

**OPERATION AND MAINTENANCE
1×N FREQUENCY DIVERSITY
DR 6-135A AND 135EC
RADIO RECEIVER
DC POWER DIAGNOSIS**

	CONTENTS	PAGE
1. GENERAL		1
1.1 UPDATE INFORMATION		1
 Figures		
1. Receiver DC Power Distribution Block Diagram		12
 Flowcharts		
1. MR 1—Receiver DC Power Diagnosis		2
2. MSR 1—Receiver +5 and/or ± 15 V DC Output Voltage Problem Diagnosis		3
3. MSR 2—Receiver DC Input Voltage Problem Diagnosis—Dual T/R DC Input Feed		5
4. MSR 3—Receiver DC Input Voltage Problem Diagnosis—Single T/R DC Input Feed		6
5. MSR 4—Resolving DC Input Problems When Circuit Breaker Does Not Trip or Fuse Does Not Blow		8
6. MSR 5—Resolving Receiver Shelf DC Input Problems When Circuit Breaker is Tripped or Fuse is Blown		9

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1. GENERAL

The following logic diagram, MR 1, references local equipment indications and/or any necessary tests to determine the source of the power problem. When a unit has failed, refer to the RADIO RCVR tab under the REPLACEMENT PROCEDURES tab to replace the failed unit with a spare. If tests are necessary, refer to the RADIO RECEIVER PROCEDURES tab under the TESTS AND ADJUSTMENTS tab.

Each vertical transmitter/receiver (T/R) pair in a radio frame is separately powered and fused by the -24 V/-48 V station battery plant. In addition, each vertical T/R pair can be connected using a single or a dual power feed from the battery plant to the radio frame. The single power feed provides one input voltage line to the top of the radio frame, from which both the transmitter and receiver are powered. The dual power feed provides two independent input voltage lines, one for the transmitter and one for the receiver.

An input DC power failure can be detected by measuring at the power unit test points with an external voltmeter. The DC input voltage requirements are given in Table A.

A DC power output failure can be detected using the optional ALARM AND METER unit (see **Note**) or by measuring at the power unit test points with an external voltmeter. The DC output voltage requirements are given in Table B.

A block diagram of the receiver DC power distribution is shown in Figure 1. Loss of any output voltage may cause one or more units to malfunction.

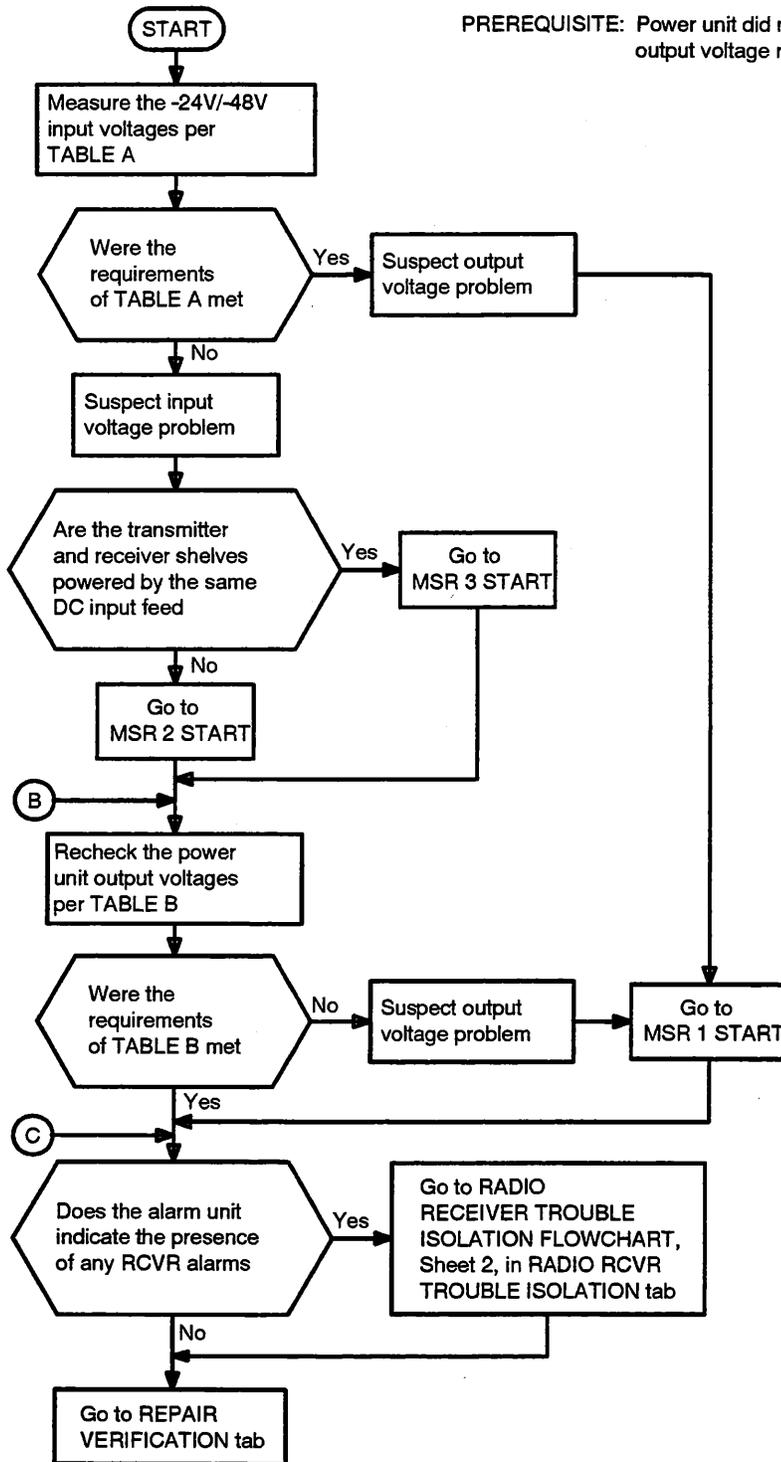
Note: If using the optional bay meter to verify that the DC voltages are within limits and the displayed voltage is not correct, verify that the meter unit is functioning properly before proceeding. This may be determined by quickly checking the displayed indications on several other switch positions. If the reading at multiple positions seems to be out of limits, the meter unit should be suspected and replaced before proceeding.

