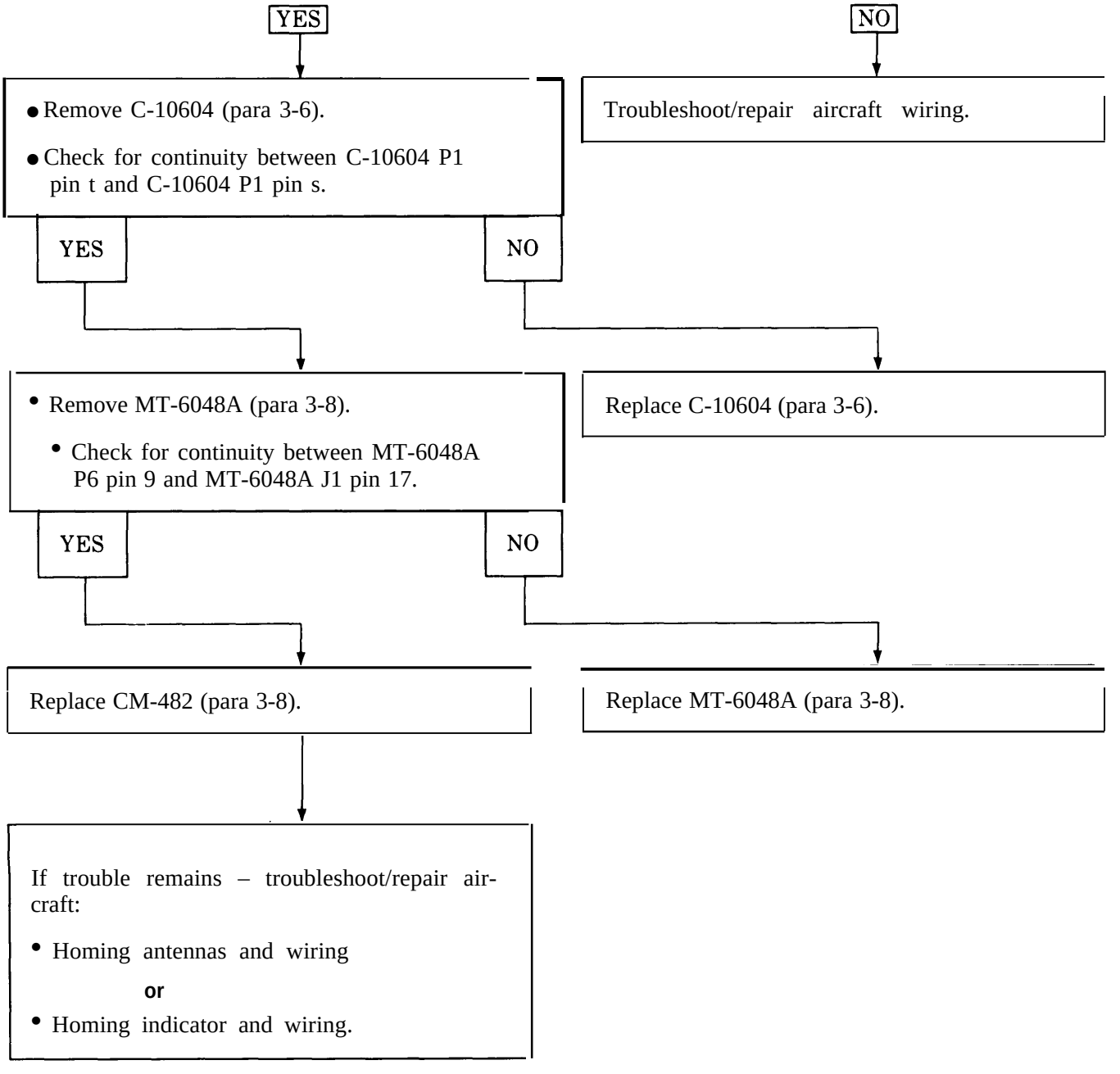



TROUBLE 3-39 (SHEET 1)



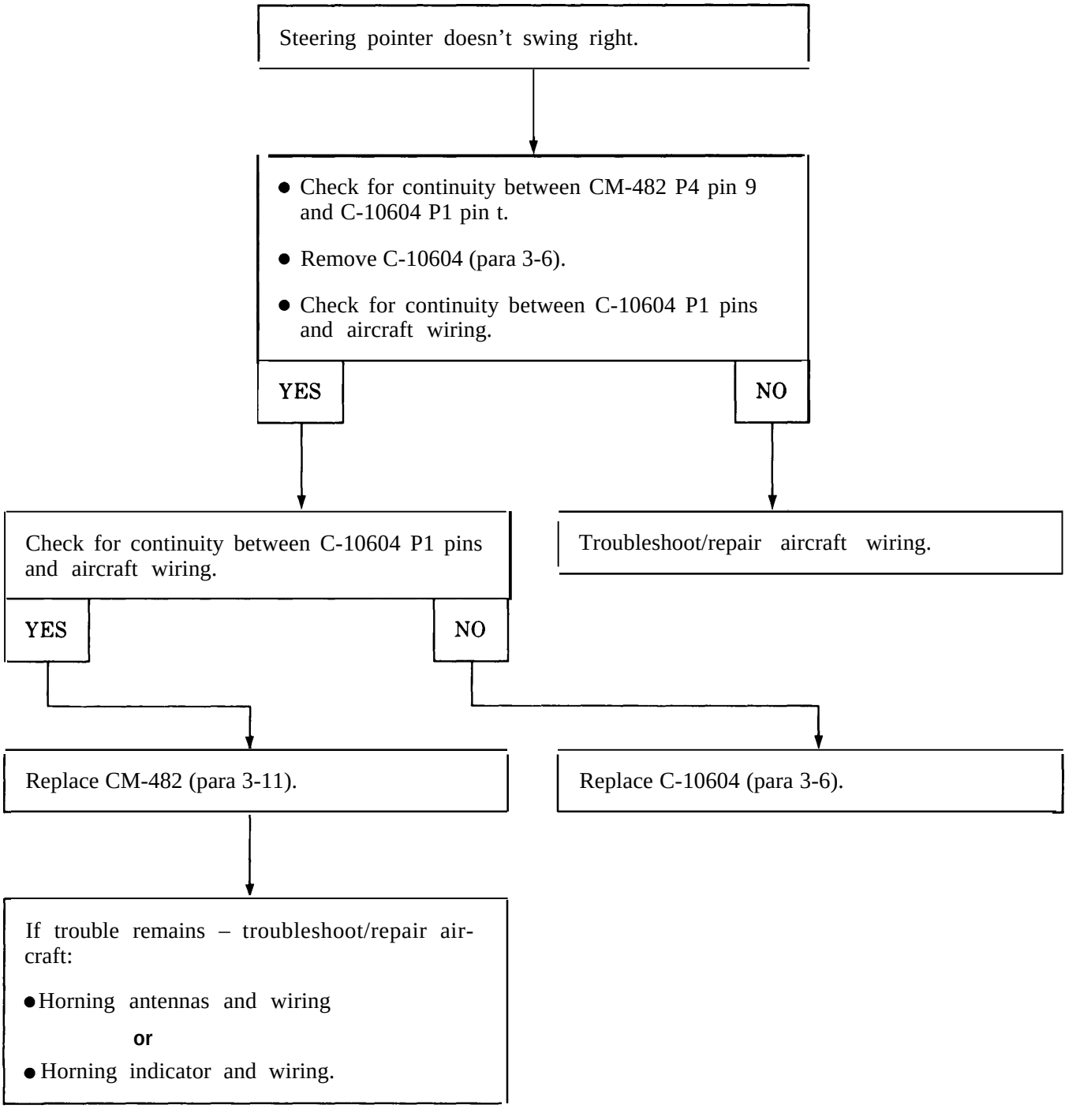
## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-39 (SHEET 2)



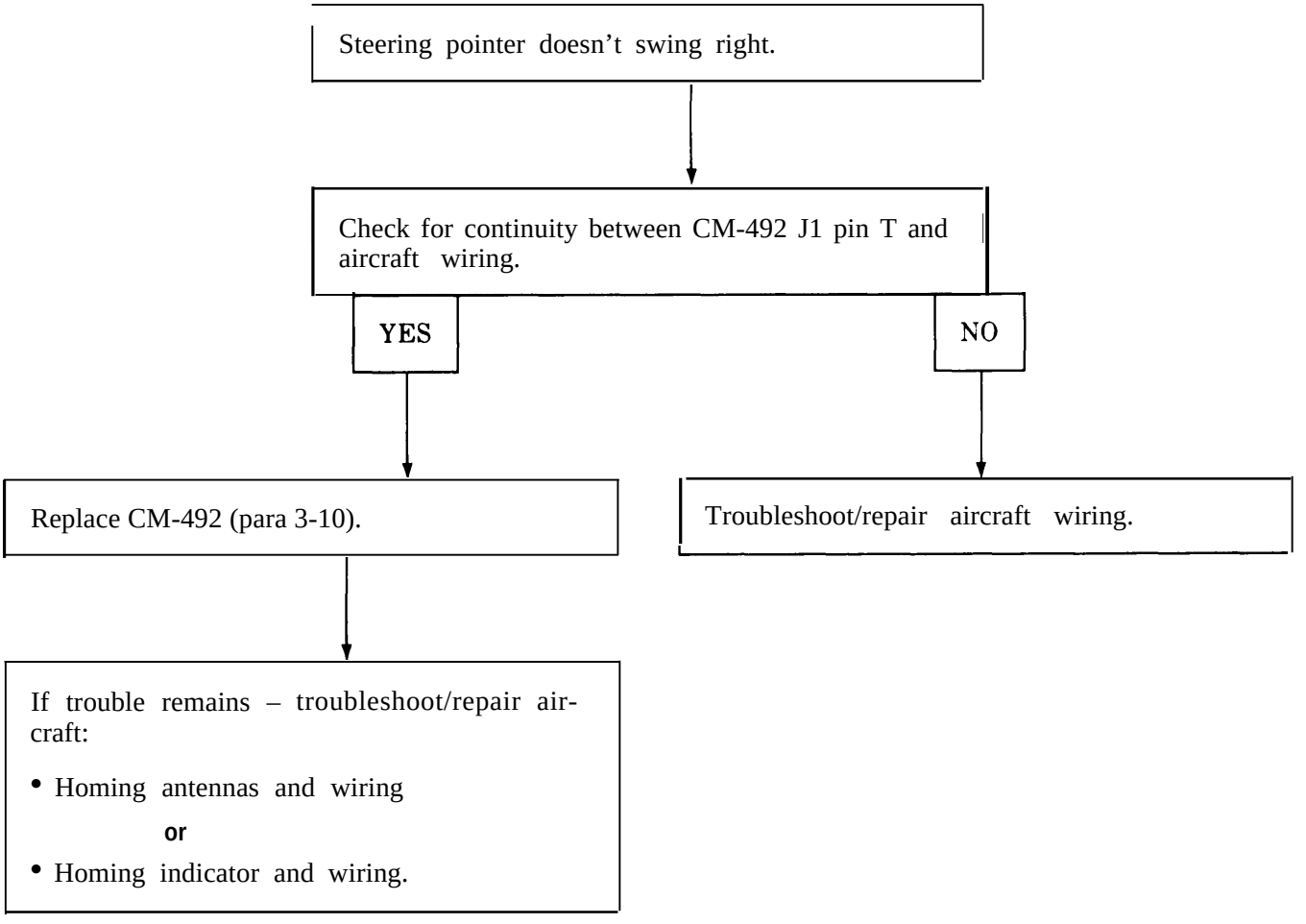
## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-40



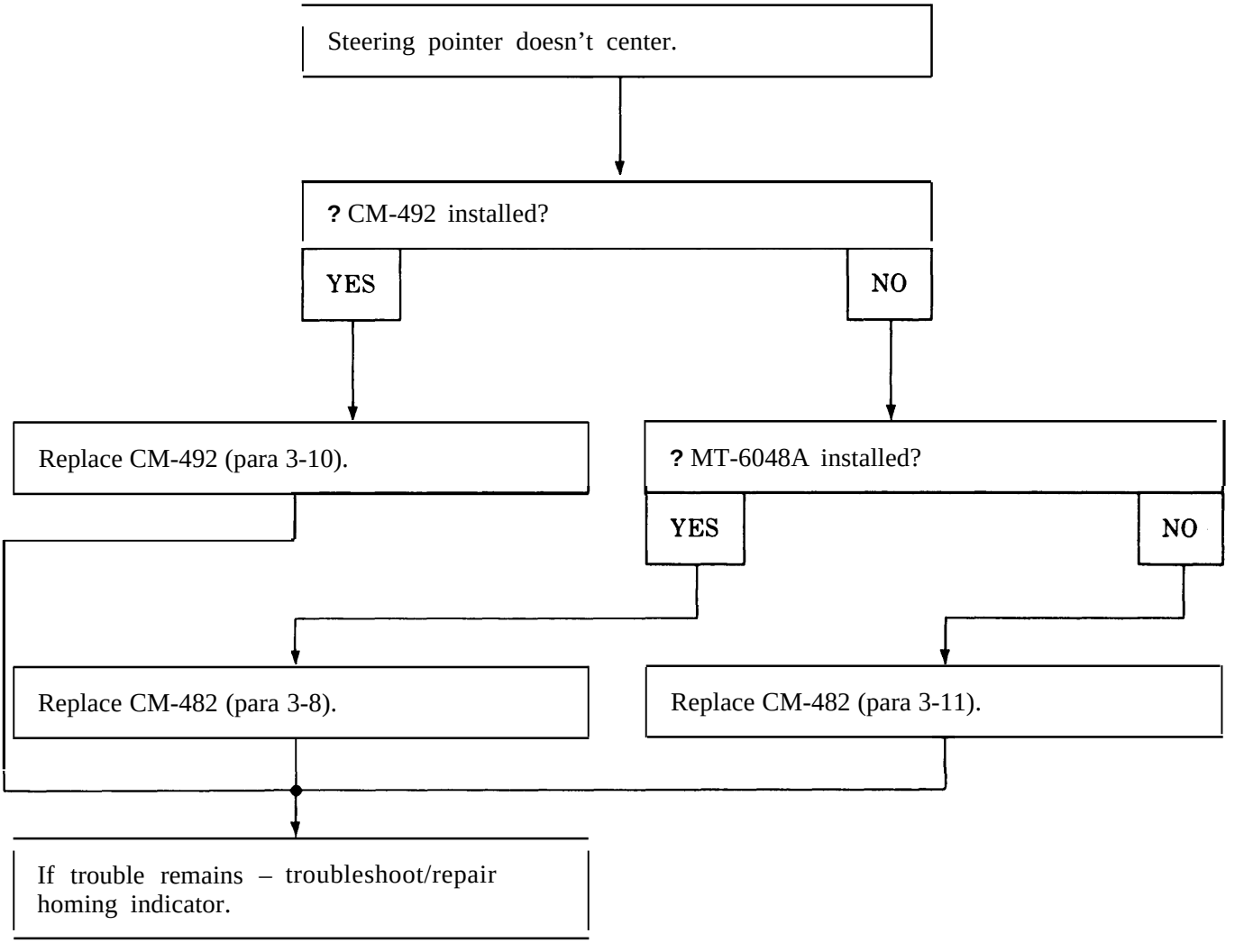
**3-4. RADIO SET TROUBLESHOOTING (Continued)**

