

AM Directional Coupler Install

Application Guide

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1 AM Directional Coupler Install

1.1 Overview of the upgrade

This procedure describes replacing the Directional Coupler in a properly functional AM transmitter. It outlines the setup procedure for a transmitter where the Output Network adjustments have NOT been altered, and the load at the transmitter output is 50Ω j0.

Models affected: AM500A, AM1A, AM2.5E, AM5E, AM6A and AM10A.

2 Preparation

2.1 Overview / Estimated Completion Time

The replacement of the AM Directional Coupler will take about 1 ½ hours.

2.2 Items / Tools required for the Replacement Process

- No. 2 Phillips Screwdriver

3 Preparation

Before installing the new Directional Coupler, note location of potentiometers R223, R234, R224 and R235. You can also refer to the old directional coupler for potentiometer locations.



WARNING: ENSURE ALL PRIMARY POWER IS DISCONNECTED BEFORE PROCEEDING.

4 Replace Directional Coupler

Each model has a slightly different removal procedure and is out of the scope of this guide.

5 Setup and adjustment

- 5.1 After replacing the old directional coupler with the new directional coupler install J11 on the controller (This will defeat the High Forward Power detection so the transmitter power won't fold back during this procedure).

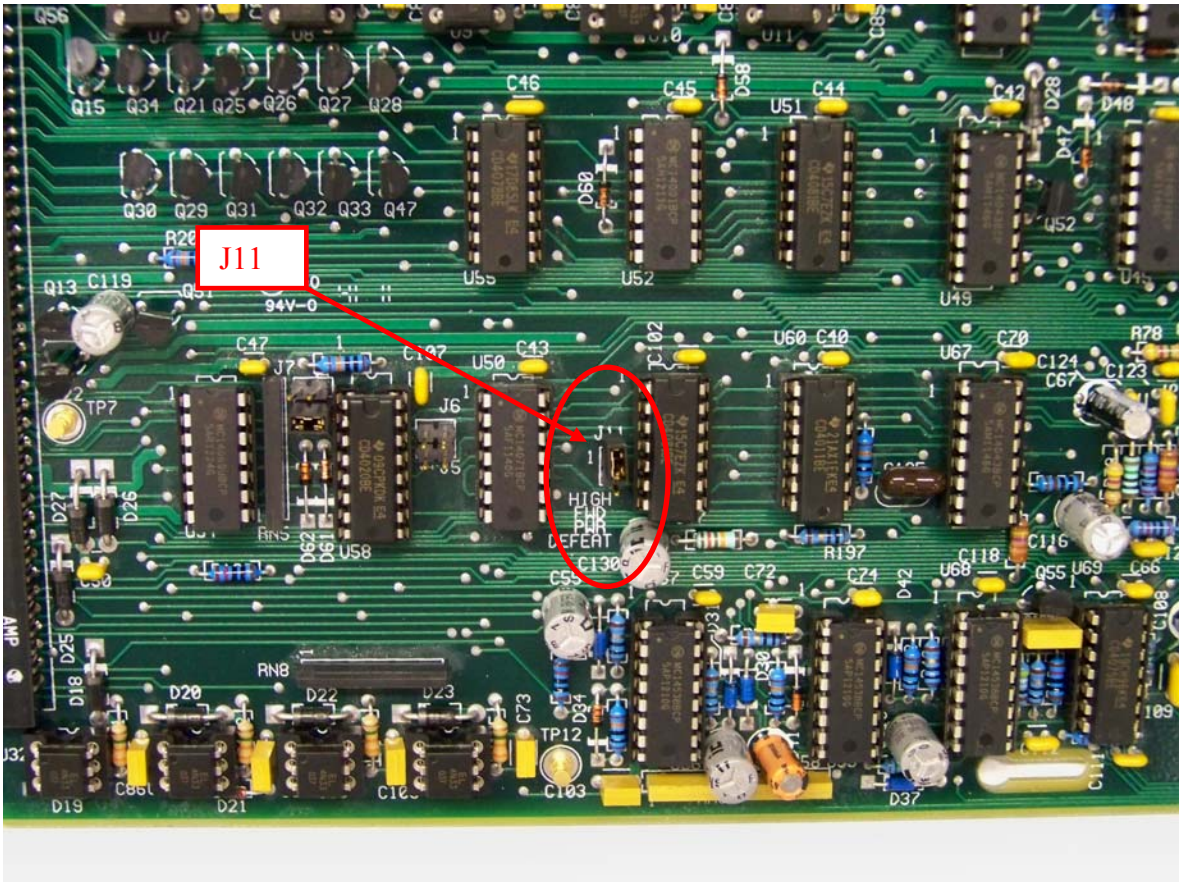


Figure 1. J11 location on Controller.