Warning: To prevent electrostatic discharge (ESD) damage to a unit, ensure all ESD precautions are followed.

1.1 UPDATE INFORMATION

This practice is reissued to update the text and to revise MR 1, MSR 2, MSR 3, MSR 4, and MSR 5. The practice is used in binders 421-102-001, 421-102-080, 421-102-090, 421-102-100, 421-103-001, 421-103-080, 421-103-090, and 421-103-100.

PREREQUISITE: Power unit did not meet one or more output voltage requirements.



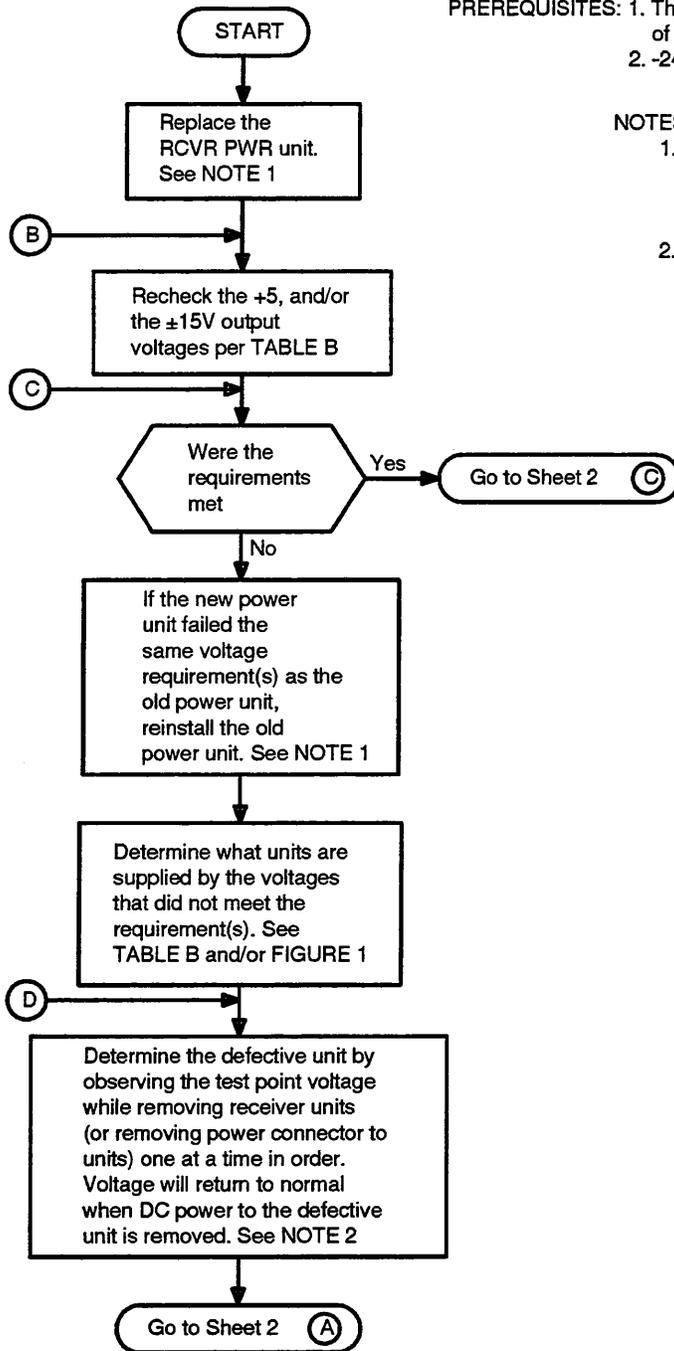
MR 1—Receiver DC Power Diagnosis

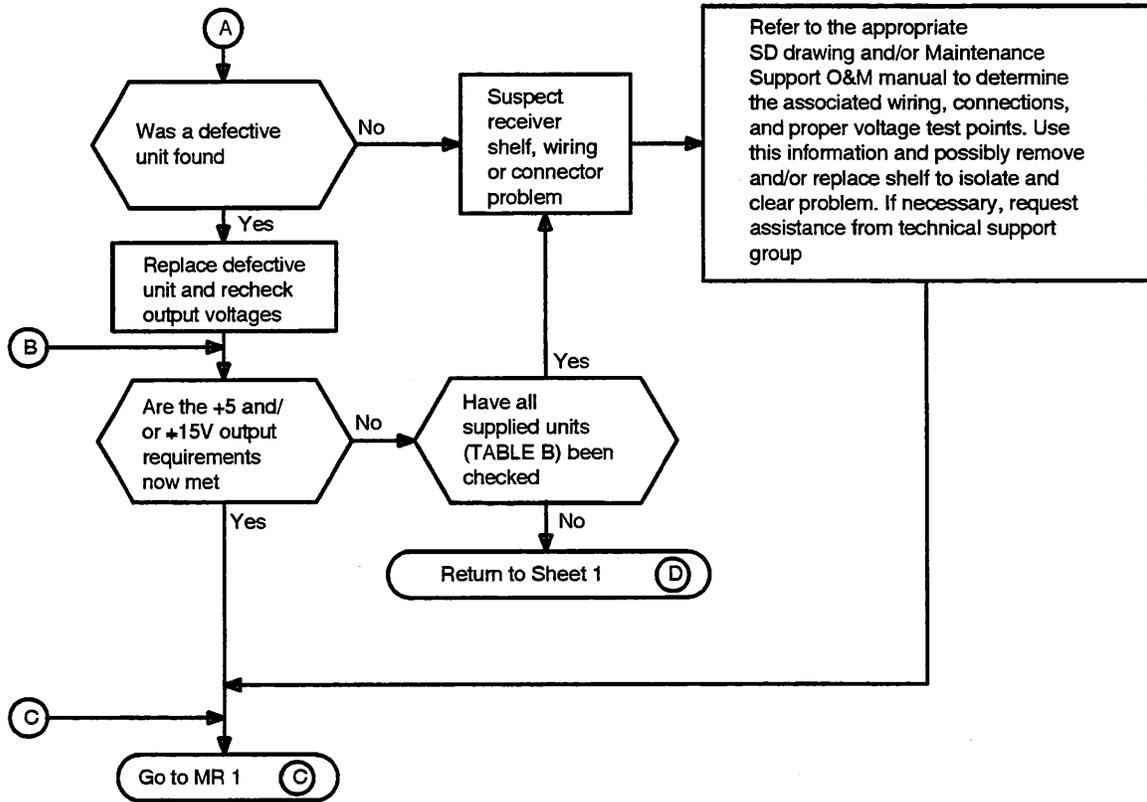
CAUTION: THIS PROCEDURE IS SERVICE-AFFECTING UNLESS THE PROPER MANUAL PROTECTION SWITCHING OPERATION HAS BEEN PERFORMED.