TROUBLE 3-41



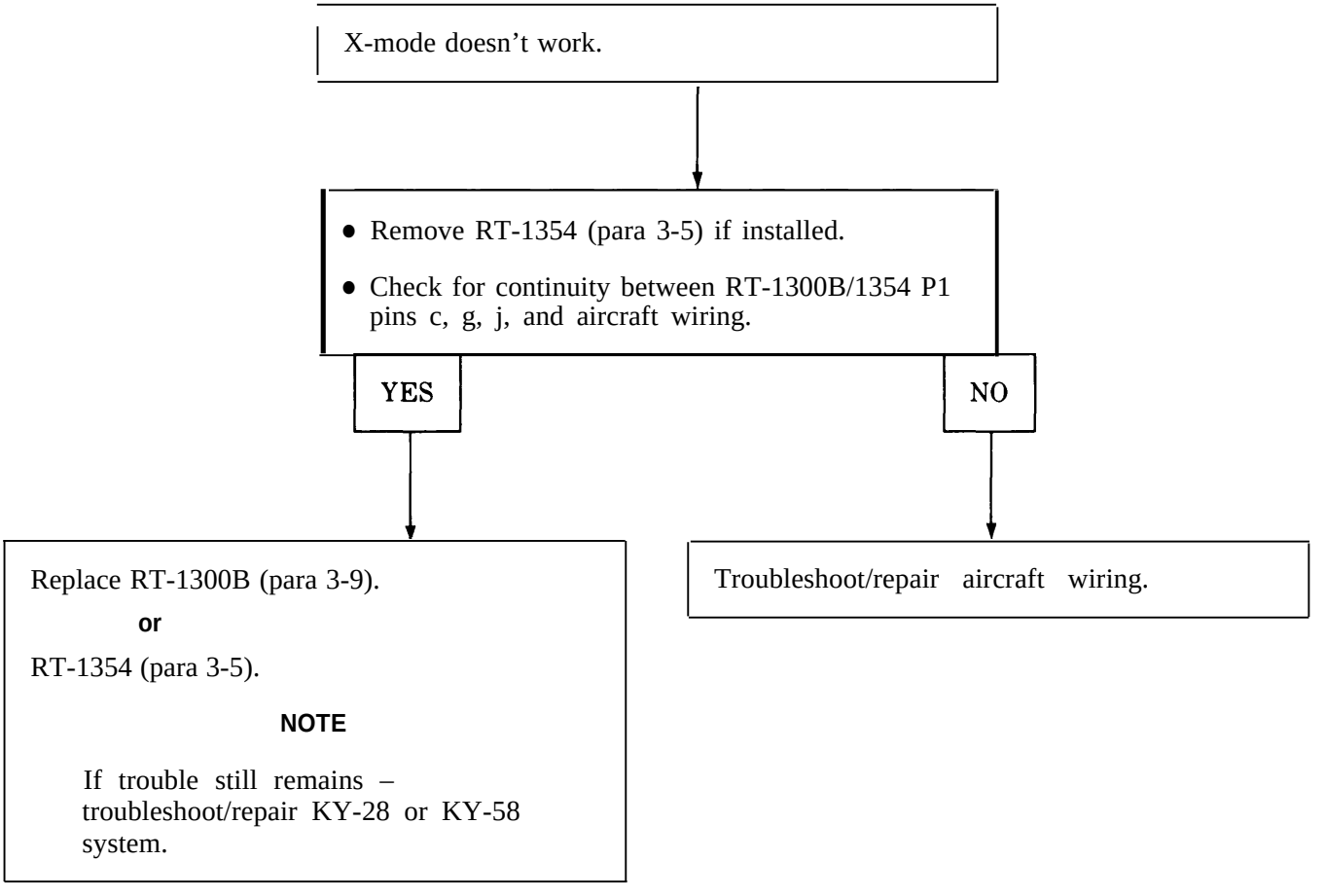
## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-42



## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-43



## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-44

X-mode doesn't work.

Check for continuity between MT-6048A P1 pins 15, 39, 7, and aircraft wiring.

YES

NO

- Remove MT-6048A (para 3-8) with components.
- Check for continuity between:

MT-6048A P1 and MT-6048A J1

| | |
|---|---|
| c | 15 |
| g | 39 |
| j | 7 |

YES

NO

Troubleshoot/repair aircraft wiring.

Replace RT-1300A (para 3-8).

Replace MT-6048A (para 3-8).

If trouble remains – remove C-10604 (para 3-6); check for continuity between C-10604 P1 pins EE, W, and aircraft wiring.

If trouble still remains – replace C-10604 (para 3-6).

## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-45

X-mode doesn't work.

Check for continuity between MT-6050 P1 pins 36, 19, 33, and aircraft wiring.

YES

NO

- Remove MT-6050 (para 3-7) with components,
- Check for continuity between:

| MT-6050 J1A and MT-6050 P1 | |
|---|---|
| 36 | c |
| 19 | g |
| 33 | J |

Troubleshoot/repair aircraft wiring.

YES

NO

Replace RT-1300A (para 3-7)

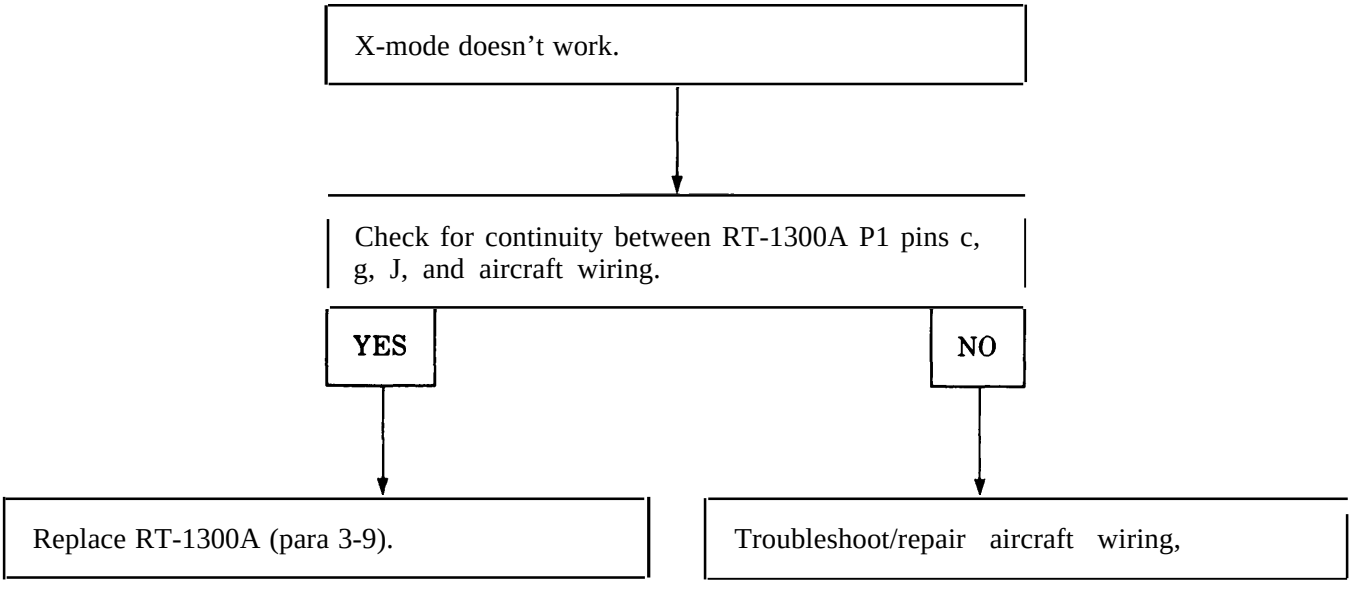
Replace MT-6050 (para 3-7).

If trouble remains – check for continuity between C-10606 P1 pins i, j, and aircraft wiring.

If trouble still remains – replace C-10606 (para 3-6).

## 3-4. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-46



# Section IV. MAINTENANCE PROCEDURES

## SECTION OVERVIEW

**NOTE**

Before you start – read the task a few times to be sure you understand what you have to do.

Maintenance consists of:

- Replacing bad radio set components.
- Adjusting RT-1354, RT-1300A, and RT-1300B for AM and FM, AM-only, or FM-only operation.

## 3-5. REPLACE RT-1354

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP

INITIAL SETUP

Applicable Configurations

All

Tools and Support Equipment

Tool Kit TK-101/G

3/16-in. flat-tip screwdriver
l/8-in. flat-tip screwdriver

Materials/Parts

Radio Receiver-Transmitter RT-1354/ARC-186(V)

Personnel Required

Avionic Mechanic MOS 35K

References

Avionics configuration manual for your aircraft

Troubleshooting References

Paragraph 3-4

Equipment Condition

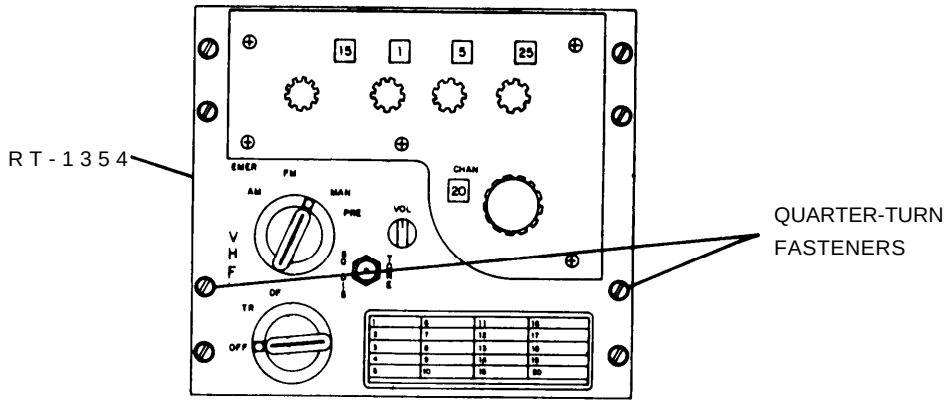
Aircraft power off

General Safety Instructions

See aircraft cautions and warnings before starting procedure.

## 3-5. REPLACE RT-1354 (Continued)

REMOVAL

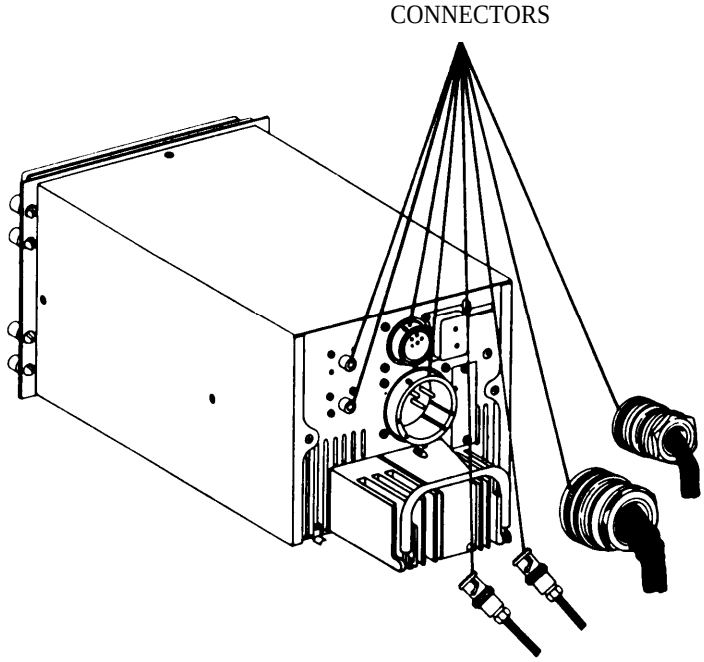



**STEP 1** Unlock eight quarter-turn fasteners.

**STEP 2** Slide RT-1354 from aircraft console until you can reach connectors.

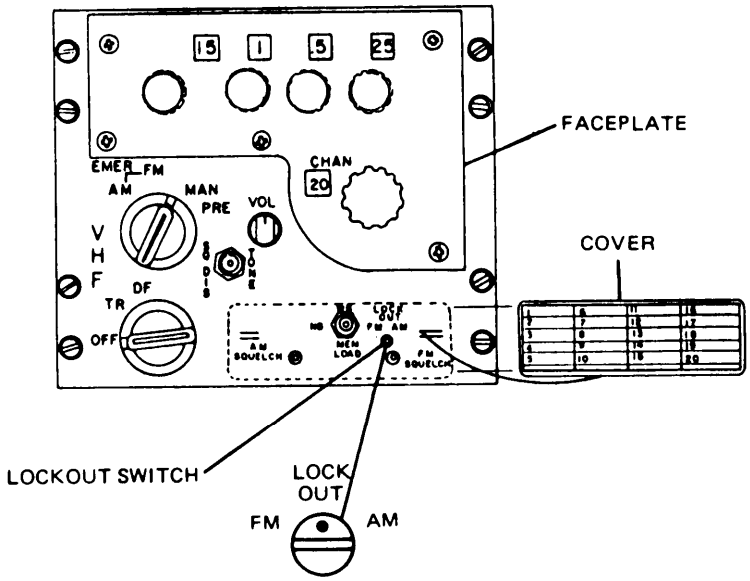
**NOTE**

RT-1354 may have one or two coaxial cables connected. Number of cables depends on how RT-1354 is wired in aircraft.




**STEP 3** Disconnect all connectors.

**3-5. REPLACE RT-1354 (Continued)**




**STEP 4** Remove cover by lifting from faceplate.

**STEP 5** Find position of dot on LOCKOUT AM/FM switch. Remember dot position for **STEP 8.**

**STEP 6** Install cover on faceplate.

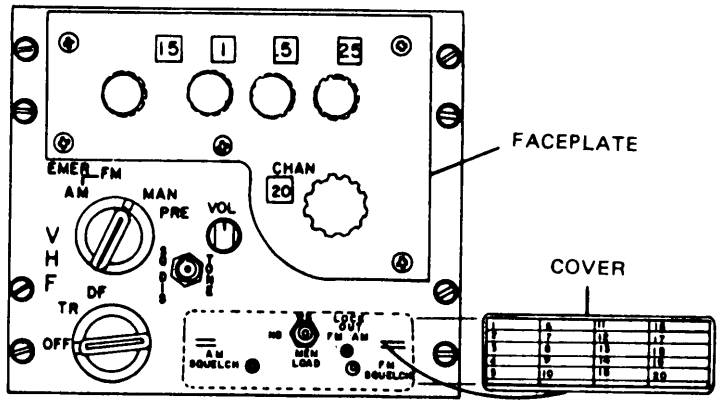
**NOTE**

**STEP 6** completes removal of bad RT-1354.

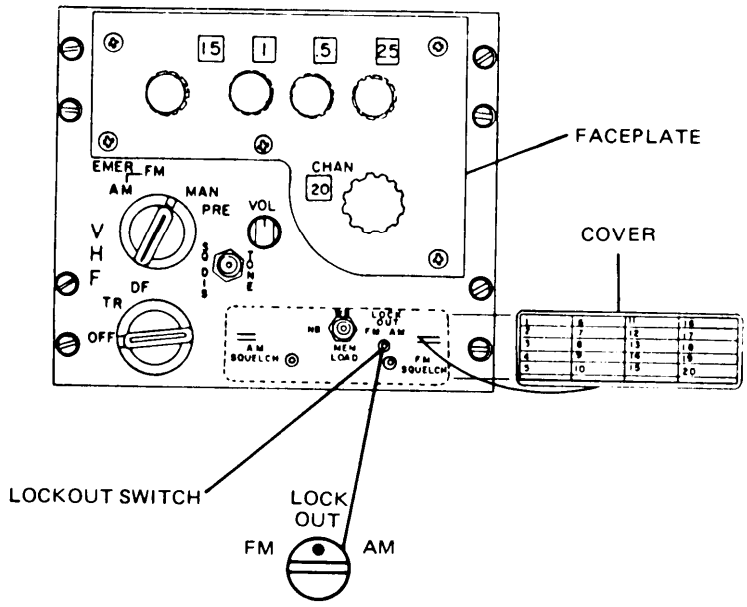
Go to **STEP** 7 – continue with good RT-1354.

