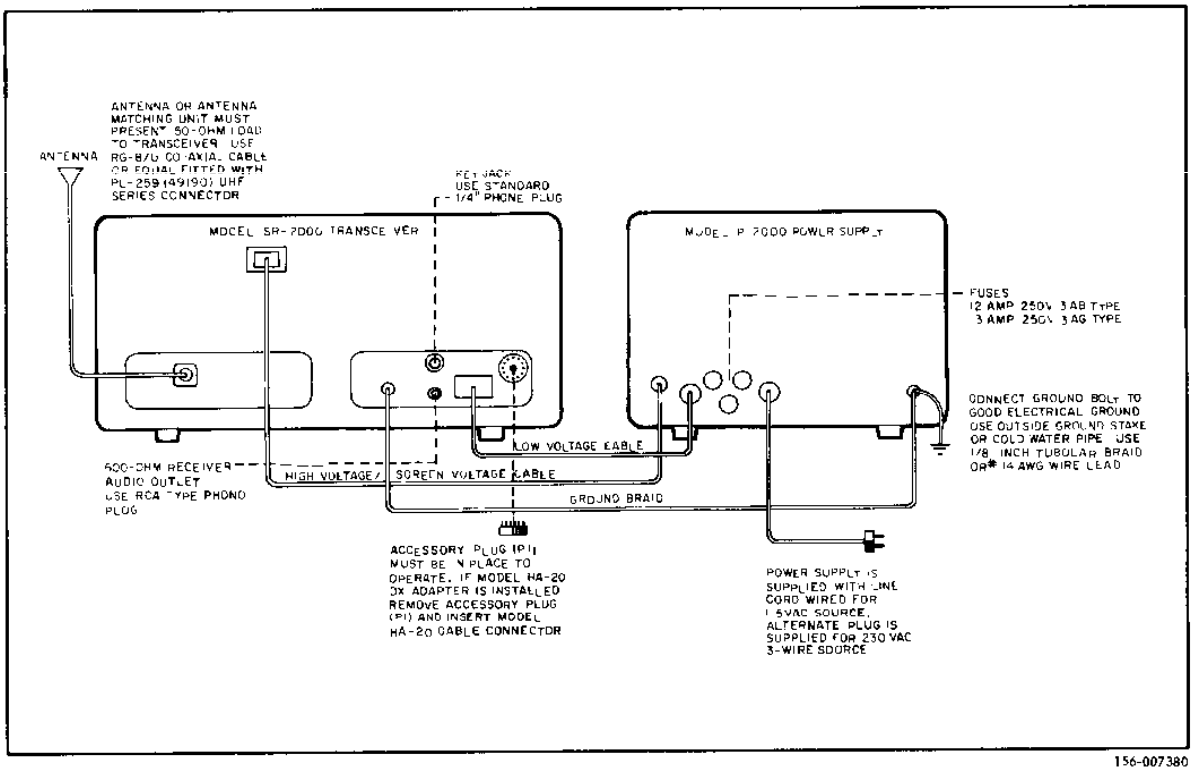



156-007380

*Figure 5. Typical Installation.*

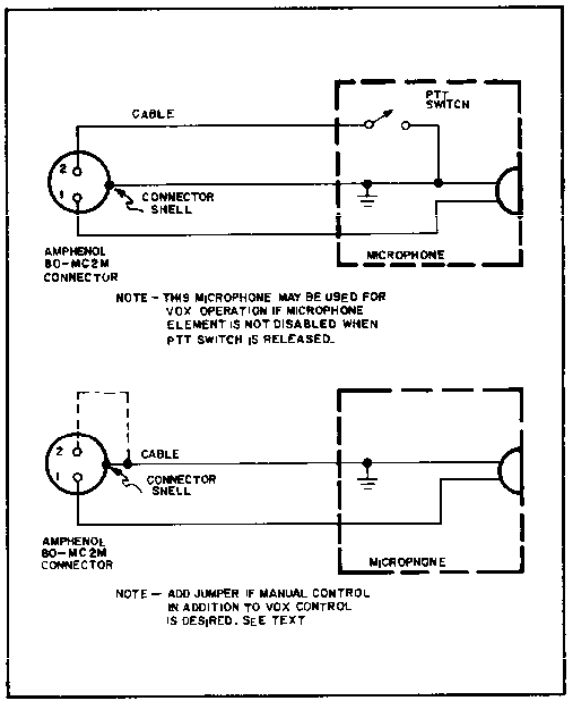
## 3-9. MICROPHONE REQUIREMENTS.