5.2 Adjust all four directional coupler pots fully clockwise (20 turn pots) then counter-clockwise three turns. This should be a good starting point.

NOTE: Potentiometers R223 and R234 are considered a pair and R224 and R235 are considered a pair (they're in parallel with each other for current sharing). The pots that make up a pair should be adjusted by the same amount and in the same direction when tuning.

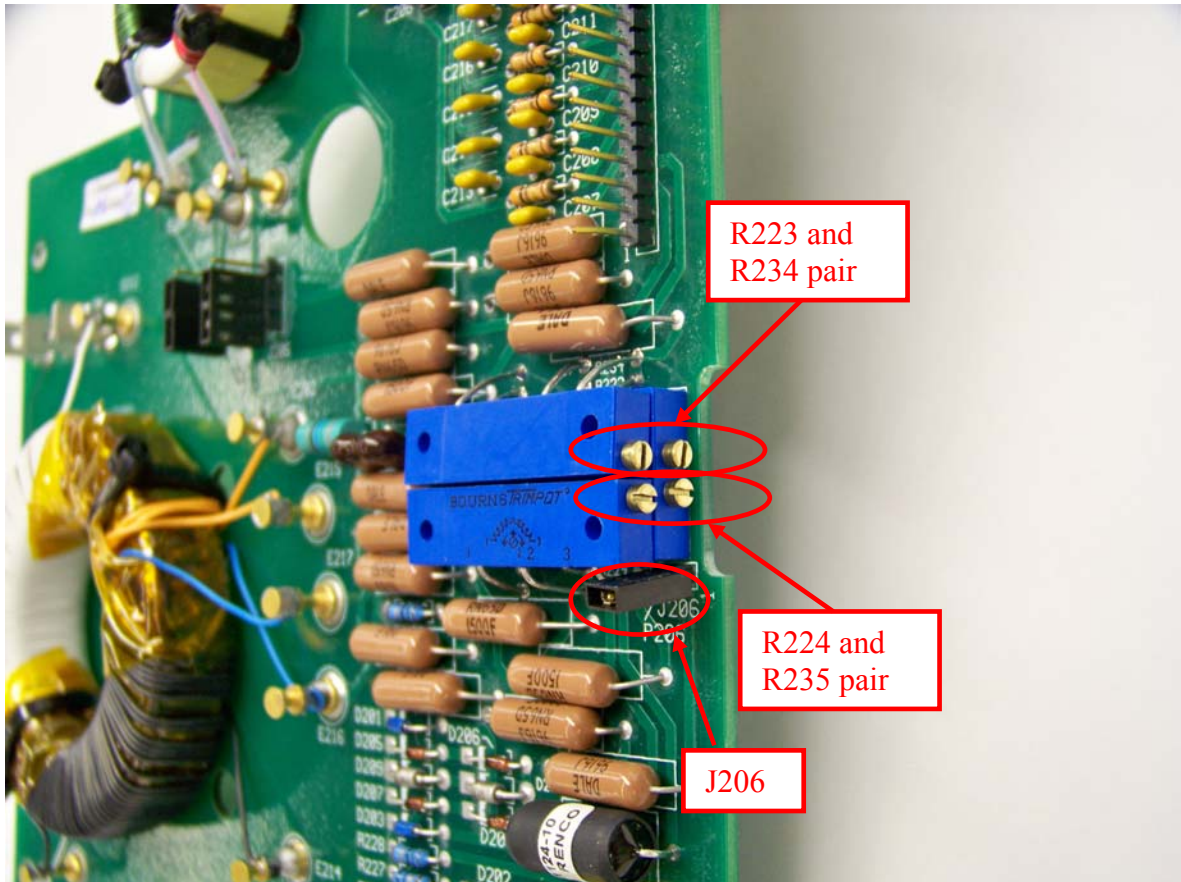
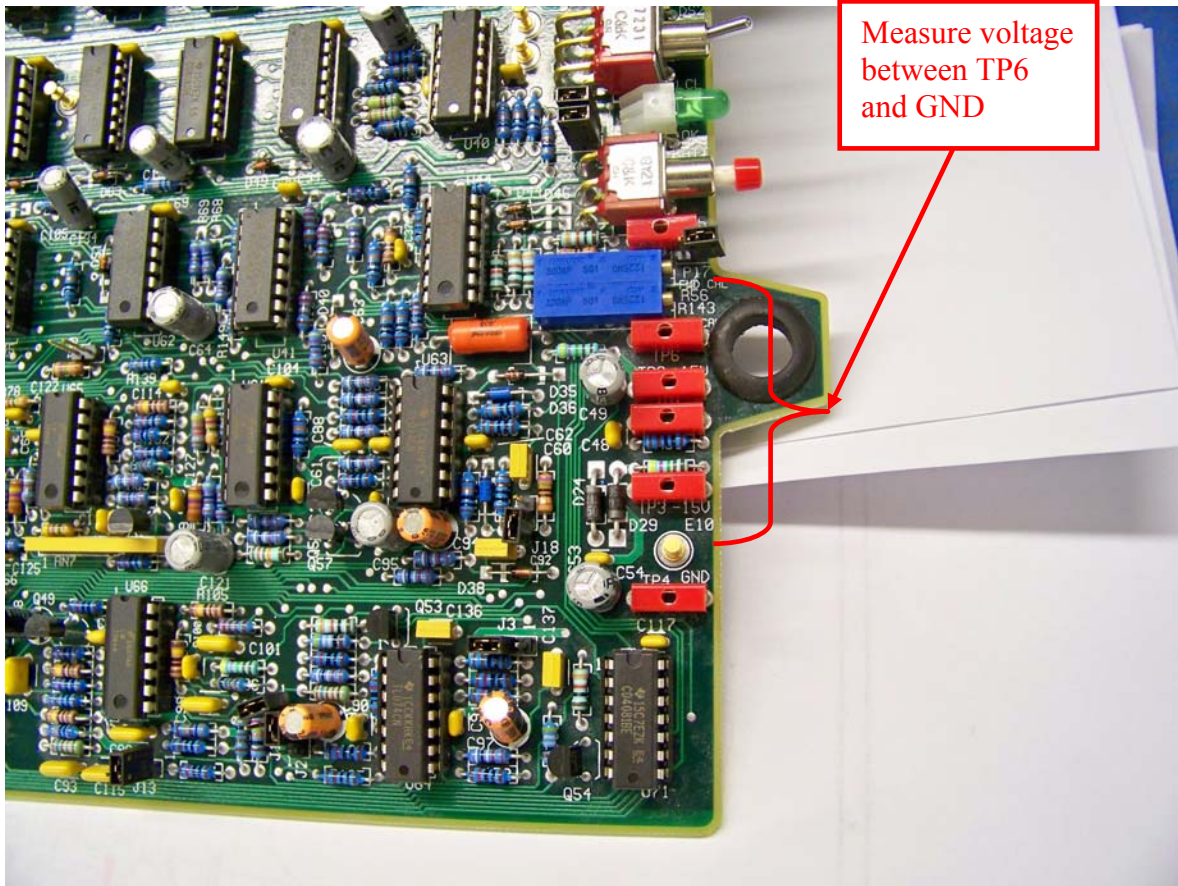