**3-5. REPLACE RT-1354 (Continued)**

INSTALLATION




**STEP 7** Remove cover by lifting from faceplate.




**STEP 8** Set LOCKOUT AM/FM switch to position found in **STEP 5.** Be sure dot is at same position.

**STEP 9** Install cover on faceplate.

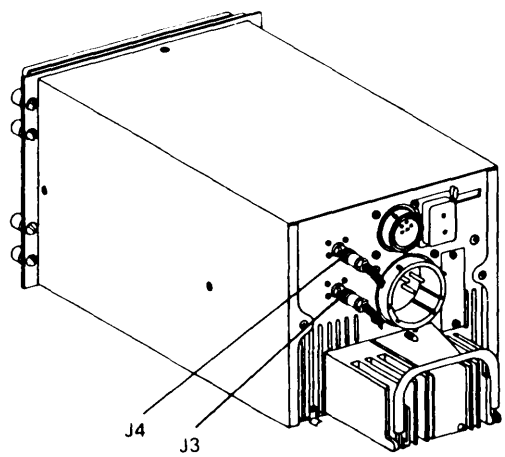
**3-5. REPLACE RT-1354 (Continued)**

**CAUTION**

Your RT-1354 will not operate or may be damaged if the antenna connectors are connected backward. Connectors J3 and J4 are the same type connectors.

**NOTE**

Skip **STEP 10 –** go to **STEP 11** if your RT-1354 is FM only or aircraft has combination vhf AM/FM antenna installed.



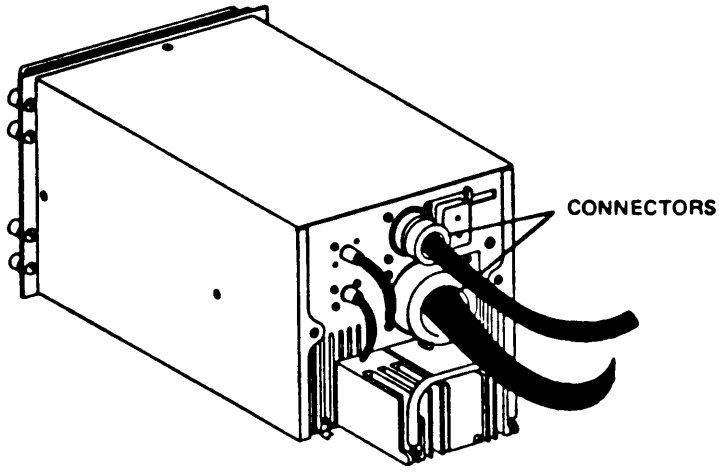

**STEP 10** Connect coaxial cable from AM antenna to J4.

**NOTE**

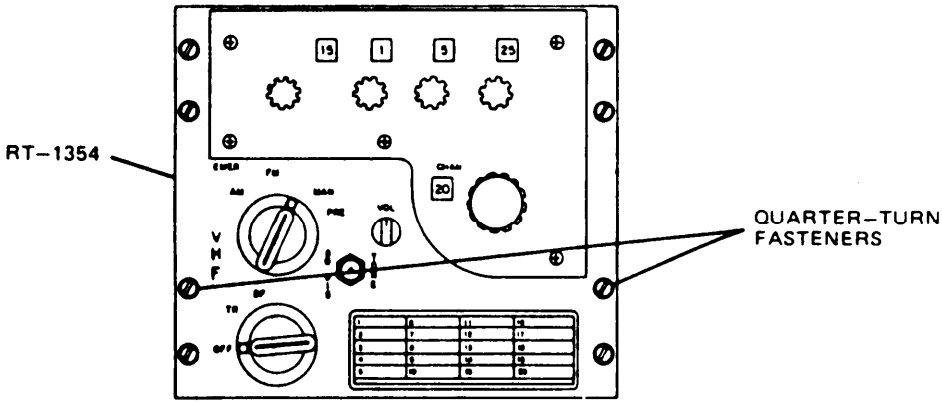
Skip **STEP 11 –** go to **STEP 12** if your RT-1354 is AM only.

**STEP 11** Connect coaxial cable from FM or combination vhf AM/FM antenna to J3.

**3-5. REPLACE RT-1354 (Continued)**




**STEP 12** Connect connectors.




**STEP 13** Slide RT-1354 into aircraft console until mated.

**STEP 14** Lock eight quarter-turn fasteners.

FOLLOWUP TASKS

**STEP 15** Complete radio troubleshooting test (para 3-4).

## 3-6. REPLACE C-10604/10606

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP

INITIAL SETUP

Applicable Configurations

All

Tools and Support Equipment

Tool Kit TK-101/G

3/16-in. flat-tip screwdriver

Materials/Parts

**NOTE**

Be sure to use only the same type of control that you removed from the aircraft.

Radio Set Control C-10604(V)6/ARC-186(V)

**or**

Radio Set Control C-10604A(V)6/ARC - 186(V)

**or**

Radio Set Control C-10604(V)7/ARC-186(V)

**or**

Radio Set Control C-I0606(V)6/ARC-186(V)

**or**

Radio Set Control C-10606(V)7/ARC-186(V)

Personnel Required

Avionic Mechanic MOS 35K

References

Avionics configuration manual for your aircraft

Troubleshooting References

Paragraph 3-4

Equipment Condition

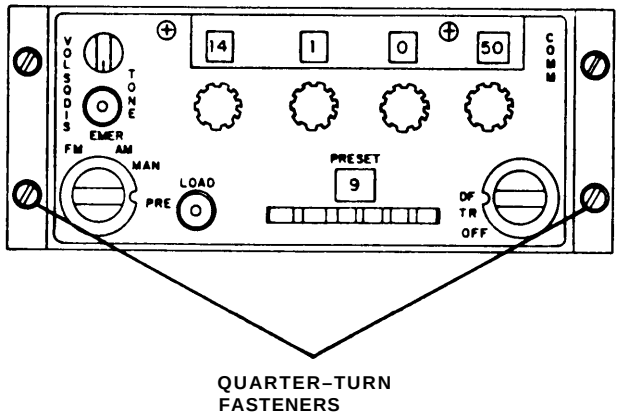
Aircraft power off

General Safety Instructions

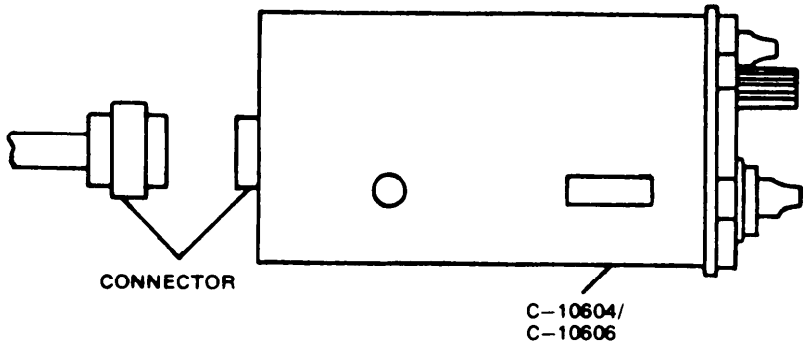
See aircraft cautions and warnings before starting procedure.

## 13-6. REPLACE C-10604/10606 (Continued)

REMOVAL




**STEP 1** Unlock four quarter-turn fasteners.




**STEP 2** Slide C-10604/10606 from aircraft console until you can reach connector.

**STEP 3** Disconnect connector.

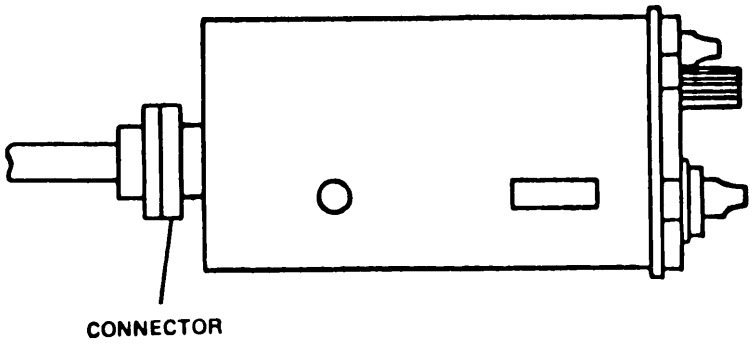
**NOTE**

**STEP 3** completes removal of bad C-10604/10606.

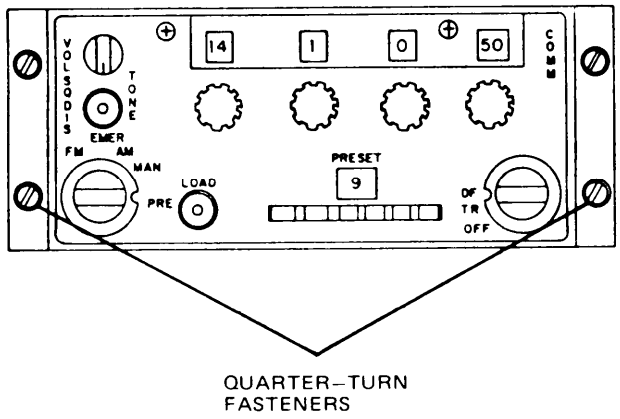
Go to **STEP 4 –** continue with good 010604/10606.

**13-6. REPLACE C-10604/10606 (Continued)**

INSTALLATION




**STEP 4** Connect connector.




**STEP 5** Slide C-10604/10606 into aircraft console until mated.

**STEP 6** Lock four quarter-turn fasteners.

FOLLOW UP TASKS

**STEP 7** Complete radio set troubleshooting test (para 3-4).

## 3-7. REPLACE RT-1300A/MT-6050

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP

### INITIAL SETUP

#### Applicable Configurations

All

#### Tools and Support Equipment

Tool Kit TK-101/G

Diagonal cutting pliers
l/8-in. flat-tip screwdriver

#### Materials/Parts

**NOTE**

Replace only the component that is bad.

Radio Receiver-Transmitter
RT-1300A/ARC-186(V)

Electrical Equipment Mounting Base
MT-6050/ARC-186(V)

Safety wire, Item 1, Appendix D

#### Personnel Required

Avionic Mechanic MOS 35K

#### References

Avionics configuration manual for your aircraft

TM 55-1500-323-24

#### Troubleshooting References

Paragraph 3-4

#### Equipment Condition

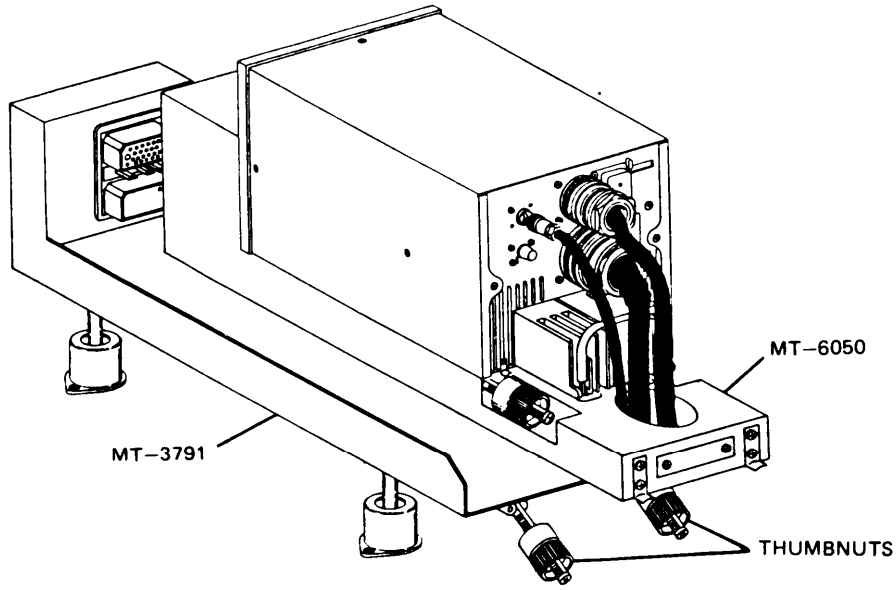
Aircraft power off

#### General Safety Instructions

See aircraft cautions and warnings before starting procedure.

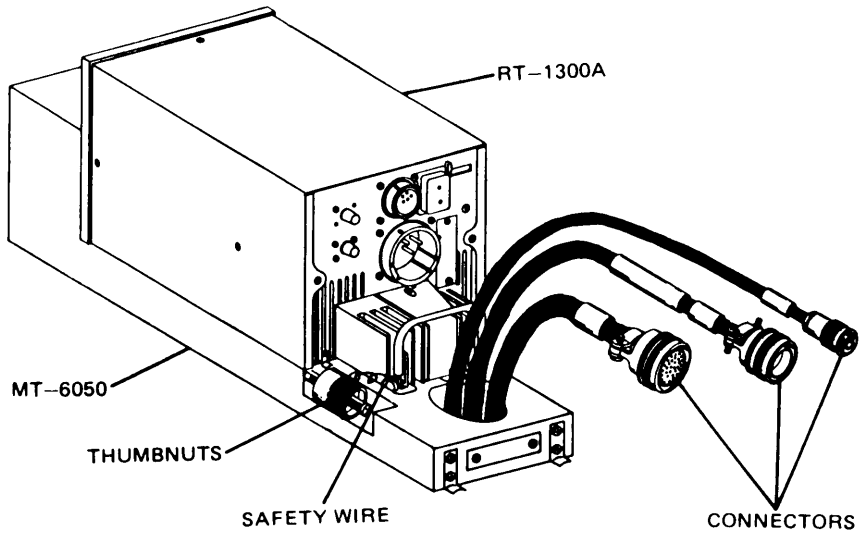
## 3-7. REPLACE RT-1300A/MT-6050 (Continued)

REMOVAL




**STEP 1** Loosen then disconnect two thumbnuts.

**STEP 2** Slide MT-6050 from MT-3791.




**STEP 3** Disconnect three connectors.

**STEP 4** Remove safety wire from thumbnuts.

**STEP 5** Loosen then lower two thumbnuts.

**STEP 6** Slide RT-1300A from MT-6050.

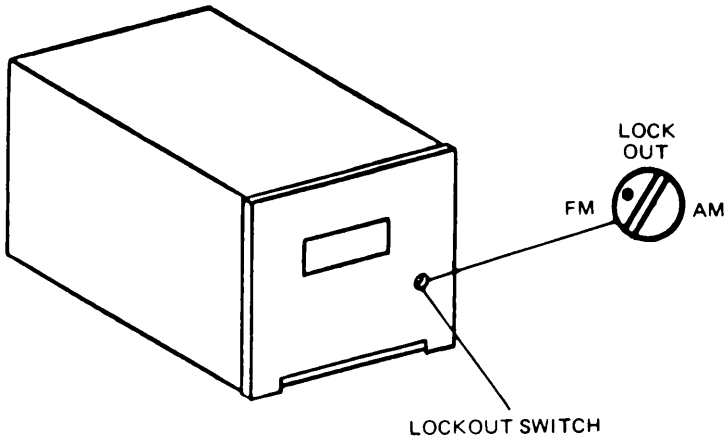
**3-7. REPLACE RT-1300A/MT-6050 (Continued)**

**NOTE**

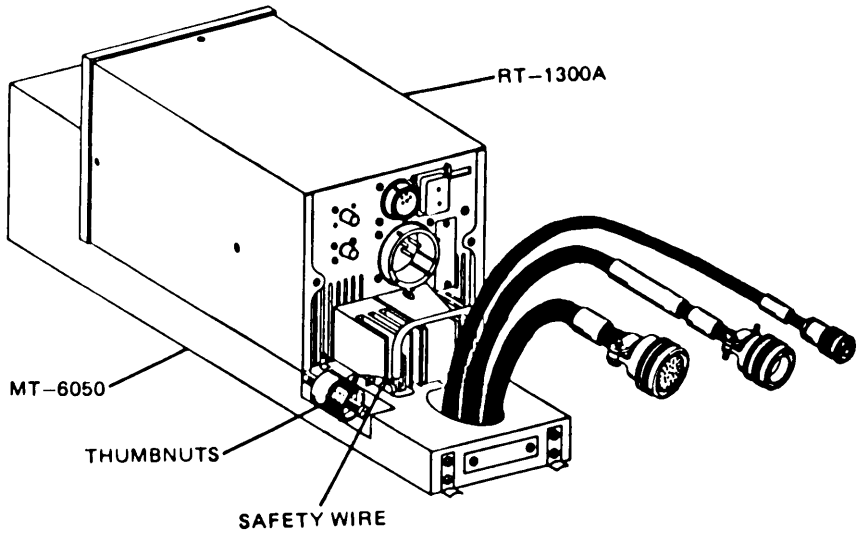
**STEP 6** completes removal of bad RT-1300A or MT-6050.