The microphone receptacle is located on the front panel. The microphone cable should be fitted with an Amphenol type 80-MC2M connector wired as shown in figure 6.

Any good high impedance crystal or dynamic type microphone may be used, however best results will usually be achieved with a microphone designed especially for voice communication use.

The microphone circuit shown with the PTT switch may also be used with VOX control, however some microphones fitted with push-to-talk switches also mute the microphone element until the switch is pressed, hence VOX operation is not possible unless the microphone switch is altered accordingly.

Microphones without push-to-talk switching may be used with voice controlled operation (VOX). With the addition of the jumper wire shown (dashed line), these microphones may also be used when manual operation is desired. In this case, setting the OPERATION control at MOX places the transmitter on the air, and returning the control to REC puts the transceiver back in the receive mode.




156-007375

*Figure 6. Microphone Wiring, With and Without Push-to-Talk Switch.*

3–10. KEYER CONNECTION.

The station keyer is connected to the transceiver at the key jack located on the rear chassis apron. The key jack accepts a standard 1/4-inch phone plug. Wire the plug so that the key base connects to the plug sleeve which is at ground potential.

3–11. HEADPHONE CONNECTION.

Headphone reception may be had by connecting headphones to the PHONES jack located on the front panel of the transceiver. The headset cord should be fitted with a standard 1/4-inch phone plug to mate with the panel jack.

The speaker unit in the Model P-2000 Power Supply is disabled when headphones are plugged into the PHONES jack. High or low impedance headphones may be used. A station speaker with a voice coil impedance of 3 to 4 ohms may be connected to the transceiver through the PHONES jack, if desired. Connect the ground side of the speaker or headphones to the sleeve terminal of the phone plug.

# SECTION IV
# FUNCTIONS OF OPERATING CONTROLS

All controls utilized during normal operation of the Model SR-2000 Transceiver and P-2000 Power Supply are located on the front panel of each unit.

## MODEL SR-2000 CONTROLS

4–1. TUNING CONTROL.

The tuning control knob is located at mid panel just below the dial escutcheon. The control drives the VFO capacitor which is the frequency determining element of the transceiver. The frequency to which the unit is tuned is displayed in the left-hand window and in the window above the knob. Metering information is displayed in the right-hand window.

The frequency dial in the left-hand window has two calibrated scales. The black scale is calibrated from 0 to 500 KC and the red scale is calibrated from 500 to 1000 KC. The dial scales are color coded to the BAND SELECTOR calibrations which also display the first digits of the operating frequency to the left of the decimal point.

By rotating the tuning knob and watching the two dial displays you will observe that the knob scale divides the 100 KC increments of the main dial scale into one kilocycle increments.

The following examples will aid in developing the readout technique:

Set the BAND SELECTOR at 3.5 (Red), and set the tuning knob so that the red scale indicates 650 near the fiducial and the knob dial scale indexes at 55 with its fiducial. The frequency then reads out as 3.655 MC or 3655 KC.

Now set the BAND SELECTOR at 14, and leave the tuning knob set as before. The frequency now reads out at 14.155 MC or 14,155 KC since we are now using the black dial scale on this band. Basically, we obtain 14 MC from the BAND SELECTOR calibration and 155 KC, from the black dial and knob dial scales.

4–2. RIT CONTROL – ON/OFF.

The Receiver Incremental Tuning (RIT) control consists of two controls with concentric shafts. The ON/OFF function of the lever control either places the variable-element RIT control in or out of operation. This control, in the ON position, enables the operator to fine-tune the receiver plus or minus two KC by means of the RIT potentiometer (round knob) without disturbing the initial receiver or transmitter frequency. Returning the control to the OFF position again locks the receiver frequency to the transmitter frequency. RIT must be turned OFF to calibrate the dial or to operate the transmitter and receiver on a common frequency. The warning lamp to the right of the RIT control serves to call attention to the fact that the RIT control is in operation.