PREREQUISITES: 1. The +5, +15 and/or -15V output voltages of the RCVR PWR unit did not meet requirement
2. -24V or -48V input voltage is good.

NOTES:

1. Operate pushbutton on the RCVR PWR unit to the STBY (out) position before removing or installing unit.
2. If excessive current is drawn by a short in any receiver unit, the power unit will automatically shut down.

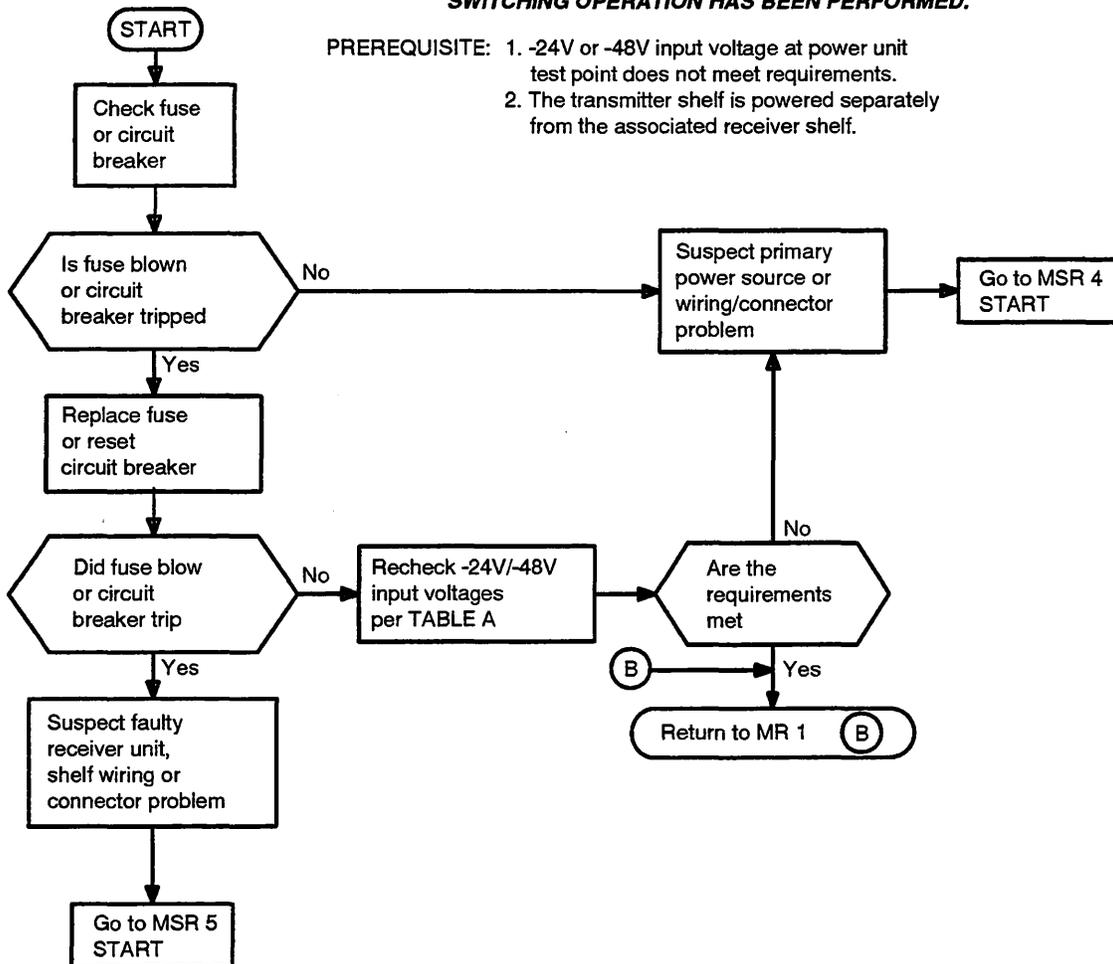




MSR 1—Receiver +5 and/or ± 15 V DC Output Voltage Problem Diagnosis (Sheet 2 of 2)

**CAUTION: THIS PROCEDURE IS SERVICE AFFECTING
UNLESS THE PROPER MANUAL PROTECTION
SWITCHING OPERATION HAS BEEN PERFORMED.**