Go to **STEP 7 –** continue with good RT-1300A or MT-6050.

INSTALLATION




**STEP 7** Set LOCKOUT AM/FM switch to FM.

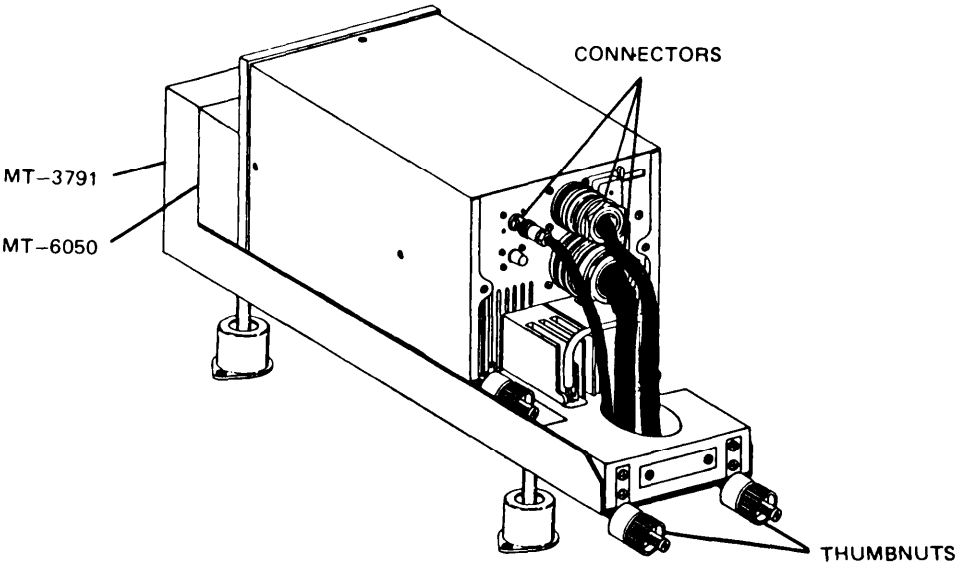



**STEP 8** Slide RT-1300A into MT-6050 until mated.

**STEP 9** Connect then tighten two thumbnuts.

**STEP 10** Safety-wire thumbnuts.

**13-7. REPLACE RT-1300A/MT-6050 (Continued)**




**STEP 11** Connect three connectors.

**STEP 12** Slide MT-6050 into MT-3791.

**STEP 13** Connect then tighten two thumbnuts.

FOLLOWUP TASKS

**STEP 14** Complete radio set troubleshooting test (para 3-4).

## 13-8. REPLACE RT-1300A/CM-482/MT-6048A

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP

### INITIAL SETUP

#### Applicable Configurations

All

#### Tools and Support Equipment

Tool Kit TK-101/G

Diagonal cutting pliers
No. 2 Phillips screwdriver
l/8-in. flat-tip screwdriver

#### Materials/Parts

**NOTE**

Replace only the component that is bad.

Radio Receiver-Transmitter
RT-1300A/ARC-186(V)

Signal Data Comparator
CM-482/ARC-186(V)

Electrical Equipment Mounting Base
MT-6048A/ARC-186(V)

Safety wire, Item 1, Appendix D

#### Personnel Required

Avionic Mechanic MOS 35K

#### References

Avionics configuration manual for your aircraft

TM 55-1500-323-24

#### Troubleshooting References

Paragraph 3-4

#### Equipment Condition

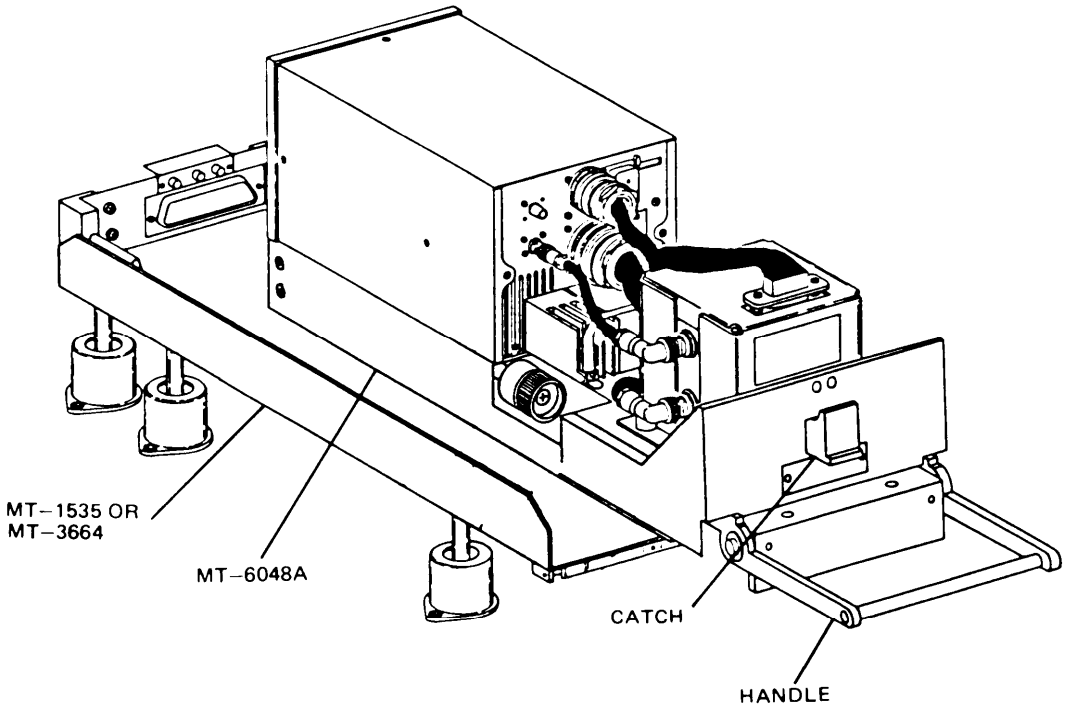
Aircraft power off

#### General Safety Instructions

See aircraft cautions and warnings before starting procedure.

**3-8. REPLACE RT-1300A/CM-482/MT-6048A (Continued)**

REMOVAL

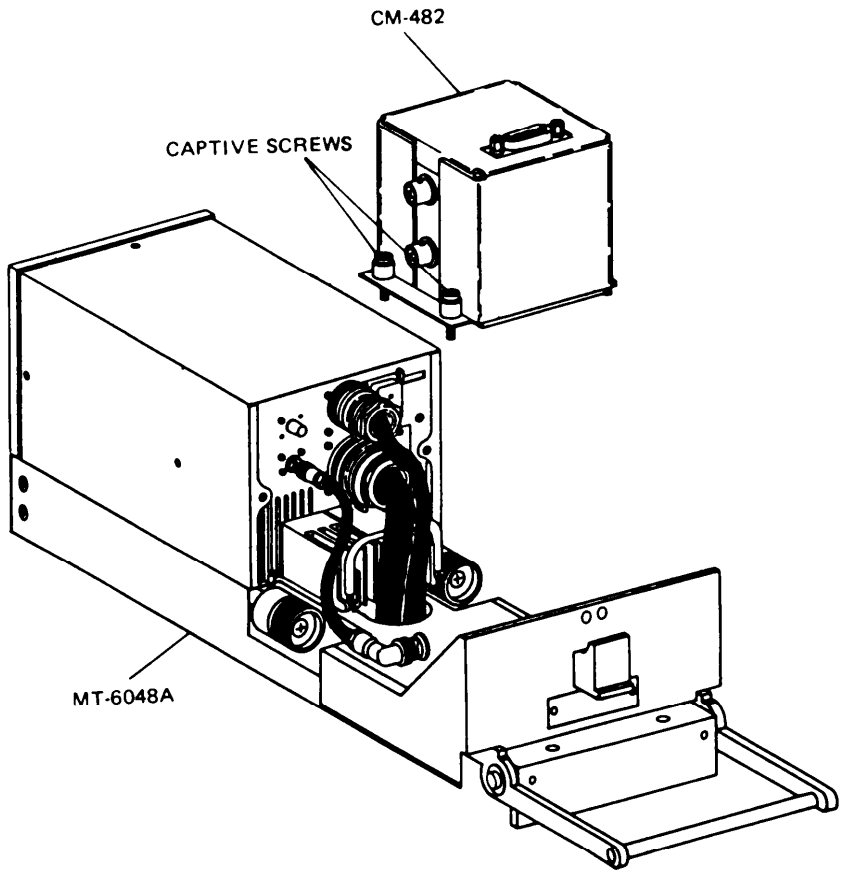



**STEP 1** Push catch down until handle is free.

**STEP 2** Lower handle.

**STEP 3** Slide MT-6048A from MT-1535/3664.

**13-8. REPLACE RT-1300A/CM-482/MT-6048A (Continued)**




**STEP 4** Disconnect five connectors on CM-482.

**STEP 5** Loosen four captive screws.

**STEP 6** Remove CM-482 from MT-6048A.

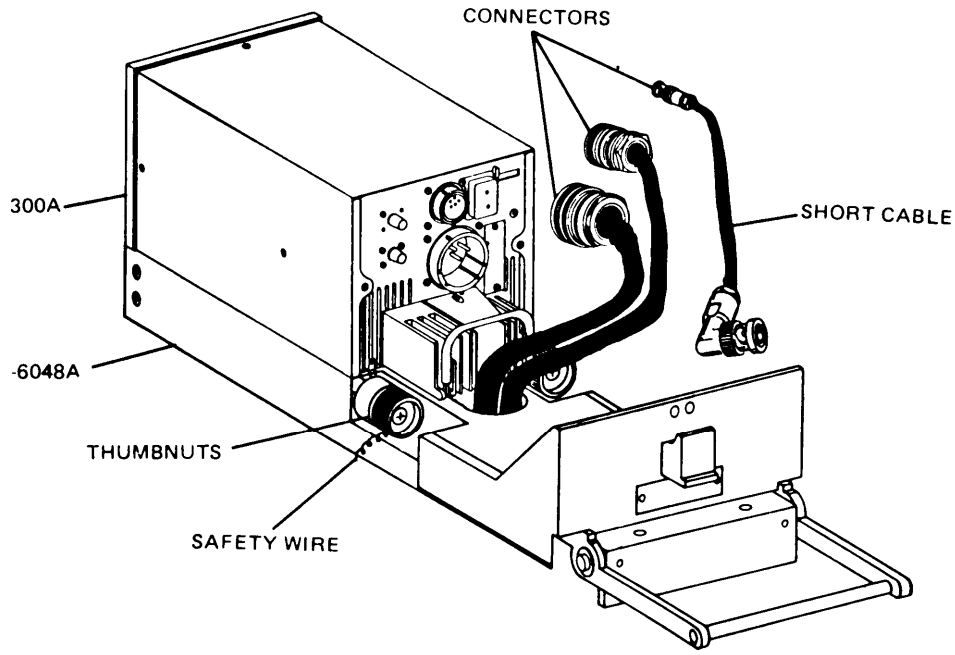
**NOTE**

**STEP 6** completes removal of bad CM-482.

Go to **STEP 17** – continue with good CM-482.

If RT-1300A or MT-6048A is bad – go to **STEP 7 –** continue.

**13-8. REPLACE RT-1300A/CM-482 /MT-6048A (Continued)**




**STEP 7** Disconnect three connectors from RT-1300A – don't lose short cable.

**STEP 8** Remove safety wire from thumbnuts.

**STEP 9** Loosen then disconnect two thumbnuts.

**STEP 10** Slide RT-1300A from MT-6048A.

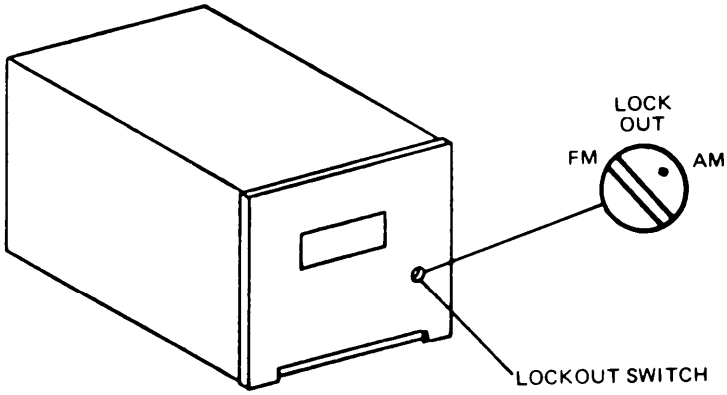
**NOTE**

**STEP 10** completes removal of bad RT-1300A or MT-6048A.

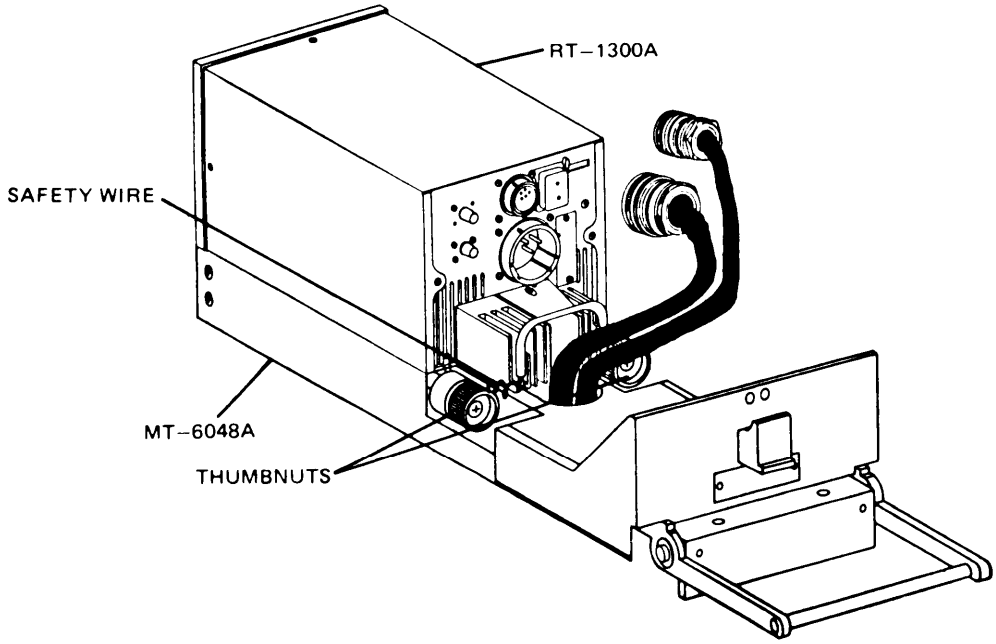
Go to **STEP 11** – continue with good RT-1300A or MT-6048A.