4–3. RF – AF (Receiver).

The RF and AF gain controls located in the left-hand group, are two potentiometers mounted on concentric shafts. The RF gain control (lever knob) varies the gain of the receiver RF amplifier stage. Maximum receiver sensitivity is obtained with the bar knob set at 10 (fully clockwise).

The AF gain control (round knob) adjusts the audio output level from the speaker or headphones (PHONES jack). Clockwise rotation of the control increases the audio signal level applied to the first audio amplifier stage of the receiver audio amplifier stages.


156-007341

*Figure 7. Front Panel View of SR-2000 Transceiver.*

4-4. OPERATION.

The OPERATION control is a four-position switch used to select the method of transceive control.

In the OFF position, all power is disconnected from the transceiver.

In the REC (Receiver) position, the receiver portion of the transceiver is placed in operation and all circuits common to both receiver and transmitter are in the receive condition, while circuits used only in the transmit mode are either biased off or switched off by the control.

In the MOX position, when operating SSB, the receiver circuits remain in effect until the microphone (push-to-talk) button is pressed. Closing the microphone switch transfers the circuitry from receive to transmit mode through the bias and relay switching. Releasing the microphone button again restores receiver operation. When operating the transceiver as a CW station, the receiver circuits are disabled when the control is set at MOX and the transmitter circuits are then keyed for code transmission. Returning the operation control to REC restores receiver operation.

In the VOX position the receiver circuits continue to function until the transmitter circuitry is energized by voice for single sideband operation or by pressing the key for code transmission. In the absence of voice or keying, the transceiver is automatically returned to the receiver mode, hence this position is used for automatic or break-in phone and CW control.

4-5. FUNCTION.

The FUNCTION control is a four-position switch used to select the mode of transmission or reception. The control is set at CW for code transmission; at TUNE when tuning the transmitter for CW or SSB operation; and at either USB or LSB for single sideband operation depending upon which sideband is selected for voice communication.

4-6. NOISE BLANKER/OFF.

The NOISE BLANKER control is a potentiometer which varies the operating bias voltage applied to the noise amplifier stage in the receiver IF amplifier system. Rotating the control full counterclockwise disables the noise blanker operation and the receiver functions in a conventional manner without noise immunity.

When noise immunity is desired the NOISE BLANKER control is turned clockwise from its OFF position until the noise level drops to an acceptable signal to noise ratio.

4-7. CAL. ADJ. (Dial Calibration Adjustment).

Dial calibration error of the tuning dial may be corrected by the CAL. ADJ. control. The dial calibration mark and the frequency of reception or transmission may be made to coincide with the use of this control adjustment and the 100 KC crystal marker oscillator (OFF/CAL switch).

4-8. OFF/CAL (Calibrate Signal).

This is an ON/OFF switch used to turn on the 100 KC marker crystal oscillator when the operator wishes to check the dial calibration accuracy of the SR-2000 at the 100 KC points on the dial.

4-9. BAND SELECTOR.

The BAND SELECTOR control is an eight-position rotary switch used to select the desired operating frequency range. The panel markings refer to the low frequency limit of that band in megacycles. The switch positions in red indicate that the red dial scale is to be used on these bands, and the black dial scale is used for the remaining bands.

4-10. PRESELECTOR

The PRESELECTOR control drives a three-section variable capacitor which tunes both receiver and transmitter circuits to frequency within a given band. In the receive mode the receiver RF amplifier and first mixer stages are tuned to frequency, while in the transmit mode, the control tunes the transmitter second mixer and driver stages to frequency. The segmented dial scale provides for an initial setting when changing bands.

For general receiver tuning, the control is adjusted for maximum receiver sensitivity, however, for transceive operation the control is adjusted for maximum transmitter output during transmitter tune-up and left at this setting for the receive mode.

4-11. RF - AF (Transmitter).

The RF and AF controls, located in the right-hand group, are two potentiometers mounted on concentric shafts. The RF level control (lever knob) varies the RF carrier level for CW operation or for tune-up purposes for both CW and SSB operation. Maximum CW output is obtained as the bar knob is turned clockwise toward 10 on the panel.