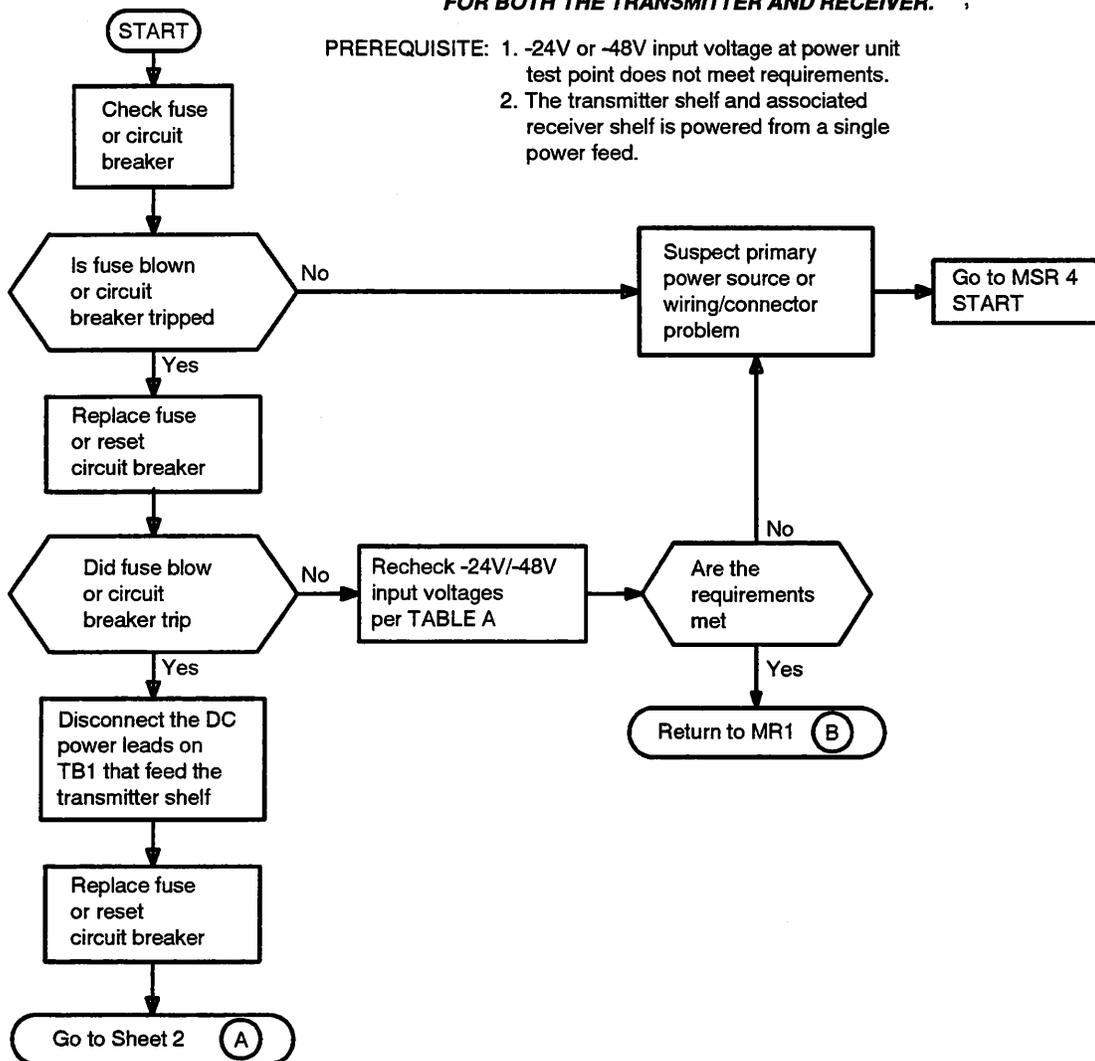
PREREQUISITE: 1. -24V or -48V input voltage at power unit test point does not meet requirements.
2. The transmitter shelf is powered separately from the associated receiver shelf.