**13-8. REPLACE RT-1300A/CM-482/MT-6048A (Continued)**

INSTALLATION




**STEP 11** Set LOCKOUT AM/FM switch to AM.

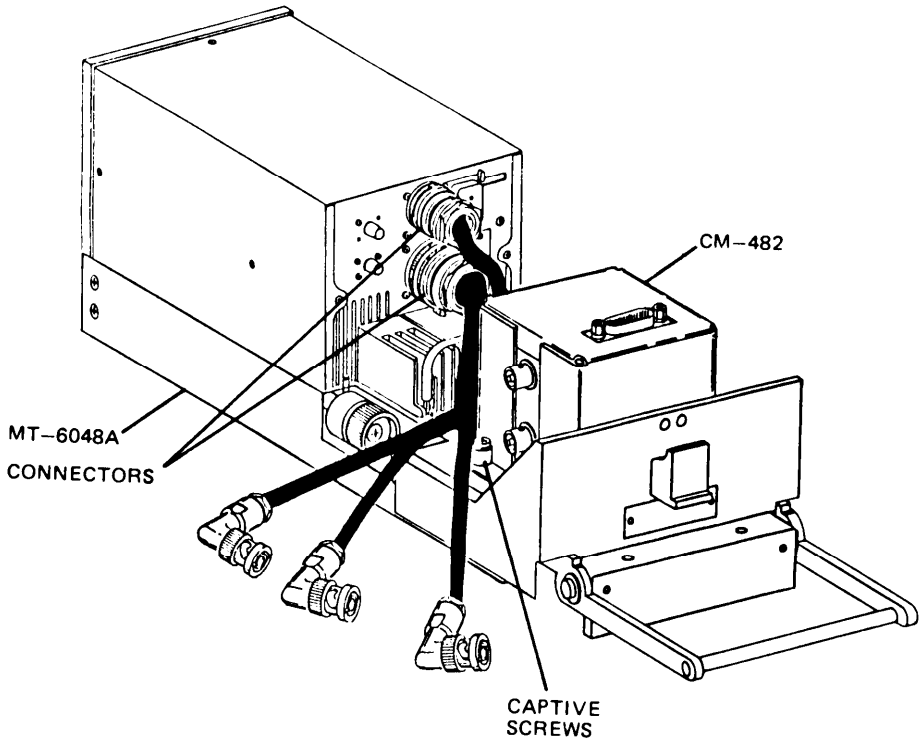



**STEP 12** Slide RT-1300A into MT-6048A.

**STEP 13** Connect then tighten two thumbnuts.

**STEP 14** Safety-wire thumbnuts – thread wire through handle on RT-1300A.

**3-8. REPLACE RT-1300A/CM-482/MT-6048A (Continued)**

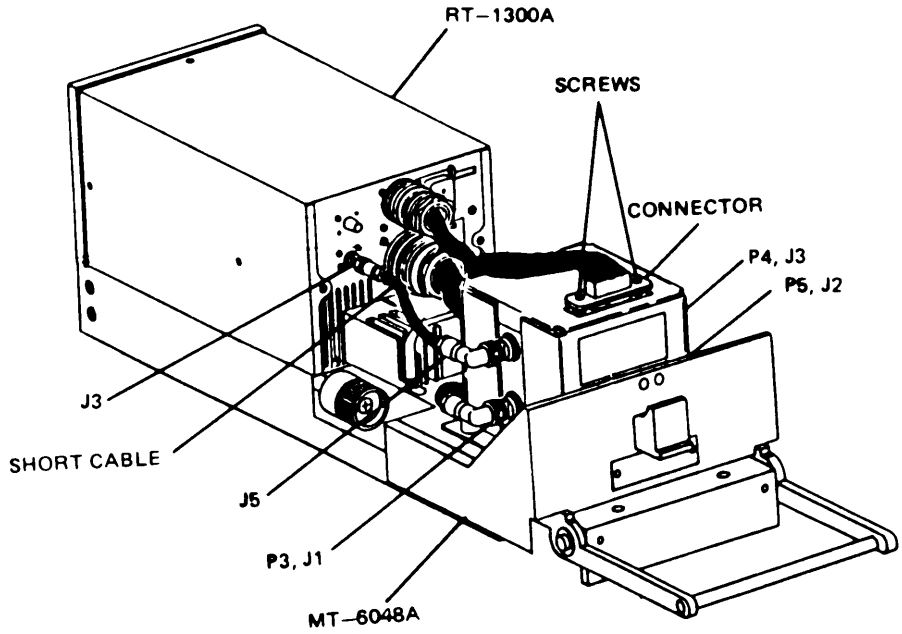



**STEP 15** Connect two connectors.

**STEP 16** Install CM-482 on MT-6048A.

**STEP 17** Tighten four captive screws.

**13-8. REPLACE RT-1300A/CM-482/MT-6048A (Continued)**




**STEP 18** Connect cables:

| From MT-6048A | To CM-482 |
|---|---|
| P3 | J1 |
| P5 | J2 |
| P4 | J3 |

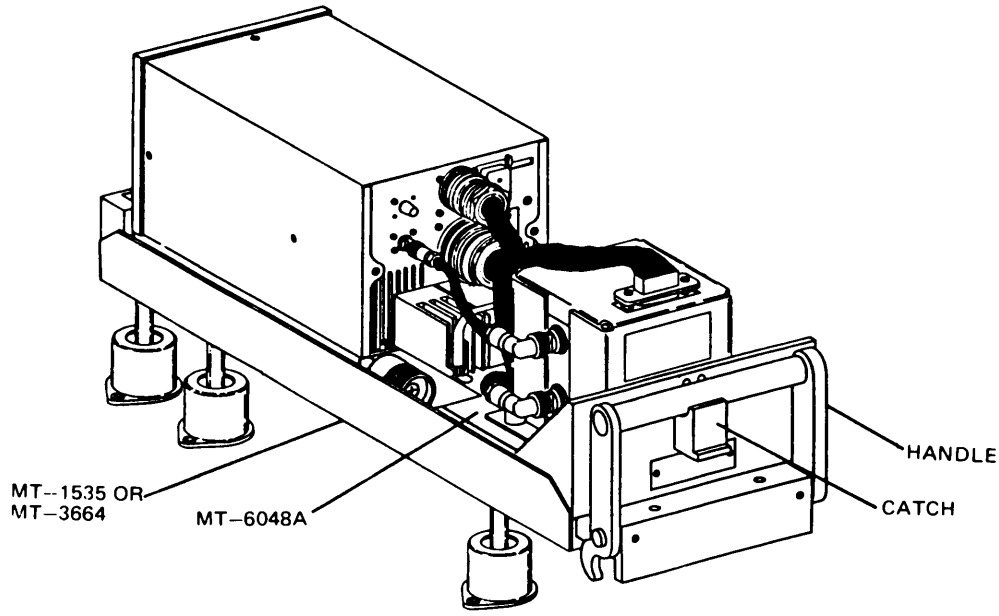
**NOTE**

Connect MT-6048A P3 to RT-1300A J3 when CM-482 not installed.

**STEP 19** Connect short cable between RT-1300A J3, CM-482 J5 – connect the L-shaped end to J5.

**STEP 20** Connect connector and tighten screws.

**13-8. REPLACE RT-1300A/CM-482/MT.6048A (Continued)**




**STEP 21** Slide MT-6048A into MT-1535/3664 until mated.

**STEP 22** Push catch down while lifiting handle up until mounts are locked together.

**STEP 23** Release catch.

FOLLOWUP TASKS

**STEP 24** Complete radio set troubleshooting test (para 3-4).

## 3-9. REPLACE RT-1300A/RT-1300B/MT-6051/MT-6421

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP

INITIAL SETUP

Applicable Configurations

All

Tools and Support Equipment

Tool Kit TK-101/G

Diagonal cutting pliers
No. 2 Phillips screwdriver
l/8-in. flat-tip screwdriver

Materials/Parts

**NOTE**

Replace only' the component that is bad.

Radio Receiver-Transmitter RT-1300A/ARC-186(V)

Radio Receiver-Transmitter RT-1300B/ARC-186(V)

Electrical Equipment Mounting Base MT-6051/ARC-186(V)

Electrical Equipment Mounting Base MT-6421/ARC-186(V)

Safety wire, Item 1, Appendix D

Personnel Required

Avionic Mechanic MOS 35K

References

Avionics configuration manual for your aircraft

TM 55-1500-323-25

Troubleshooting References

Paragraph 3-4

Equipment Condition

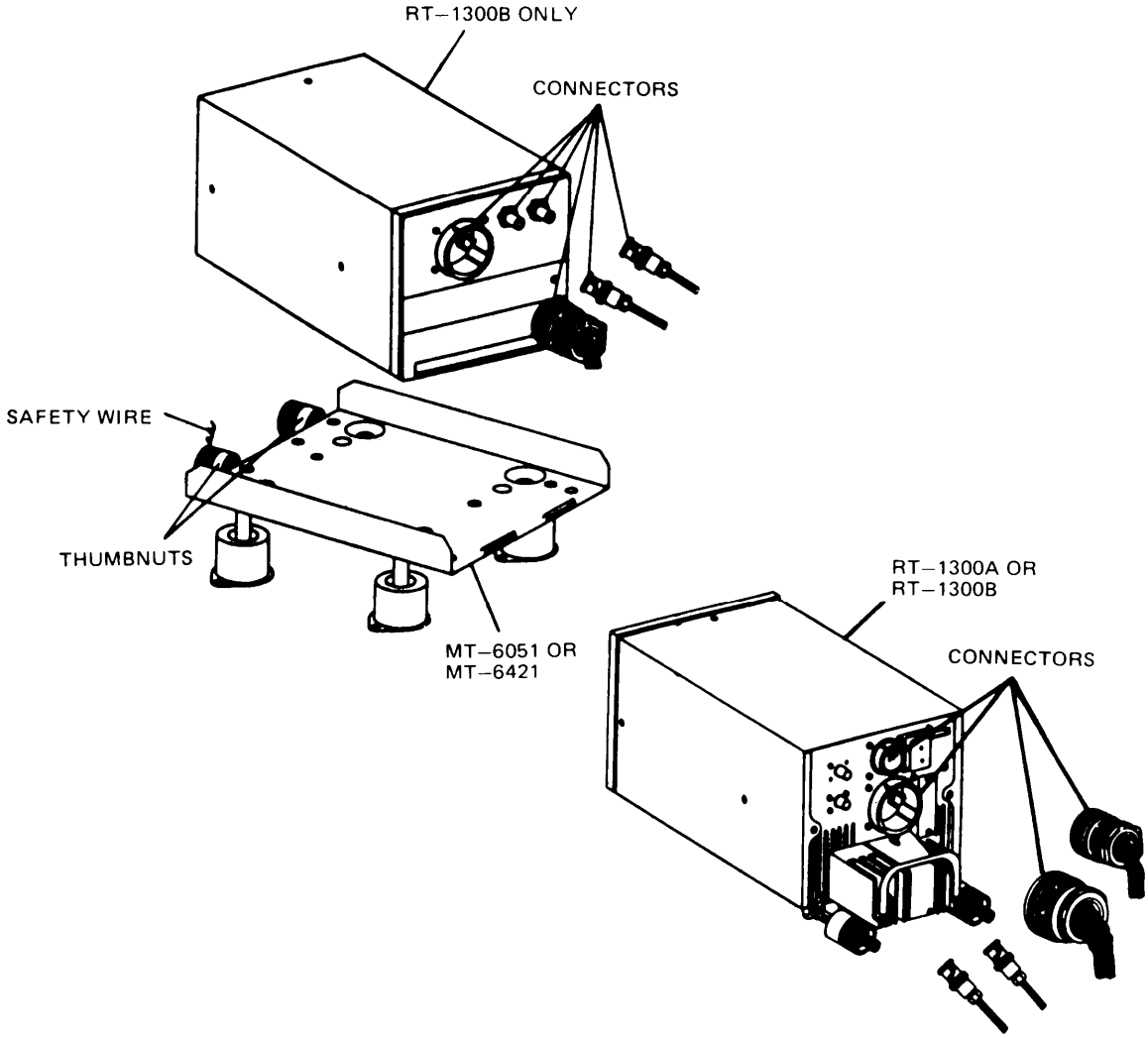
Aircraft power off

General Safety Instructions

See aircraft cautions and warnings before starting procedure.

## 3-9. REPLACE RT-1300A/RT-1300B/MT-6051/MT-6421 (Continued)

REMOVAL



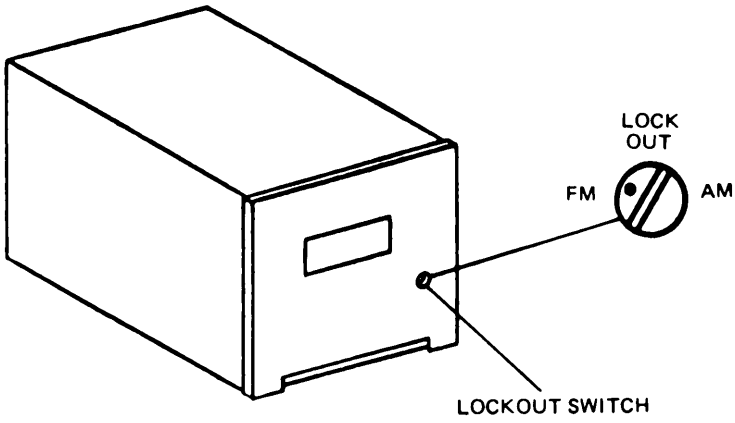

**STEP 1** Remove safety wire from thumbnuts,

**STEP 2** Loosen then disconnect two thumbnuts.

**STEP 3** Disconnect all connectors.

**STEP 4** Slide RT-1300A or RT-1300B from MT-6051 or MT-6421.

**3-9. REPLACE RT-1300A/RT-1300B/MT-6051/MT-6421 (Continued)**




**STEP 5** Find position of dot on LOCKOUT AM/FM switch. Remember dot position found for use in **STEP 22.**

**NOTE**

**STEP 5** completes removal of bad RT-1300A or RT-1300B

If:

RT-1300A or RT-1300B is being replaced – go to **STEP 22 –** continue with good RT-1300A or RT-1300B.

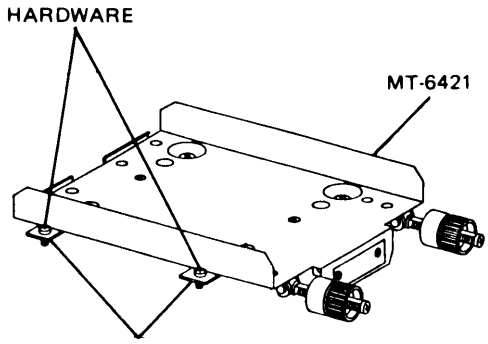
**or**

MT-6051 is being replaced – go to **STEP 8 –** continue.

**or**

MT-6421 is being replaced – go to **STEP 6 –** continue.

**13-9. REPLACE RT-1300A/RT-1300B/MT-6051/MT-6421 (Continued)**



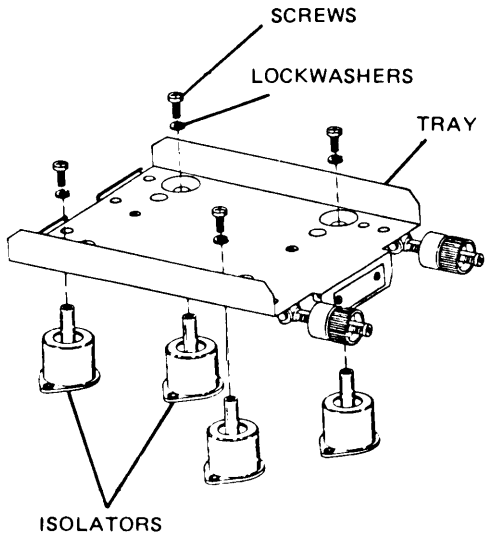

**STEP 6** Remove hardware from four holes.

**STEP 7** Remove MT-6421 from aircraft.

**NOTE**

**STEP 7** completes removal of bad MT-6421.

Go to **STEP 14 –** continue with good MT-6421.