The AF gain control (round knob) adjusts the audio level to the balanced modulator stage from the microphone amplifier stages. Clockwise rotation of the control knob increases the microphone sensitivity and reaches maximum sensitivity at 10 on the panel.

4-12. METER.

The METER control is a three-position switch used to select the metering information desired by the operator.

In the receive mode the first two switch positions provide "S" meter information about the received signal strength. At S-9 on the meter scale, the received signal level represents approximately 50 microvolts at the antenna terminals. The third switch position functions only in the transmit mode.

In the transmit mode the first switch position, marked RFO, provides an RF voltage measurement across the antenna terminals of the transmitter for tune-up purposes. Since the transmitter will always be tuned for maximum RF voltage, the meter calibration, as such, is relative and the operator may use the S-meter scale to keep track of normal output levels obtained for CW and SSB operation.

In the AALC switch position the meter monitors the amplified automatic level control voltage developed to control the final amplifier drive level for SSB operation. A meter deflection in this position indicates that the voice peaks are approaching the point of flat topping of the output signal. Excessive deflection during SSB transmission is normally corrected by backing off the setting of the microphone gain control until only an occasional pointer deflection is noted.

In the SCREEN MA position the meter indicates the screen current drawn by the final amplifier tubes while transmitting. In the receive mode the meter is disabled. For further information regarding the use of the screen current meter readings refer to Section V, Tuning Procedure.

4-13. PLATE - LOAD (Final Tuning).

The PLATE and LOAD controls consist of separate variable air capacitors in the PI network circuitry of the final amplifier. They are driven through concentric shafts by two knobs, the larger of the two knobs drives the plate capacitor and the smaller knob drives the load capacitor. A 0 to 10 panel scale provides the operator with a logging scale for pre-setting the capacitors when changing bands. For more specific information on the use of these controls, refer to Section V, Tuning Procedure.


156-007565

*Figure 8. Front Panel View of P-2000 Power Supply.*

4-14. BIAS ADJ.

The BIAS ADJ. control sets the operating bias required by the final amplifier tubes. It is a screwdriver type adjustment to avoid disturbing its setting unintentionally. Once set, high or low power operation may be selected without resetting the adjustment. The bias adjustment must be made when the transmitter is first placed in operation, and then only an occasional check and possible adjustment will be required thereafter.

MODEL P-2000 CONTROLS.

4-15. SSB HIGH POWER/SSB LOW POWER-CW-TUNE.

The operator has the option of using either of two plate supply voltages on the final amplifier tubes. With the switch set at SSB HIGH POWER the supply voltage will be 2700 VDC for maximum power input. With the switch set at SSB LOW POWER-CW-TUNE the supply voltage will be 1700 VDC for reduced power input. The final amplifier bias voltage is automatically changed as the switch is set, to maintain correct operating bias for either power level.

To avoid unintentionally tuning up with the highest voltage applied to the final tubes, the control circuits are so arranged that plate voltage can only be applied when the High Power/Low Power switch is in the SSB LOW POWER-CW-TUNE position. After applying plate voltage with the HIGH VOLTAGE-ON switch and tuning up, the higher power level may then be selected.

4-16. HIGH VOLTAGE ON/OFF SWITCHES.

The plate and screen circuits of the final amplifier tubes are not energized at the time the OPERATION switch is set at REC to apply power to the transceiver for receiver use.

A time delay relay, K303, in the power supply unit prevents application of plate and screen voltage to the final amplifier stage for a period of one to two minutes while the final amplifier tubes come up to operating temperature. Following the delay period, the plate current and plate voltage meter scales light up indicating a "ready" condition. The plate and screen voltage may now be applied by pressing the HIGH VOLTAGE-ON button, providing the High Power/Low Power switch is in the SSB LOW POWER-CW-TUNE position. The application of plate and screen voltage to the final amplifier stages is indicated by the red warning lamp. To remove the plate supply voltage, press the OFF button — the warning lamp goes out.

# SECTION V
# TUNING PROCEDURE

## 5-1. GENERAL.

The operating procedure for the Model SR-2000 Transceiver is not complicated; however, normal care should be exercised when operating the gear to realize the true performance designed into the equipment. Before applying power to the equipment for the first time, it would be well to recheck the critical items of the installation.