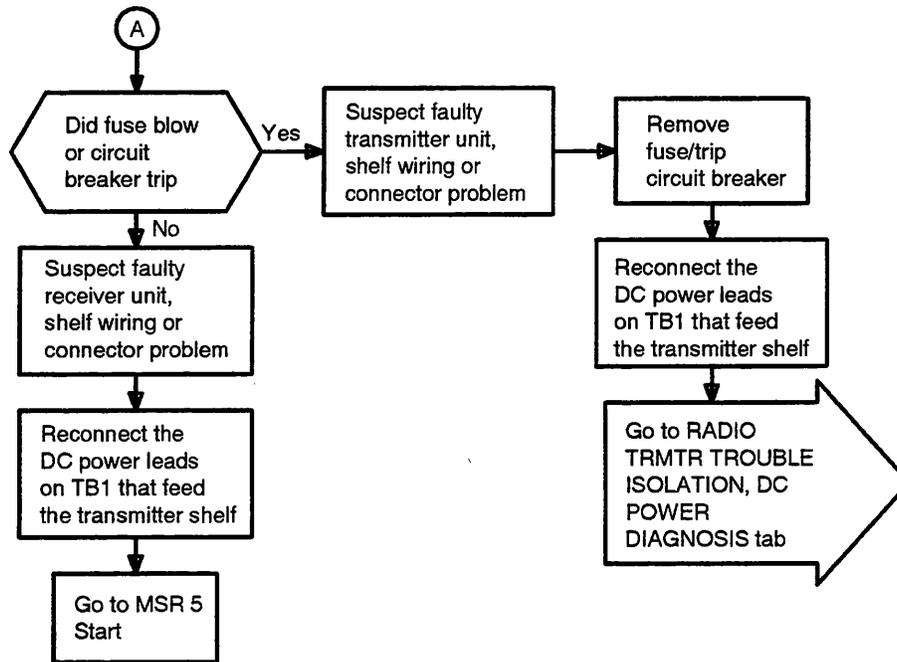
MSR 2— Receiver DC Input Voltage Problem Diagnosis— Dual T/R DC Input Feed

CAUTION: THIS PROCEDURE IS SERVICE AFFECTING UNLESS THE PROPER MANUAL PROTECTION SWITCHING OPERATION HAS BEEN PERFORMED FOR BOTH THE TRANSMITTER AND RECEIVER.

PREREQUISITE: 1. -24V or -48V input voltage at power unit test point does not meet requirements.
 2. The transmitter shelf and associated receiver shelf is powered from a single power feed.



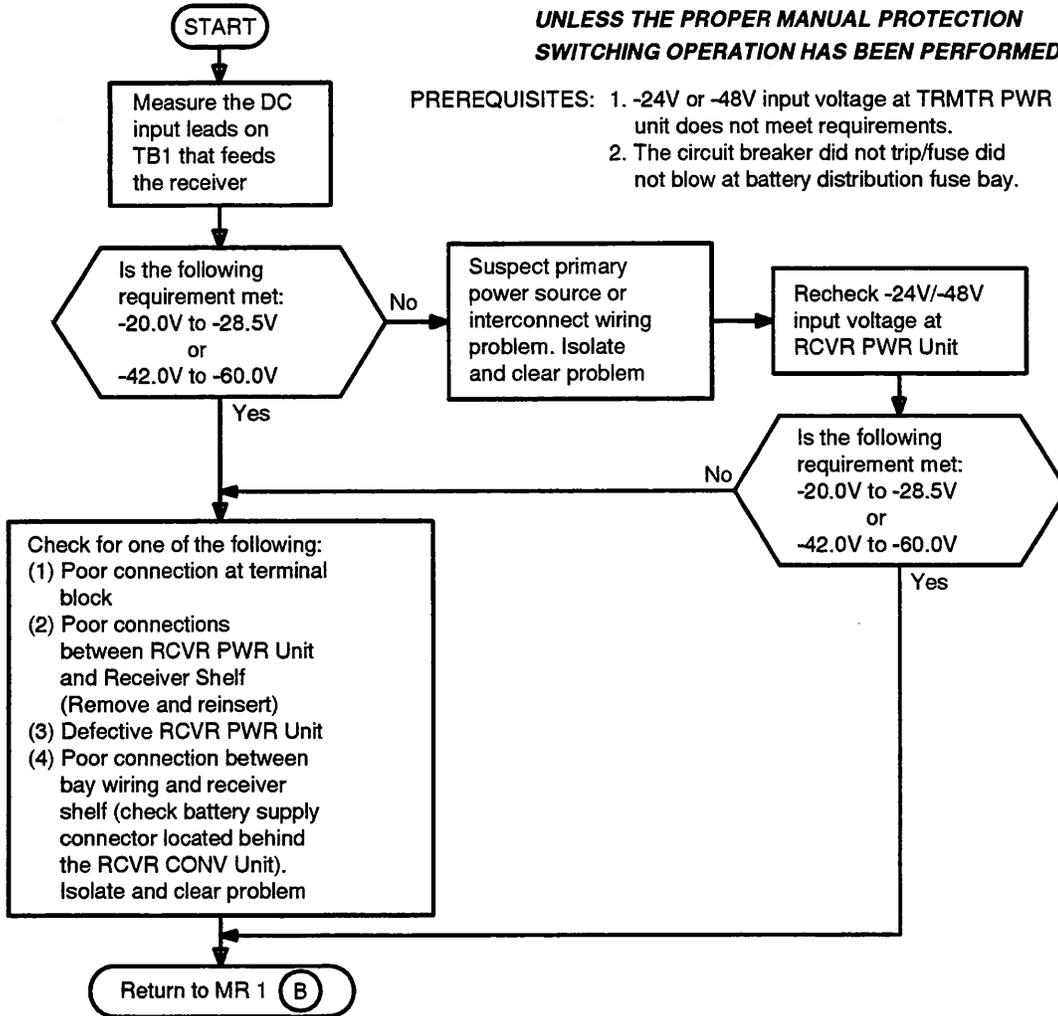
MSR 3—Receiver DC Input Voltage Problem Diagnosis—Single T/R DC Input Feed (Sheet 1 of 2)