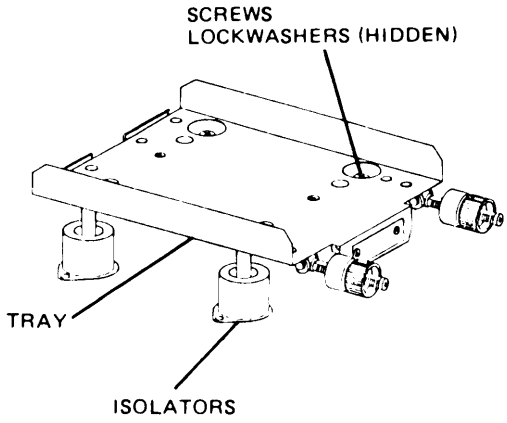

**STEP 8** Remove four screws, lockwashers.

**STEP 9** Remove tray from isolators.

**STEP 10** Remove hardware from isolators.

**STEP 11** Remove four isolators from aircraft.

**3-9. REPLACE RT-1300A/RT-1300B/MT-6051/MT-6421 (Continued)**




**STEP 12** Install tray on isolators.

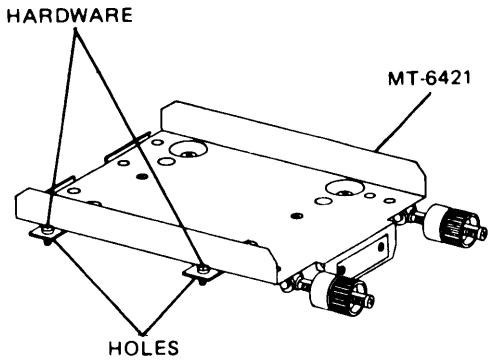
**STEP 13** Install four lockwashers and screws.

**NOTE**

**STEP 13** completes removal of bad MT-6051.

Go to **STEP 16** –continue with good MT-6051.

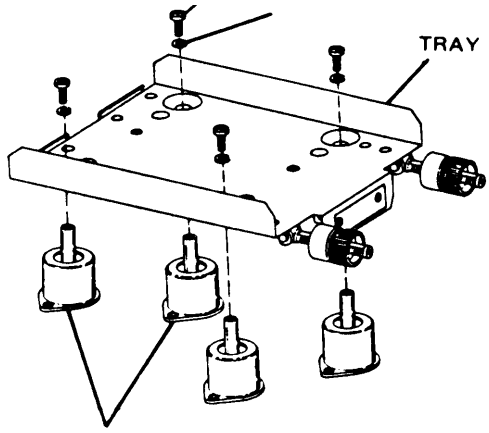
INSTALLATION




**STEP 14** Install MT-6421 in aircraft.

**STEP 15** Install hardware in four holes – after installation go to **STEP 22.**

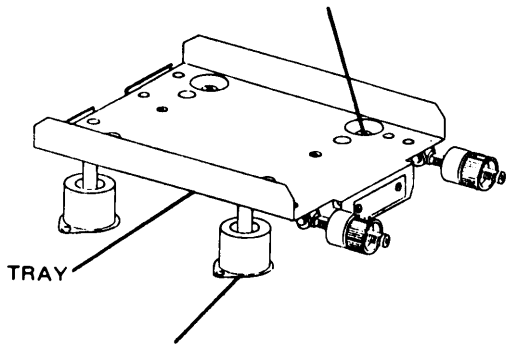
**3-9. REPLACE RT-1300A/RT-1300B/MT-6051/MT-6421 (Continued)**




**STEP 16** Remove four screws, lockwashers.

**STEP 17** Remove tray from isolators.

**STEP 18** Install four isolators on aircraft.

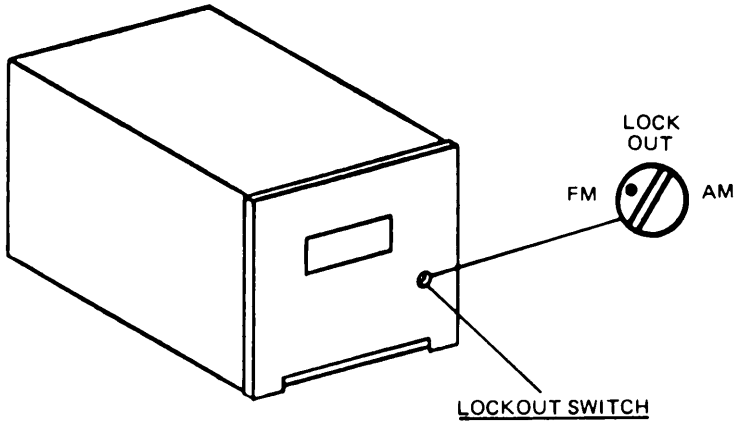



**STEP 19** Install hardware in isolators.

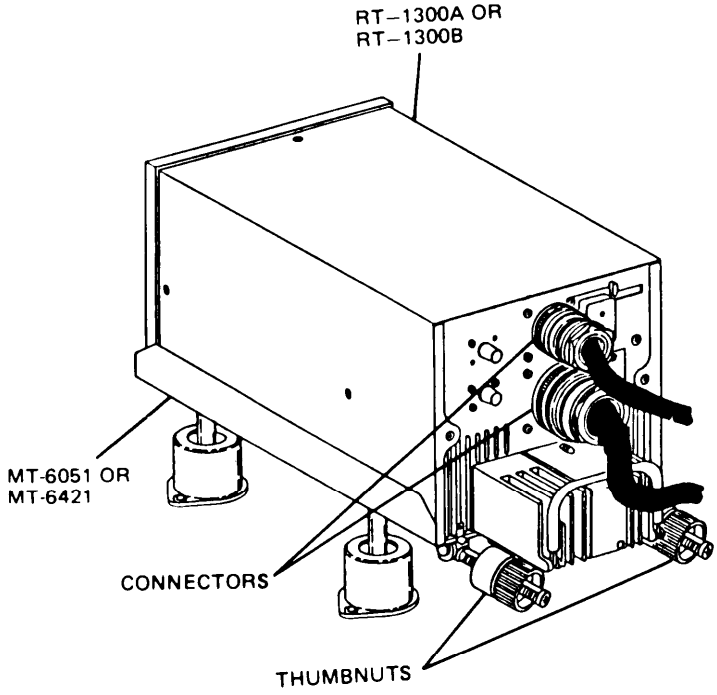
**STEP 20** Install tray on isolators.

**STEP 21** Install four lockwashers, screws.

**3-9. REPLACE RT-1300A/RT-1300B/MT-6051/MT-6421 (Continued)**




**STEP 22** Set LOCKOUT switch to position found in **STEP 5.**




**STEP 23** Slide RT-1300A or RT-1300B into MT-6051 or MT-6421 until mated.

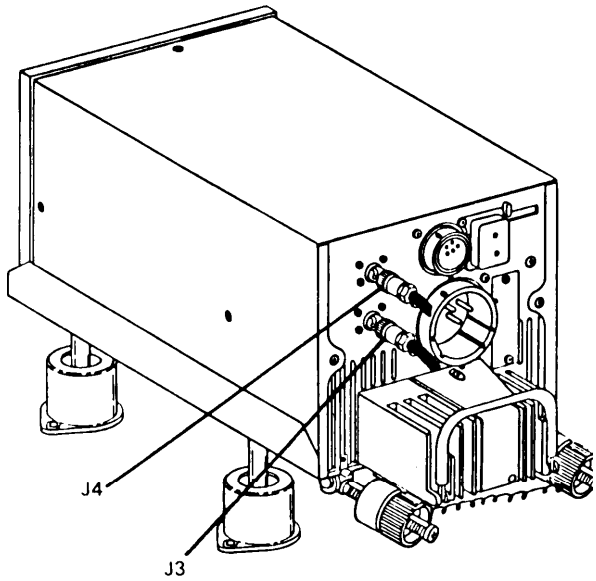
**STEP 24** Connect then tighten two thumbnuts.

**STEP 25** Connect two connectors.

**3-9. REPLACE RT-1300A/RT-1300B/MT-6051/MT-6421 (Continued)**

**NOTE**

Skip **STEP 26** – go to **STEP 27** if your RT-1300A or RT-1300B is FM-only or aircraft has combination vhf AM/FM antenna installed.




**STEP 26** Connect coaxial cable from AM antenna to J4.

**NOTE**

Skip **STEP 27** – go to **STEP 28** if your RT-1300A or RT-1300B is AM-only.

**STEP 27** Connect coaxial cable from FM or combination vhf AM/FM antenna to J3.

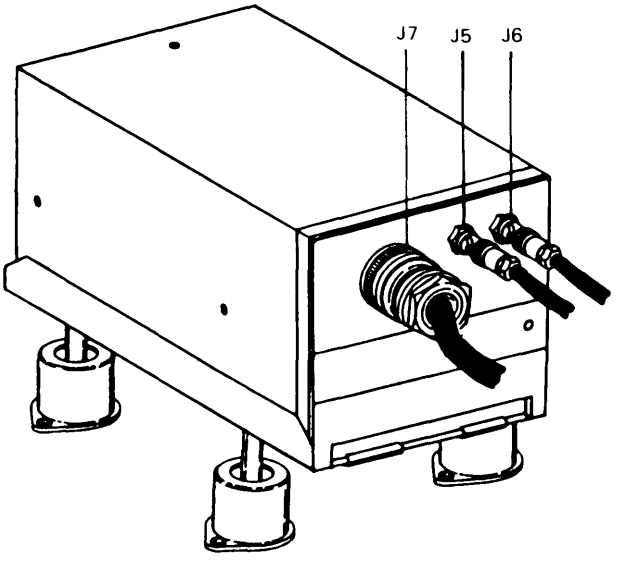
**NOTE**

If:

– RT-1300A was installed, skip **STEPS 28 thru 30** – go to **STEP 31.**

– RT-1300B was installed – continue.

**3-9. REPLACE RT-1300A/RT-1300B/MT-6051/MT-6421 (Continued)**




**STEP 28** Connect connector to J7.

**STEP 29** Connect triaxial cable from aircraft data bus A to J5.

**STEP 30** Connect triaxial cable from aircraft data bus B to J6.

FOLLOWUP TASKS

**STEP 31** Complete radio set troubleshooting test (para 3-4).

**STEP 32** Safety-wire thumbnuts.

## 3-10. REPLACE CM-492

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP

INITIAL SETUP

Applicable Configurations

All

Personnel Required

Avionic Mechanic MOS 35K

Tools and Support Equipment

Tool Kit TK-101/G

No. 2 Phillips screwdriver

Troubleshooting References

Paragraph 3-4

Equipment Condition

Aircraft power off

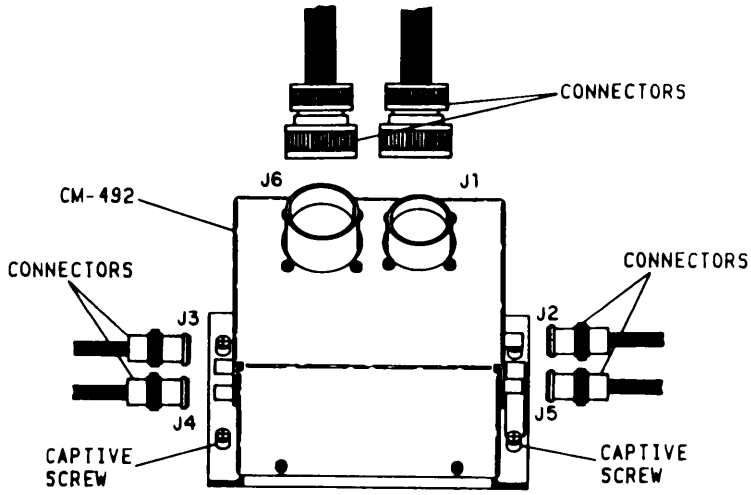
Materials/Parts

Signal Data Comparator
CM-492/ARC-186(V)

General Safety Instructions

See aircraft cautions and warnings before starting procedure.

REMOVAL




**STEP 1** Disconnect six connectors.

**STEP 2** Loosen four captive screws.

**STEP 3** Remove CM-492 from aircraft.

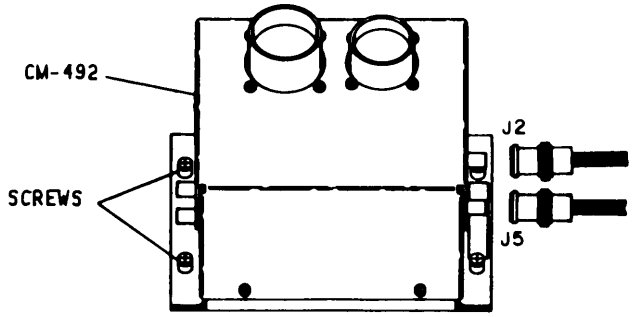
**3-10. REPLACE CM-492 (Continued)**

**NOTE**

**STEP 3** completes removal of bad CM-492.

Go to **STEP 4 –** continue with good CM-492.

INSTALLATION



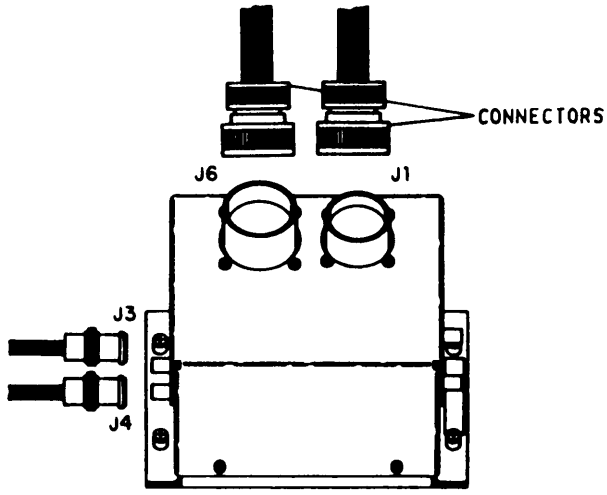

**STEP 4** Install CM-492 in aircraft.

**STEP 5** Tighten four captive screws.

**STEP 6** Connect coaxial cable from RT-1300A, RT-1300B, or RT-1354 J3 to J5.

**STEP 7** Connect coaxial cable from aircraft FM or combination vhf AM/FM antenna to J2.

**3-10. REPLACE CM-492 (Continued)**




**STEP 8** Connect coaxial cable from aircraft left homing antenna to J3.

**STEP 9** Connect coaxial cable from aircraft right homing antenna to J4.

**STEP 10** Connect two connectors.

FOLLOWUP TASKS

**STEP 11** Complete radio set troubleshooting test (para 3-4).

## 3-11. REPLACE CM-482 WHEN MT-6048A NOT USED

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP

INITIAL SETUP

Applicable Configurations

All

Troubleshooting References

Paragraph 3-4

Tools and Support Equipment

Tool Kit TK-101/G

No. 2 Phillips screwdriver

Equipment Condition

Aircraft power off

General Safety Instructions

See aircraft cautions and warnings before starting procedure.