- Is the line cord correctly wired for the supply voltage used?
- Is the station antenna system connected and is it compatible with the power capability and load impedance requirements of the transceiver?
- Are the interconnecting cables between the Model SR-2000 Transceiver and Model P-2000 Power Supply in place?
- Is the equipment bonded to a good electrical ground?

IMPORTANT

Before operating the transmitter portion of the transceiver, the bias adjustment control (BIAS ADJ), located on the transceiver panel, must be correctly set. Refer to the basic transmitter tune-up procedure (Paragraph 5-4, C) or to the bias adjustment procedure in SECTION VIII (Paragraph 8-3).

## 5-2. RECEIVER OPERATION.

The transmitter group of controls, not specifically mentioned below, have no direct bearing on receiver operation and may be disregarded for the moment.

A. Pre-set the Model SR-2000 panel controls as follows:

RIT CONTROL . . . . . OFF

RF (Receiver group) . . . . . 10 (Full CW)

AF (Receiver group) . . . . . As required

OPERATION . . . . . OFF

FUNCTION . . . . . USB or LSB as required

NOISE BLANKER . . . . . OFF (Full CCW)

OFF/CAL . . . . . OFF

BAND SELECTOR . . . . . Desired band

PRESELECTOR . . . . . Set at band segment in use

METER . . . . . RFO/S

B. Connect the line cord plug to the power source outlet and set the OPERATION control at REC. The dial and meter faces on the transceiver will become illuminated and the blower for the final amplifier stage will start and run at low speed. Check to be sure the blower is operating, it must run at low speed when the heater power is applied to the final amplifier stage tubes. When the transceiver is switched from the receive to transmit mode, the blower speed will increase to provide maximum cooling.

After a one to two minute delay the meters in the Model P-2000 Power Supply will become illuminated indicating that the delay relay has closed. The high voltage may be applied anytime after the delay relay has closed.

Generally the high voltage is left off until transceiver operation is contemplated.

C. Use of the PRESELECTOR Control – As the receiver is tuned across the band an occasional readjustment of the PRESELECTOR control will be found necessary. Always adjust it for maximum "S" meter reading on signal or for maximum background noise without signals present. When the PRESELECTOR control has been set on frequency during transmitter tune-up, it must then be left at that setting for receive. The exact setting is more critical for transmitter operation than for the receiver mode.

D. Use of the RF control – Normally the RF (Receiver group) control is set at 10 or full clockwise to obtain full AGC (Automatic Gain Control) action for uniform speaker output while tuning in stations of varying signal strengths across the band. While AGC is customarily employed for SSB reception, it may also be used to advantage for CW code reception. The RF control must be set at its full clockwise position to obtain normal "S" meter operation, as you will notice that the "S" meter deflection falls off on signal as the RF control is backed off from its maximum setting.

Manual control of the receiver sensitivity, at times, is desirable and the operator may set the RF control as required for these occasions.

E. Tuning with the RIT Control — There are contacts wherein the operator finds it advantageous to be able to tune his receiver a few kilocycles either side of the operating frequency without disturbing his own transmitter frequency. The Model SR-2000 transceiver has the capability to do just that. To tune the receiver a few kilocycles (2 to 3 KC) either side of the operating frequency without disturbing the transmitter frequency, switch the RIT control ON (lever knob) and then tune the receiver with the RIT (knob) control. The transmitter will remain set at the dial frequency. Turning the RIT knob clockwise increases the receiver frequency. Switching the RIT control OFF returns the receiver to the dial frequency.

One word of caution. Don't leave the receiver in the RIT position when true transceive operation is desired, since it would be a matter of chance if the two modes happened to be operating on the same frequency. The warning lamp serves to call attention to the fact that the RIT control is active.

F. How to use the NOISE BLANKER Control — Receiving conditions disrupted by severe impulse type noise may be improved measureably with the use of the NOISE BLANKER control. As with all noise silencers, the situation can generally be improved but not cured. When severe impulse noise (ignition, electrical appliances, etc.) is encountered, turn the NOISE BLANKER control clockwise until the noise level drops. The control is a noise amplifier stage gain adjustment and must be set on a threshold basis, that is, at the point where the noise pulses appear to be canceled. An increase in gain setting beyond this point will not improve the signal to noise ratio, but can introduce undesirable side effects such as cross modulation products resulting in spurious signal reception.

