

NOTE

Alignment may be performed using a Motorola S1056A thru S1059A Portable Test Set or optional built-in station metering. The OSC. & METER REV. SWITCH column refers to portable test set usage - - polarity is automatically reversed as required when built-in station metering is used.

**EXCERPTS FROM FCC REGULATIONS**

FCC Regulations state that:

1. Radio transmitters may be tuned or adjusted only by persons holding a first or second class commercial radiotelephone operator's license or by personnel working directly under their immediate supervision.
2. The power input to the final radio frequency stage shall not exceed the maximum figure specified on the current station authorization. This power input shall be measured and the results recorded:
  - a. When the transmitter is initially installed.
  - b. When any change is made in the transmitter which may increase the power input.
  - c. At intervals not to exceed one year.
3. Frequency and deviation of a transmitter must be checked:
  - a. When it is initially installed.
  - b. When any change is made in the transmitter which may affect the carrier frequency or modulation characteristics.
  - c. At intervals not to exceed one year.

**POWER AMPLIFIER ALIGNMENT PROCEDURE**

STEP	ADJUST	METERING PLUG LOCATION	SELECTOR SWITCH POSITION	METER REV. & ADAPTER CABLE REF. SWITCHES (SEE NOTE)	STAGE AND PROCEDURE
1					Align the exciter.
2					For complete power amplifier tune-up, proceed with step 3. To check alignment move metering plug to power control board and go to step 6.
3	C501, C502				PA PRE-ALIGNMENT - Set C501 fully clockwise and C502 to maximum capacity (plate fully meshed).
4	POWER SET	POWER CONTROL BOARD	Wattmeter or 1	METER REV. REF A	OUTPUT - Move the metering plug to the power control board. Without exceeding rated power output of 90, 100, or 110 watts on the wattmeter or calibration label value on meter 1, adjust the POWER SET control for rated power or until no further increase in power output is observed. Then adjust the POWER SET control counterclockwise for

**POWER AMPLIFIER ALIGNMENT PROCEDURE (CONT'D)**

STEP	ADJUST	METERING PLUG LOCATION	SELECTOR SWITCH POSITION	METER REV. & ADAPTER CABLE REF. SWITCHES (SEE NOTE)	STAGE AND PROCEDURE
4 (cont'd)					an approximate 10 W reduction on the wattmeter or 3 uA reduction from meter 1 reading.
5	C501, C502	POWER CONTROL BOARD	5 <i>PA I</i>	METER REV. REF B	PA DRIVER OUTPUT - Tune C501, then C502 for a minimum meter 5 reading.
6	POWER SET	POWER CONTROL BOARD	Wattmeter or 1  5	METER REV. REF A  METER REV. REF B	OUTPUT - Adjust the POWER SET control for rated power output and perform step 5. (If rated power cannot be attained, repeat steps 4 and 5.) For continuous duty operation, adjust POWER SET control for 40 W.  Check meter 5 reading, it must not exceed 50 uA.
7		PA	5	METER REV. REF B	FINAL COLLECTOR CURRENT - Move the metering plug to the PA. Measure the final collector current ( $I_c$ ). $I_c$ in amperes is the meter 5 reading (0-50) x 1/2.
8		PA	6	METER REV. REF B	FINAL COLLECTOR VOLTAGE - Measure the final collector voltage ( $V_c$ ). $V_c$ is the meter 6 reading (0-30 volt scale).
9					Determine final input power ( $P_{in}$ ). $P_{in}$ equals $V_c \times I_c$ . $P_{in}$ should be less than: 180 watts for 90-watt models; 200 watts for 100-watt continuous duty models and 110-watt intermittent duty models.

90/100/110 W POWER AMPLIFIER

90/100/110 W Power Amplifier  
Alignment Procedure  
Motorola No. PEPS-8588-O  
3/17/72-UP