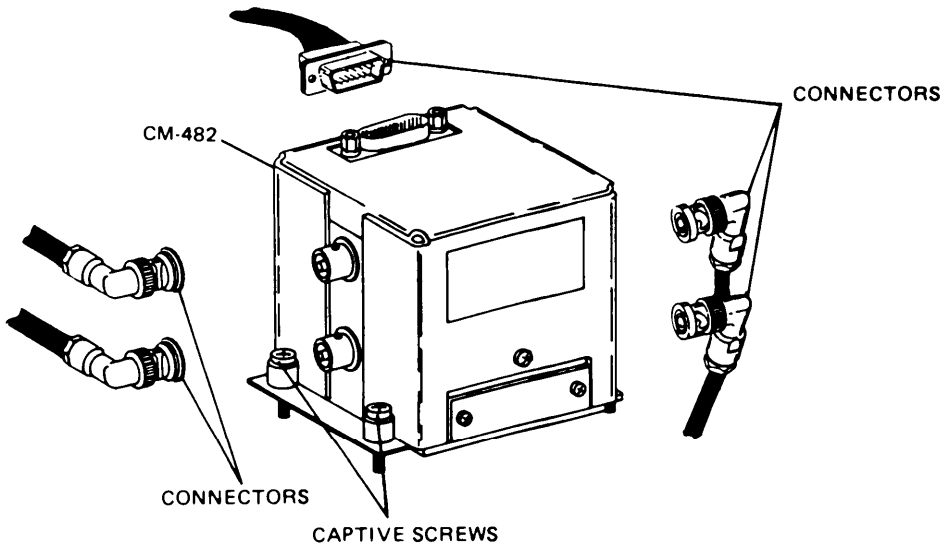
Materials/Parts

Signal Data Comparator
CM-482/ARC-186(V)

Personnel Required

Avionic Mechanic MOS 35K

REMOVAL




**STEP 1** Disconnect five connectors.

**STEP 2** Loosen four captive screws.

**STEP 3** Remove CM-482 from aircraft.

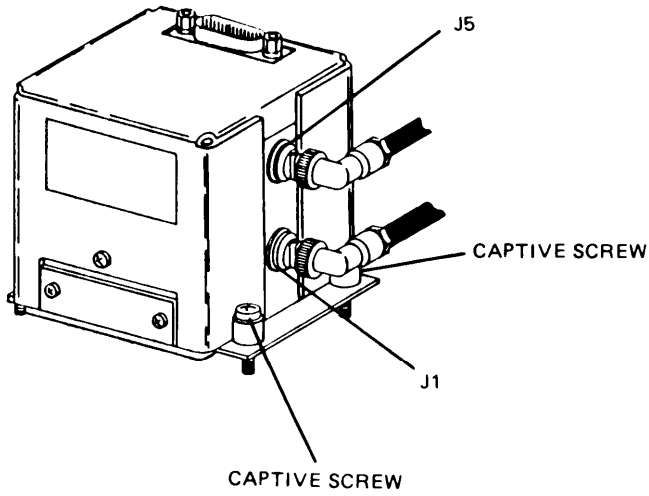
**3-11. REPLACE CM-482 WHEN MT-6048A NOT USED (Continued)**

**NOTE**

**STEP 3** completes removal of bad CM-482.

Go to **STEP 4 –** continue with good CM-482.

INSTALLATION



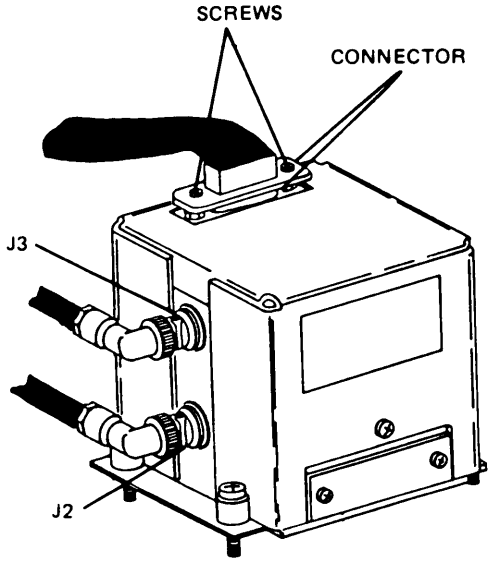

**STEP 4** Install CM-482 in aircraft.

**STEP 5** Tighten four captive screws.

**STEP 6** Connect coaxial cable from RT-1300A, RT-1300B, or RT-1354 J3 to CM-482 J5.

**STEP 8** Connect coaxial cable from aircraft FM or communications antenna to CM-482 J1.

**3-11. REPLACE CM-482 WHEN MT-6048A NOT USED (Continued)**




**STEP 8** Connect connector and tighten screws.

**STEP 9** Connect cable from left homing antenna to CM-482 J2.

**STEP 10** Connect cable from right homing antenna to CM-482 J3.

FOLLOWUP TASKS

**STEP 11** Complete radio set troubleshooting test (para 3-4).

# APPENDIX A
# REFERENCES

## A-1. DEPARTMENT OF THE ARMY PAMPHLETS

| | |
|---|---|
| DA PAM 25-30 | Consolidated Index of Army Publications and Blank Forms |
| DA PAM 738-750 | The Army Maintenance Management System (TAMMS) |

## A-2. SUPPLY CATALOGS

| | |
|---|---|
| SC 5180-91-CL-R13 | Tool Kit, Electronic Equipment TK-101/G (NSN 5180-00-064-5178) (LIN W37483) |
| SC 5821-91-CL-E04 | Maintenance Kit, Electronic Equipment, MK-693/A (NSN 5821-00-045-9695) (LIN M01100) |

## A-3. TECHNTCAL MANUALS1

| | |
|---|---|
| TM 740-90-1 | Administrative Storage of Equipment |
| TM 746-10 | Marking, Packaging, and Shipment of Supplies and Equipment: General Packaging Instructions for Field Units |
| TM 750-244-2 | Procedures for Destruction of Electronics Materiel to Prevent Enemy Use (Electronics Command) |
| TM 55-1500-323-24 | Installation Practices for Aircraft Electric and Electronic Wiring (TO 1-1A-14; NAVAIR 01-lA-505) |
| TM 11-5810-262-OP | Operating Procedures for Communications Security Equipment TSEC/KY-58 |
| (C) TM 11-5810-262-20 | Organizational Maintenance Manual Communications Security Equipment TSEC/KY-58 (NSN 5810-00-449-0154) (U) |
| TM 11-5810-244-10 | operator's Manual for Communications Security Equipment TSEC/KY-28 |
| TM 11-5810-244-20 | Organizational Maintenance Manual for Speech Security Equipment Airborne TSEC/KY-28 (NSN 5810-00-919-4554) |
| TM 11-6625-3052-14 | Operator's, Organizational, Direct Support, and General Support Maintenance for Multimeter, Digital, AN/PSM-45 (NSN 6625-01-139-2512) |
| TM 11-5821-318-20P | Aviation Unit Maintenance Repair Parts and Special Tools List; VHF AM/FM Radio Set AN/ARC-186(V) |

## A-3. TECHNICAL MANUALS (Continued)

| | |
|---|---|
| TM 11-6625-446-15 | Operator's, Organizational, Direct Support, General Support and Depot Maintenance Manual for Wattmeter, AN/URM-120 (NSN 6625-00-813-8430) |
| TM 10-8415-206-13 | Operator's, Organizational, and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List): Helmet, Flying, Protective (Model SPH.4, Regular) (NSN 8415-00-144-4981) and (Model SPH-4, Extra Large) (NSN 8415-00-144-4985) |
| TM 43-0139 | Painting Instructions for Field Use |

## A-4. SUPPLY BULLETINS

| | |
|---|---|
| SB 11-505 | Signal Items Authorized for Stockage in Self-Service Supply Centers |
| SB 11-543 | Safety and Breakaway Wire for Electronic Equipment Installed in Aircraft |
| SB 11-573 | Painting and Preservation Supplies Available for Field Use for Electronics Command Equipment |
| SB 11-613 | Additions to Maintenance Kit, Electronic Equipment MK-693/A, FSN 5821-045-9695 |

## A-5. FIELD MANUALS

| | |
|---|---|
| FM 21-11 | First Aid for Soldiers |

## A-6. TECHNICAL BULLETINS

| | |
|---|---|
| TB SIG 222 | Solder and Soldering |
| TB 385-4 | Safety Precautions for Maintenance of Electrical/Electronic Equipment |

# APPENDIX B
# MAINTENANCE ALLOCATION CHART

## Section I. INTRODUCTION

### B-1. GENERAL

This appendix provides a summary of the maintenance operations for AN/ARC-186(V). 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.

### B-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, ie, 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. A line.

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.

## B-2. MAINTENANCE FUNCTION (Continued)

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, aline, calibrate, replace) or other maintenance actions (welding, grinding, riveting, straightening, facing, remachining, or resurfacing) to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

j. Overhaul.

That maintenance effort (service/action) necessary to restore an item to a completely serviceable\ operational condition as prescribed by maintenance standards (ie, 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.

## B-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 the purpose of having the group numbers in the MAC and RPSTL coincide.

## B-3. COLUMN ENTRIES (Continued)

d. Column 4, Maintenance Category.

Column 4 specifies, by the listing of a "worktime" 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 "worktime" figures will be shown for each category. The number of task-hours specified by the "worktime" 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:

| | |
|---|---|
| AVUM | Aviation Unit Maintenance |
| AVIM | Aviation Intermediate Maintenance |
| 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.

## B-4. TOOL AND TEST EQUIPMENT REQUIREMENT(SECTION III)

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

**B-4. TOOL AND TEST EQUIPMENT REQUIREMENTS (SECTION III) (Continued)**

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.

**B-5. REMARKS (SECTION 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.

## Section II. MAINTENANCE ALLOCATION CHART FOR VHF AM/FM RADIO SET AN/ARC-186(V)

| (1) Group Number | (2) Component/ Assembly | (3) Maintenance Function | (4) Maintenance Category AVUM | AVIM | D | (5) Tools & Eqpt | (6) Remarks |
|---|---|---|---|---|---|---|---|
| 00 | AN/A RC-186(v) Radio Set | Inspect | 0.2 | | | 1 | A |
| | | Test | 0.3 | | | 3 thru 6 | |
| | | Service | 01 | | | 1 | |
| | | Adjust | | 0.4 | | 6 thru 23 | |
| | | Adjust | | | x | | |
| | | Install | 0.5 | | | 1 | |
| | | Replace | 0.2 | | | 1 | |
| | | Repair | 0.3 | | | 1 thru 6 | B |
| | | Repair | | 0.5 | | 6 thru 23 | C |
| | | Repair | | | x | | D |
| 01 | Receiver-Trans-mitter RT-1354/ ARC-186(V) and RT-1354B/ARC-186 | Inspect | 0.2 | | | 1 | |
| | | Service | 0.1 | | | 1 | |
| | | Replace | 0.2 | | | 1 | |
| | | Repair | 0.2 | | | 1 thru 6 | B |
| | | Inspect | | 0.2 | | | |
| | | Test | | 0.5 | | 6 thru 19,22,23 | |
| | | Adjust | | 0.4 | | 6 thru 19,22,23 | |
| | | Repair | | 0.5 | | 6 thru 19,22,23 | C |
| | | Repair | | | x | | D |

| (1) Group Number | (2) Component/ Assembly | (3) Maintenance Function | (4) Maintenance Level AVUM | AVIM | D | (5) Tools & Eqpt | (6) Remarks |
|---|---|---|---|---|---|---|---|
| 0101 | Power Supply A2 | Inspect | | 0.2 | | | |
| | | Test | | 0.4 | | 6 thru 19, 22, 23 | |
| | | Replace | | 0.2 | | 7, 22 | |
| | | Adjust | | 0.2 | | 6 thru 19, 22, 23 | |
| | | Repair | | | X | | |
| 0102 | Receiver/Transmitter Panel Mount Subassembly | Inspect | | 0.2 | | | |
| | | Test | | 0.4 | | 6 thru 19, 22, 23 | |
| | | Replace | | 0.4 | | 7, 22 | |
| | | Repair | | | X | | |
| 010201 | Chassis Assy A6 | Inspect | | 0.2 | | | |
| | | Test | | 0.4 | | 6 thru 19, 22, 23 | |
| | | Replace | | 0.4 | | 7 | |
| | | Repair | | | X | | |
| 010202 | Control Assy A7 | Inspect | | 0.2 | | | |
| | | Test | | 0.4 | | 6 thru 20, 22, 23 | |
| | | Replace | | 0.5 | | 7, 22 | |
| | | Adjust | | | X | | |
| | | Repair | | 0.2 | | 7, 22 | |
| | | Repair | | | X | | |
| 010203 | Transmitter Assy Al | Inspect | | 0.2 | | | |
| | | Test | | 0.4 | | 6 thru 20, 22, 23 | |
| | | Replace | | 0.4 | | 7, 22 | |
| | | Adjust | | | X | | |
| | | Repair | | | X | | |
| 0103 | Audio Circuit Card A3 | Inspect | | 0.2 | | | |
| | | Test | | 0.4 | | 6 thru 20, 22, 23 | |
| | | Replace | | 0.4 | | 7, 22 | |
| | | Adjust | | | X | | |
| | | Repair | | | X | | |
| 0104 | Synthesizer Assy A5 | Inspect | | 0.2 | | | |
| | | Test | | 0.4 | | 6 thru 20, 22, 23 | |
| | | Replace | | 0.4 | | 7, 22 | |
| | | Adjust | | | X | | |
| | | Repair | | | X | | |
| 0105 | Receiver Assy A4 | Inspect | | 0.2 | | | |
| | | Test | | 0.4 | | 6 thru 20, 22, 23 | |
| | | Replace | | 0.4 | | 7, 22 | |
| | | Adjust | | | X | | |
| | | Repair | | | X | | |

| (1) Group Number | (2) Component/ Assembly | (3) Maintenance Function | (4) Maintenance Level AVUM | AVIM | D | (5) Tools & Eqpt | (6) Remarks |
|---|---|---|---|---|---|---|---|
| 02 | Receiver-Transmitter RT-1300A/ ARC-186(V) | Inspect | 0.2 | | | 1 | |
| | | Repair | 0.2 | | | 1 thru 6 | B |
| | | Service | 0.1 | | | 1 | |
| | | Replace | 0.2 | | | 1 | |
| | | Inspect | | 0.2 | | | |
| | | Test | | 0.5 | | 6 thru 20, 22, 23 | |
| | | Adjust | | 0.4 | | 6 thru 20, 22, 23 | |
| | | Repair | | 0.5 | | 6 thru 20, 22, 23 | C |
| | | Repair | | | X | | D |
| 0201 | Power Supply. A2 (same as 0101) | | | | | | |
| 0202 | Receiver/Transmitter Remote Mount Subassembly | Inspect | | 0.2 | | | |
| | | Test | | 0.4 | | 6 thru 20, 22, 23 | |
| | | Replace | | 0.4 | | 7, 22 | |
| | | Repair | | | X | | |
| 020201 | Chassis Assy A6 | Inspect | | 0.2 | | | |
| | | Test | | 0.4 | | 6 thru 20, 22, 23 | |
| | | Replace | | 0.4 | | 7, 22 | |
| | | Repair | | | X | | |
| 020202 | Blank Panel Assembly A8 | Inspect | | 0.2 | | | |
| | | Test | | 0.4 | | 6 thru 20, 22, 23 | |
| | | Replace | | 0.5 | | 7, 22 | |
| | | Repair | | | X | | |
| 020203 | Transmitter Assy A1 | Inspect | | 0.2 | | | |
| | | Test | | 0.4 | | 6 thru 20, 22, 23 | |
| | | Replace | | 0.4 | | 7. 22 | |
| | | Adjust | | | X | | |
| | | Repair | | | X | | |
| 0203 | Audio Circuit Card A3 (same as 0103) | | | | | | |
| 0204 | Synthesizer Assy A5 (same as 0104) | | | | | | |
| 0205 | Receiver Assy A4 (same as 0105) | | | | | | |