The noise blanker works equally well for SSB or CW code reception.

### 5-3. DIAL CALIBRATION.

A. Preset the Model SR-2000 panel controls as follows:

RIT CONTROL . . . . . OFF

RF (Receiver group) . . . . . 10 (Full CW)

AF (Receiver group) . . . . . As required

OPERATION . . . . . REC

FUNCTION . . . . . USB or LSB as required

NOISE BLANKER . . . . . OFF (Full CCW)

OFF/CAL . . . . . CAL

BAND SELECTOR . . . . . Desired band

PRESELECTOR . . . . . Tune for maximum "S" meter deflection

METER . . . . . RFO/S

B. To calibrate the dial for average accuracy over the entire band, set the dial to the highest 100 KC point on the band (4000 KC on 80M, 7500 KC on 40M, etc.) and use the LSB FUNCTION control position while calibrating.

For better than average dial calibration accuracy, set the dial at the 100 KC point on the dial nearest the desired frequency and leave the FUNCTION control set for the sideband in use.

In either case the knob dial scale will read zero when correctly set to the 100 KC point on the main dial.

C. Adjust the CAL ADJ control for zero beat. It may be necessary to advance the AF control setting to recover sufficient audio near zero beat. The RIT CONTROL must be set at OFF when calibrating the dial.

D. After calibrating the dial, shut the calibrator off. Operation of the Model SR-2000 with the calibrator turned on is not recommended. Switch it on for dial calibration checks only.

### 5-4. BASIC TRANSMITTER TUNE-UP.

The transmitter portion of the transceiver is always tuned with the High Power/Low Power switch in the SSB LOW POWER-CW-TUNE switch position on the Model P-2000 Power Supply. The receiver group of controls, not specifically mentioned below, have no direct bearing on the transmitter tune-up procedure and may be disregarded for the moment.

A. Preset the panel controls for transmitter tune-up as follows:

OPERATION . . . . . REC

FUNCTION . . . . . TUNE

BAND SELECTOR . . . . . Desired band

PRESELECTOR . . . . . Set at band segment in use

| | |
|---|---|
| Tuning Dial | Set to desired frequency |
| METER | RFO/S |
| RF (Transmitter) | At zero (Full CCW) |
| AF (Transmitter) | At zero (Full CCW) |
| PLATE (Final Tune Capacitor) | (Nominal chart setting) |
| LOAD (Final Loading Capacitor) | (Nominal chart setting) |
| High Power/Low Power | SSB LOW POWER-CW-TUNE |
| HIGH VOLTAGE | OFF (Red indicator not illuminated) |

B. Press the HIGH VOLTAGE ON button. The PLATE VOLTS meter indicates approximately 1700 VDC. The red HIGH VOLTAGE warning indicator lights. If the high voltage does not come on, check the High Power/Low Power switch setting, it must be set at SSB LOW POWER-CW-TUNE to activate the high voltage supply. The transceiver must be turned on for a period of 1-1/2 to 2 minutes before the delay relay will permit the application of high voltage to the final amplifier stage.

C. Set OPERATION control at MOX. PLATE CURRENT meter indicates 0.2 ampere (200 milliamperes) RFO meter indicates zero output. The blower speed increases.

NOTE

Should the PLATE CURRENT meter indicate other than 0.2 ampere and the RFO meter indicate zero, set the BIAS ADJ. control (screwdriver adjustment) for 0.2 ampere idle plate current. If the RFO meter indicates output, the plate current would be more than 0.2 ampere — check to see that the RF control setting is fully CCW (zero).

D. Watch the RFO meter and turn the RF control (transmitter group) clockwise slowly until the RFO meter indicates a low output level, say S-3 to S-5 on the "S" meter scale. Adjust the PLATE control first and then the PRESELECTOR control for maximum RFO meter reading. Turn the RF control counterclockwise, if the RFO meter indicates above S-7 while tuning. The driver and final amplifier stages are now resonated, but the final amplifier stage still requires a loading adjustment.