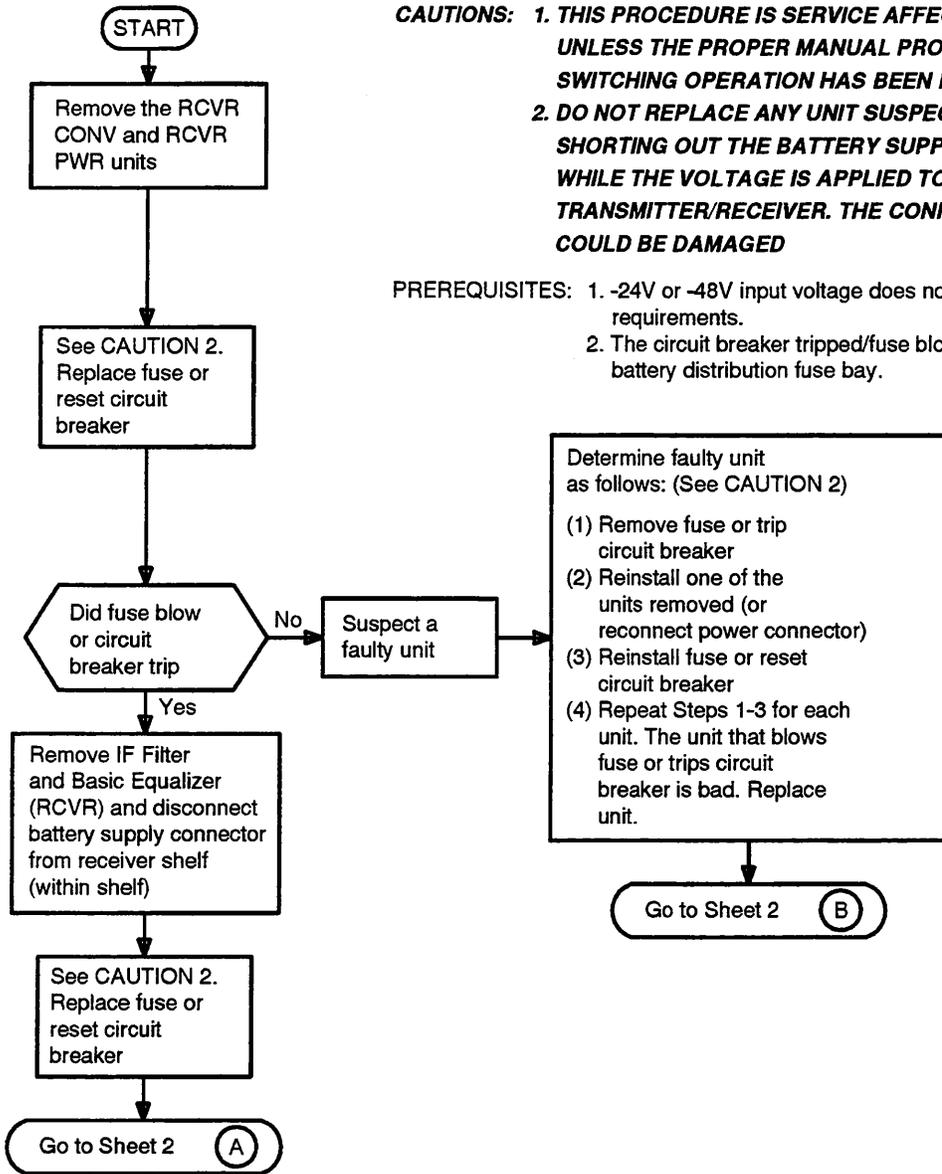
**MSR 3—Receiver DC Input Voltage Problem Diagnosis—Single T/R DC Input Feed
(Sheet 2 of 2)**