| (1) Group Number | (2) Component/ Assembly | (3) Maintenance Function | (4) Maintenance Level AVUM | AVIM | D | (5) Tools &Eqpt | (6) Remarks |
|---|---|---|---|---|---|---|---|
| 03 | Radio Set Control C-10604(V)6/ ARC-186(V) and C-10604A(V)6/ ARC-186(V) | Inspect | 0.2 | | | 1 | |
| | | Service | 0.1 | | | 1 | |
| | | Replace | 0.2 | | | 1 | |
| | | Inspect | | 0.2 | | | |
| | | Test | | 0.4 | | 4,7,9,11,12, 16,17,19,21,23 | |
| | | Repair | | 0.2 | | 7 | C |
| | | Repair | | | X | | D |
| 04 | Radio Set Control C-10606(V)6/ ARC-186(V) | Inspect | 0.2 | | | 1 | |
| | | Service | 0.1 | | | 1 | |
| | | Replace | 0.2 | | | 1 | |
| | | Inspect | | 0.2 | | 1 | |
| | | Test | | 0.4 | | 4,7,9,11,12, 16,17,19,21,23 | |
| | | Repair | | 0.2 | | 7 | C |
| | | Repair | | | X | | D |
| 05 | Signal Data Gom- parator CM-482/ ARC-186(V) | Inspect | 0.2 | | | 1 | |
| | | Service | 0.1 | | | 1 | |
| | | Replace | 0.2 | | | 1 | |
| | | Inspect | | 0.2 | | | |
| | | Test | | 0.4 | | 10 thru 13,16, 20,21,23 | |
| | | Adjust | | | X | | |
| | | Repair | | | X | | D |
| 06 | Signal Data Corn- parator CM-492/ ARC-186(V) | Inspect | 0.2 | | | | |
| | | Service | 0.1 | | | 1 | |
| | | Replace | 0.2 | | | 1 | |
| | | Inspect | | 0.2 | | | |
| | | Test | | 0.4 | | 10 thru 13,16, 20,21,23 | |
| | | Adjust | | | X | | |
| | | Repair | | | X | | D |
| 07 | Mounting Base MT-6048A/ ARC-186(V) | Inspect | 0.2 | | | | |
| | | Service | 0.1 | | | 1 | |
| | | Replace | 0.2 | | | 1 | |
| | | Inspect | | 0.2 | | | |
| | | Test | | 0.4 | | 9 | |
| | | Repair | | 0.3 | | 7 | C |
| | | Repair | | | X | | D |
| 08 | Mounting Base MT-6050/ ARC-186(V) | Inspect | 0.2 | | | | |
| | | Service | 0.1 | | | 1 | |
| | | Replace | 0.2 | | | 1 | |

| (1) Group Number | (2) Component/ Assembly | (3) Maintenance Function | (4) Maintenance Level AVUM | AVIM | D | (s) Tools & Eqpt | (6) Remarks |
|---|---|---|---|---|---|---|---|
| | | Inspect | | 0.2 | | | |
| | | Test | | 0.4 | | 9,23 | |
| | | Repair | | 0.3 | | 7 | C |
| | | Repair | | | X | | D |
| 09 | Mounting Base MT-6051/ ARC-186(V) | Inspect | 0.2 | | | | |
| | | Service | 0.1 | | | 1 | |
| | | Replace | 0.2 | | | 1 | |
| | | Repair | 0.2 | | | 1 | B |
| | | Repair | | | X | | D |
| 10 | Mounting Base MT-6421/ ARC-186(V) | Inspect | 0.2 | | | | |
| | | Service | 0.1 | | | 1 | |
| | | Replace | 0.2 | | | 1 | |
| | | Repair | | | X | | D |
| 11 | Receiver-Transmitter RT-1354A/ ARC-186(V) (same as 01) | | | | | | |
| 1101 | Power Supply AZ (same as 0101) | | | | | | |
| 1102 | Receiver/Transmitter Panel Mount Subassembly (same as 0102) | | | | | | |
| 110201 | Chassis Assy A6 (same as 010201) | | | | | | |
| 110202 | Control Assy A? (same as 010202) | | | | | | |
| 110203 | Transmitter Assy Al (same as 010203) | | | | | | |
| 1103 | Audio Circuit Card A3 (same as 0103) | | | | | | |
| 1104 | Synthesizer Assy A5 (same as 0104) | | | | | | |

| (1) Group Number | (2) Component/ Assembly | (3) Maintenance Function | (4) Maintenance Level AVUM | AVIM | D | (5) Tools & Eqpt | (6) Remarks |
|---|---|---|---|---|---|---|---|
| 1105 | Receiver Assy A4 (same as 0105) | | | | | | |
| 12 | Receiver-Transmitter RT-1300B/ ARC-186(V) (same as 02) | | | | | | |
| 1201 | Power Supply A2 (same as 0101) | | | | | | |
| 1202 | Receiver/Transmitter Remote Mount Subassembly (same as 0202) | | | | | | |
| 120201 | Chassis Assy A6 (same as 020201) | | | | | | |
| 120202 | 1553 Panel Assembly A9 | Inspect<br>Test<br>Replace<br>Repair | | 0.2<br>0.6<br>0.5 | <br><br><br>X | 6 thru 20, 22, 23<br>7, 22, 23 | |
| 120203 | Transmitter Assy Al (same as 020203) | | | | | | |
| 1203 | Audio Circuit Card A3 (same as 0103) | | | | | | |
| 1204 | Synthesizer Assy A5 (same as 0104) | | | | | | |
| 1205 | Receiver Assy A4 (same as 0105) | | | | | | |
| 13 | Radio Set Control C-10604(V)7/ ARC-186(V) (same as 03) | | | | | | |

| (1) Group Number | (2) Component/ Assembly | (3) Maintenance Function | (4) Maintenance Level | | | (5) Tools & Eqpt | (6) Remarks |
|---|---|---|---|---|---|---|---|
| | | | AVUM | AVIM | D | | |
| 14 | Radio Set Control C-10606(V)7/ ARC-186(V) (same as 04) | | | | | | |

## Section III. TOOL AND TEST EQUIPMENT REQUIREMENTS FOR VHF AM/FM RADIO SET AN/ARC-186(V)

| Tool or Test Equipment Reference Code | Maintenance Category | Nomenclature | National/NATO Stock Number | Tool Number |
|---|---|---|---|---|
| 1 | AVUM | Electronic Equipment Tool Kit TK-101/G | 5180-00-064-5178 | |
| 2 | AVUM | Maintenance Kit MK-693A | 5821-00-045-9695 | |
| 3 | AVUM | Digital Multimeter AN/PSM-45 | 6625-01-139-2512 | |
| 4 | AVUM/ AVIM | Headset-Microphone SPH-4A | 8415-01-078-4575 | |
| | | or | | |
| | | Headset-Microphone H-158/AIC | 5965-01-128-1410 | |
| 5 | AVUM | Electrical Dummy Load DA-75/U | 6625-00-177-1639 | |
| 6 | AVUM/ AVIM | Radio Frequency Power Test Set AN/URM-120 | 6625-00-813-8430 | |
| 7 | AVIM | Electronic Equipment Tool Kit TK-105/G | 5180-00-610-8177 | |
| 8 | AVIM | Modulation Meter ME-525/USM | 6625-01-161-1459 | |
| 9 | AVIM | Digital Voltmeter AN/GSM-64C | 6625-01-124-0834 | |
| 10 | AVIM | Signal Generator SG-1112(V)1/U | 6625-00-566-3067 | |
| 11 | AVIM | Battery Charger PP-1104C/G | 6130-01-130-1588 | |

| Tool or Test Equipment Reference Code | Maintenance Level | Nomenclature | National/NATO Stock Number | Tool Number |
|---|---|---|---|---|
| 12 | AVIM | Test Facilities Kit MK-994A/AR | 6625-01-189-7882 | |
| 13 | AVIM | Electronic Voltmeter AN/URM-145D | 6625-01-119-7271 | |
| 14 | AVIM | Oscilloscope AN/USM-281C | 6625-00-106-9626 | |
| 15 | AVIM | Signal Generator AN/URM-127A | 6625-00-783-5965 | |
| 16 | AVIM | 6-dB Fixed Attenuator | 5985-00-888-8714 | 80ZH3 |
| 17 | AVIM | 30-dB Fixed Attenuator | 5985-00-233-4626 | Narda 768-30 |
| 18 | AVIM | Distortion Analyzer AN/ URM-184A | 6625-00-802-8718 | |
| 19 | AVIM | Fuseholder MX-1730/U | 5920-00-636-0679 | |
| 20 | AVIM | Radio Set Control C-10604(V)6/ ARC-186(V) | 5821-01-076-2245 | |
| 21 | AVIM | Radio Receiver-Transmitter RT-1300A/ARC-186 (V) | 5821-01-062-1019 | |
| 22 | AVIM | Static Work Station | 4940-01-087-3458 | |
| 23 | AVIM | Radio Test Set AN/GRM-l14A | 6625-01-114-4481 | |

## Section IV. REMARKS

| Reference Code | Remarks/Notes |
|---|---|
| Note A | The AN/ARC-186(V) is made up of many different components. Some may be in your aircraft; some may not. Your aircraft's avionics configuration TM will tell you which components you should have. The times listed in column 4 under the maintenance category are average times. |
| Note B | The maintenance you are allowed to do is explained in TM 11-5821-318-12 Chapter 2.<br><br>The parts you are allowed to replace are listed in TM 11-5821-318-20P. |
| Note C | The maintenance you are allowed to do is explained in TM 11-5821-318-30 Chapters 2 thru 9.<br><br>The parts and assemblies you are allowed to replace are listed in TM 11-5821-318-30P. |
| Note D | An Army Depot Level Maintenance Capability is not authorized. Necessary repairs or exchanges will be performed by the USAF under the terms of the Depot Maintenance Interservice Support Agreement (DMISSA). |



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# APPENDIX C
# COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS

## Section I. INTRODUCTION

### C-1. SCOPE

This appendix lists components of end item and basic issue items for your radio set to help you inventory items required for safe and efficient operation.

### C-2. GENERAL

The Components of End Item and Basic Issue Items Lists are divided into the following sections:

a. Section II. Components of End Item.

This listing is for informational purposes only, and is not authority to requisition replacements. These items are part of the end item, but are removed and separately' packaged for transportation or shipment. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts.

Paragraph 1-8 has pictures of all the radio set components. Use those pictures to identify them.

b. Section III. Basic Issue Items.

Not applicable.

### C-3 . EXPLANATION OF COLUMNS

The following provides an explanation of columns found in the tabular listings:

a. Column (1) - Illustration Number (Illus Number).

This appendix does not have illustrations (pictures). See paragraph 1-8 for pictures of the radio set components.

b. Column (2) - National Stock Number.

Indicates the National stock number assigned to the item and will be used for requisitioning purposes.

c. Column (3) - Description.

Indicates the Federal item name and, if required, a minimum description to identify and locate the item. The last line for each item indicates the FSCM (in parentheses) followed by the part number.

**C-3. EXPLANATION OF COLUMNS (Continued)**

d. Column (4) - Unit of Measure (U/M).

Indicates the measure used in performing the actual operational/maintenance function. This measure is expressed by a 2-character alphabetical abbreviation (eg, ea, in., pr).

e. Column (5) - Quantity Required ( Qty Reqd ).

Indicates the quantity of the item authorized to be used with/on the equipment.

## Section II. COMPONENTS OF END ITEM

| (1) Illus Number | (2) National Stock Number | (3) Description FSCM & Part Number | (4) U/M | (5) Qty Reqd |
|---|---|---|---|---|
| | 5821-01-062-1019 | Radio Receiver-Transmitter RT-1300A/ARC-186(V) (13499)622-4038-002 | Ea | 1 |
| | 5821-01-208-1093 | Radio Receiver-Transmitter RT-1300B/ARC-186(V) (13499)622-6347-001 | Ea | 1 |
| | 5821-01-092-4907 | Radio Receiver-Transmitter RT-1354/ARC-186(V) (13499)622-5528-001 | Ea | 1 |
| | 5821-01-208-1095 | Radio Receiver-Transmitter RT-1354A/ARC-186(V) (13499)622-7360-001 | Ea | 1 |
| | 5821-01-328-2268 | Radio Receiver-Transmitter RT-l354B/ARC-186(V) (13499)A3154464 | Ea | 1 |
| | 5821-01-076-2245 | Radio Set Control C-10604(V)6/ARC-186(V) (13499) 622-4039-006 | Ea | 1 |
| | 5821-01-327-7399 | Radio Set Control C-10604A(V)6/ARC-186(V)(13499) A3154448 | Ea | 1 |
| | 5821-01-189-9938 | Radio Set Control C-10604(V)7/ARC-186(V) (13499) 622-7363-001 | Ea | 1 |
| | 5821-01-077-2503 | Radio Set Control C-10606(V)6/ARC-186(V) (13499) 622-4039-018 | Ea | 1 |
| | 5821-01-209-0109 | Radio Set Control C-10606(V)7/ARC-186(V) (13499) 622-7363-003 | Ea | 1 |
| | 5821-01-062-0961 | Signal Data Comparator CM-482/ARC-186(V) (13499)622-4291-001 | Ea | 1 |
| | 5821-01-108-1443 | Signal Data Comparator CM-492/ARC-186(V) (13499)622-5311-001 | Ea | 1 |
| | 5821-01-202-0191 | Electrical Equipment Mounting Base MT-6048A/ ARC-186(V) (13499) 622-4287-002 | Ea | 1 |


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| (1) Illus Number | (2) National Stock Number | (3) Description FSCM & Part Number | (4) U/M | (5) Qty Reqd |
|---|---|---|---|---|
| | 5821-01-062-0959 | Electrical Equipment Mounting Base MT-6050/ ARC-186(V) (13499)622-4289-001 | Ea | 1 |
| | 5821-01-616-5318 | Electrical Equipment Mounting Base MT-6051/ ARC-186(V) (13499)622-4290-001 | Ea | 1 |
| | 5821-01-197-1923 | Electrical Equipment Mounting Base MT-6421/ ARC-186(V) (13499) 622-4290-002 | Ea | 1 |

# APPENDIX D
# EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

## Section I. INTRODUCTION

### D-1. SCOPE

This appendix lists expendable/durable supplies and materials you will need to operate and maintain your radio set. This listing is for informational purposes only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V, Repair Parts, and Heraldic Items) or CTA 8-100, Army Medical Department Expendable/Durable Items.

### D-2. EXPLANATION OF COLUMNS

a. Column (1) - Item Number.

This number is assigned to the entry in the listing and is referenced in the narrative instructions to identifY the material (eg, "Use cleaning compound, item 5, App. E").

b. Column (2) - Level.

This column identifies the lowest level of maintenance that requires the listed item.

C - Operator/Crew
O - Aviation Unit Maintenance

c. Column (3) - National Stock Number.

This is the National stock number assigned to the item; use it to request or requisition the item.

d. Column (4) - Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Federal Supply Code for Manufacturer (FSCM), in parentheses, followed by the part number.

e. Column (5) - Unit of Measure (U/M).

Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in., pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

## Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS

| (1) Item Number | (2) Level | (3) National Stock Number | (4) Description | (5) U/M |
|---|---|---|---|---|
| 1 | 0 | 9505-00-248-9846 | Nonelectric wire | R1 |
| 2 | 0 | 6850-00-105-3084 | Freon TF cleaning compound | Cn |
| 3 | 0 | 8305-00-222-2423 | Cheesecloth cloth | Yd |

# ALPHABETICAL INDEX

# ALPHABETICAL INDEX (Continued)

# ALPHABETICAL INDEX (Continued)

# ALPHABETICAL INDEX (Continued)

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|---|---|---|
| TM 11-1520-238-23 | 31 Aug 1980 | Aviation Unit and Intermediate Maintenance Manual Avionics Configuration |

BE EXACT . . . PIN-POINT WHERE IT IS

| PAGE NO | PARA GRAPH | FIGURE NO | TABLE NO | IN THIS SPACE TELL WHAT IS WRONG |
|---|---|---|---|---|
| | 3-23 | | | Add — Screwdriver, Common, to Material/Parts List on setup page. |
| | 3-26 | | | Step b. Add Item number to P904 plug. Should be Item no. (4). |

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| | | | |

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

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