PLATE AND LOAD CONTROL SETTINGS FOR 50-OHM LOAD

| | PLATE | | LOAD | |
|---|---|---|---|---|
| FREQUENCY | NOMINAL | ACTUAL | NOMINAL | ACTUAL |
| 3.5 MC | 1 | | 3 | |
| 3.75 MC | 3-1/2 | | 4 | |
| 4.0 MC | 5 | | 5-1/2 | |
| 7.0 MC | 7 | | 3-1/4 | |
| 14.0 MC | 5 | | 5 | |
| 14.35 MC | 5-1/2 | | 5-1/4 | |
| 21.0 MC | 7 | | 4-1/4 | |
| 21.45 MC | 7-1/4 | | 4-1/2 | |
| 28.0 MC | 8-1/2 | | 5 | |
| 29.7 MC | 9 | | 5-1/2 | |

The data above are based on average Model SR-2000 PLATE and LOAD control settings when operated into a purely resistive 50-ohm load. These settings will, of course, vary with the loading variations presented by your installation and it is suggested that you note in the appropriate column the final control settings required for use with your antenna to facilitate a rapid initial adjustment when changing bands or frequency within the band.

E. Set the METER switch at SCREEN MA. Watch the SCREEN current meter and the PLATE CURRENT meter and slowly turn the RF control clockwise until either the plate current reaches 0.4 to 0.5 ampere or the screen current rises to 10 to 20 MA. Turn the RF control counterclockwise to zero and consider the loading adjustment required as follows:

1. Loading too light – If the screen current reached 10 to 20 MA. with the plate current lagging behind or even refusing to rise to 0.4 or 0.5 ampere the loading is too light and the LOAD control must be turned clockwise to increase the coupling or loading on the final amplifier stage.

2. Loading too heavy – If the plate current reached 0.4 ampere to 0.5 ampere and the screen current either reversed or failed to rise to 10 to 20 MA., the loading is too heavy. To correct this condition, turn the LOAD control counterclockwise to reduce the loading.

3. Loading normal – When the plate current rises to 0.4 ampere or 0.5 ampere and the screen current rises to 10 to 20 MA. as a maximum as the RF control is turned fully clockwise, the loading is considered normal. At full clockwise rotation the screen current will fall back a few milliamperes indicating an overdriven condition.

F. Each time the LOAD control setting is changed, the PLATE control must be retuned to resonance. The screen current may be used to indicate plate circuit resonance as well as proper loading, since you will notice that the screen current passes through a maximum exactly as the RFO voltmeter goes through maximum when the PLATE control is tuned for resonance.

The exact LOAD control setting may now be determined as follows: Advance the RF control until the plate current reaches 0.4 to 0.5 ampere or the screen current reaches 10 to 20 MA. If the screen current remains at zero or reverses, turn the LOAD control counterclockwise a small amount to reduce the loading so that screen current, less than 15 milliamperes, will flow. Peak the screen current with the PLATE control to re-resonate the final stage. Continue to advance the RF control setting while holding the screen current to less than 20 MA. with a LOAD control adjustment and re-resonate the final stage each time with the PLATE control. When correct loading is obtained, the RF control may be rotated through its entire range and the screen current will rise to 10 to 20 MA. and possibly fall back a few milliamperes when the RF control is fully clockwise and in the over-driven condition.

G. As the operating frequency is changed within the band, retune the transmitter with the PRESELECTOR and PLATE controls for maximum RFO voltage or screen current to keep the driver stage and final amplifier stage plate circuits at resonance. When a major change in frequency is required which may effect the final amplifier loading, the load check and possible LOAD control adjustment should be made. Some idea of the variation in LOAD control setting with frequency within a given band may be obtained from the nominal settings shown in the tuning chart.

H. Set the OPERATION control at REC to restore receiver operation. When the use of the transmitter is not immediately required, disable the high voltage by pressing the HIGH VOLTAGE OFF button – the red warning lamp will go out.