Figure 2. Directional Coupler Pots.

- 5.3 Restore Primary Power and turn transmitter ON. Increase RF output power up to the transmitters' rated power and adjust the four potentiometers to null the voltage at TP6 to GND on the controller. Voltage should null below 0.015 VDC. If null won't go that low change position of jumper 206 and try again.



- 5.4 Once coupler voltage is nulled at TP6 on the Controller, turn transmitter OFF and uninstall J11 on Controller to re-enable foldback function.

- 5.5 Turn transmitter back ON to rated power. Verify voltage at TP5 to ground on the Controller should measure 4.17 VDC. This is the forward power meter calibration sample. It should not need adjusting; if it does it can be done with R56 on Controller.

6 Reference settings

Table 1. S201 setting reference.

Frequency	S201-1	S201-2	S201-3	S201-4
525 - 690	ON	OFF	OFF	OFF
700 - 990	ON	ON	OFF	OFF
1000 - 1705	OFF	ON	OFF	OFF

Table 2. J203 jumper setting reference.

Transmitter	J203, 1-2 jumper	J203, 2-3 jumper
AM500A	Power level 3; 150-550 watts.	Power level 3; 5-500 watts.
AM1A	Power level 3; 300-1100 watts.	Power level 3; 5-500 watts.
AM2.5E	Power level 3; 750-2700 watts.	Power level 3; 12.5-1250 watts.
AM5E	Power level 3; 1500-5500 watts.	Power level 3; 25-2500 watts.
AM6A	Power level 3; 2000-6600 watts.	Power level 3; 25-2000 watts.
AM10A	Power level 3; 3500-10800 watts.	Power level 3; 50-5000 watts.

Table 3. J205/J205 jumper reference.

Transmitter	P204A/P205A	P204B/P205B
AM500, AM1A	Pins 2-3	NA
AM2.5E, AM5E, AM6A, AM10A	Pins 1-2	Pins 3-4

7 RF Technical Services Contact Information

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