CAUTION: THIS PROCEDURE IS SERVICE-AFFECTING UNLESS THE PROPER MANUAL PROTECTION SWITCHING OPERATION HAS BEEN PERFORMED.

PREREQUISITES: 1. -24V or -48V input voltage at TRMTR PWR unit does not meet requirements.
2. The circuit breaker did not trip/fuse did not blow at battery distribution fuse bay.



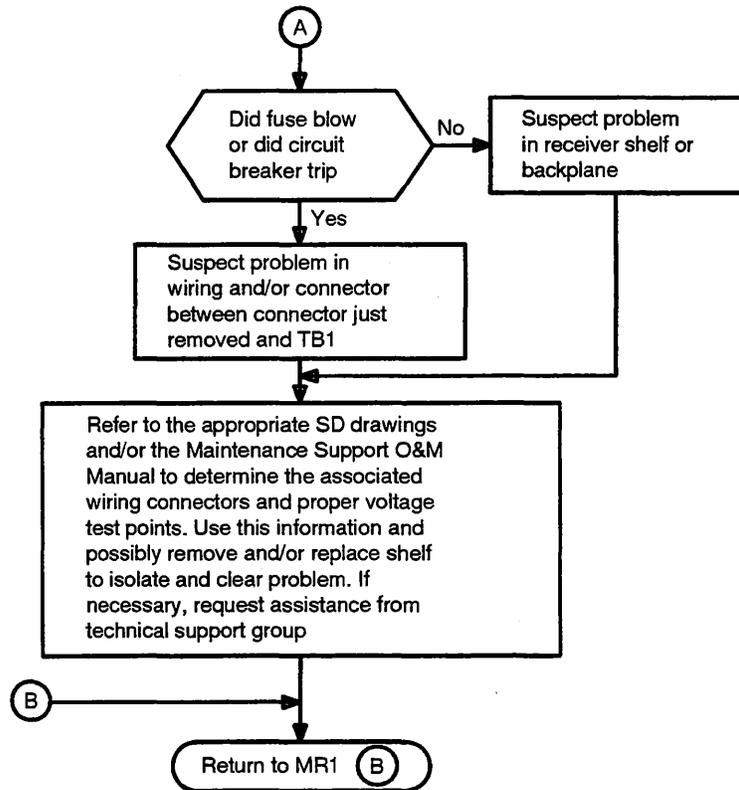
MSR 4—Resolving DC Input Problems When Circuit Breaker Does Not Trip or Fuse Does Not Blow



CAUTIONS: 1. THIS PROCEDURE IS SERVICE AFFECTING UNLESS THE PROPER MANUAL PROTECTION SWITCHING OPERATION HAS BEEN PERFORMED.
 2. DO NOT REPLACE ANY UNIT SUSPECTED OF SHORTING OUT THE BATTERY SUPPLY VOLTAGE WHILE THE VOLTAGE IS APPLIED TO THE TRANSMITTER/RECEIVER. THE CONNECTOR COULD BE DAMAGED

PREREQUISITES: 1. -24V or -48V input voltage does not meet requirements.
 2. The circuit breaker tripped/fuse blown at battery distribution fuse bay.

MSR 5—Resolving Receiver Shelf DC Input Problems When Circuit Breaker is Tripped or Fuse is Blown (Sheet 1 of 2)



MSR 5—Resolving Receiver Shelf DC Input Problems When Circuit Breaker is Tripped or Fuse is Blown (Sheet 2 of 2)