### 5-5. CW OPERATION.

A. Before switching the OPERATION control from REC to MOX, check to see that the following controls are correctly set for CW operation:

| | |
|---|---|
| High Power/Low Power. . . | SSB LOW POWER-CW-TUNE |
| HIGH VOLTAGE . . . . . | Lamp is lit (ON button has been pressed) |
| FUNCTION . . . . . | TUNE |
| METER . . . . . | SCREEN MA |
| RF (Transmitter) . . . . . | Zero (Full CCW) |
| AF (Transmitter) . . . . . | Zero (Full CCW) |
| PLATE . . . . . | Adjusted per paragraph 5-4 |
| LOAD . . . . . | Adjusted per paragraph 5-4 |
| PRESELECTOR. . . . . | Adjusted per paragraph 5-4 |
| BAND SELECTOR . . . . . | Desired band |
| Tuning Dial. . . . . | Set to desired frequency |

The plate voltage meter indicates 1.7 KV (1700 VDC).

B. Assuming that the transmitter has been properly loaded and tuned to frequency as described in the basic transmitter tune-up procedure, switch the OPERATION control from REC to MOX. The plate current meter indicates 0.2 ampere. Advance the RF control (transmitter group) until the screen current reaches maximum. If the screen current is 10 to 20 MA. and the plate current meter indicates 0.4 amperes to 0.5 amperes the loading is correct. Make one final adjustment of the PLATE control and PRESELECTOR control for maximum screen current to be sure the transmitter is in tune. Make this a habit – it saves tubes and puts a cleaner signal on the air.

C. Leave the RF control set and switch the FUNCTION control to CW. The transmitter output will drop to zero, providing the keyer circuit is open. Press the key. The screen current should be 10 to 20 MA. and the plate current should run between 0.4 ampere and 0.5 ampere. While transmitting the screen current may be monitored or if an "S" meter reading is desired while in the receive mode, the METER switch may be set at RFO/S. The maximum RFO voltage and maximum screen current occur at the same settings of the PLATE and PRESELECTOR controls for tune-up purposes.

D. Return the transceiver to the receive mode by switching the OPERATION control back to REC. This is your manual control over the transmit-receive function. If automatic control is desired, set the OPERATION control at VOX. The receiver will continue to operate until the key is closed. Open the key and observe the delay before the receiver is again active. This delay may be set as desired with the DELAY control, located under the cabinet cover. (See Figure 15.) The delay period increases as the DELAY control is turned clockwise.

E. The Model SR-2000 Transceiver also provides a CW side-tone signal through the speaker or headphone output, which is keyed along with the transmitter, for monitoring purposes. The level may be varied as desired with the SIDE TONE control located under the cabinet cover. See Figure 15.

## 5-6. PUSH-TO-TALK SSB OPERATION.

A. Before switching the OPERATION control from REC to MOX, check to see that the following controls are correctly set for SSB operation.

| | |
|---|---|
| High Power/Low Power | SSB LOW POWER-CW-TUNE |
| HIGH VOLTAGE | Lamp is lit (ON button has been pressed) |
| FUNCTION | TUNE |
| METER | SCREEN MA |
| RF (Transmitter) | Zero (Full CCW) |
| AF (Transmitter) | Zero (Full CCW) |
| PLATE | Adjusted per paragraph 5-4 |
| LOAD | Adjusted per paragraph 5-4 |
| PRESELECTOR | Adjusted per paragraph 5-4 |
| BAND SELECTOR | Desired band |
| Tuning Dial | Set to desired frequency |

The plate voltage meter indicates 1.7 KV (1700 VDC).

B. Assuming that the transmitter has been properly loaded and tuned to frequency as described in the basic transmitter tune-up procedure, switch the OPERATION control from REC to MOX. The plate current meter indicates 0.2 ampere. Advance the RF control (transmitter group) until the screen current reaches maximum. If the screen current is 10 to 20 MA. and the plate current meter indicates between 0.4 and 0.5 ampere the loading is correct. Make one final adjustment of the PLATE control and PRESELECTOR control for maximum screen current to be sure the transmitter is in tune. Make this a habit – it saves tubes and puts a cleaner signal on the air. Return the RF control to zero (full CCW).

C. Switch the FUNCTION control to either USB or LSB depending upon the sideband to be used for transmission and reception. The plate current meter now indicates zero and the receiver is back in operation.

D. Switch the METER control to the AALC position. Press the microphone push-to-talk button. The plate current meter now indicates 0.2 ampere. Speak into the microphone at a normal voice level and advance the AF control (transmitter group) until the meter pointer on the transceiver panel begins to kick up to approximately S-3 to S-5 on voice peaks. This is the correct working level. Use this meter