SECTION III
OPERATION

3.1 OPERATING CONTROLS.

Operating controls are identified in figure 3-1 and described below.

3.1.1 TRANSCEIVER FRONT-PANEL CONTROLS.

RECEIVE RF . . . . . Controls receiver sensitivity.

TRANSMIT AUDIO . . . . . Controls transmitter drive level.

SPEAKER ON-OFF . . . . . Disconnects speaker in the OFF position.

CHANNEL SELECTOR . . . . . Selects one of four pretuned channels of operation.

3.1.2 POWER SUPPLY FRONT-PANEL CONTROLS.

OVENS . . . . . Controls application of power to crystal ovens and other power supply switches.

L.V. . . . . Controls application of power to low-voltage power supply and to H.V. switch.

H.V. . . . . Controls application of power to high-voltage power supply and to PA screen grids.

3.1.3 CONTROLS UNDER TRANSCEIVER FRONT-PANEL COVER.

TUNE-OPERATE . . . . . Selects function of tube V7A. In TUNE position, V7A is a tone oscillator; in OPERATE position, V7A is the first speech amplifier.

RECEIVER AUDIO GAIN . . . . . Controls receive audio level.

VOX GAIN . . . . . Controls gain in voice-operate circuits.

ANTI-TRIP . . . . . Controls anti-vox voltage to set vox threshold and prevent loudspeaker output from keying transmitter.

Meter function switch . . . . . Selects meter function.

ALC-S position . . . . . Connects meter to indicate drive level in transmit and received signal strength in receive.

PA CATH MA position . . . . . Connects meter to indicate PA cathode current (S-9 = 250 ma).

+275 VDC . . . . . Connects meter to indicate low-voltage plate supply voltage (S-9 = 275 volts).

+800 VDC . . . . . Connects meter to indicate high-voltage plate (S-9 = 800 volts).

-75 VDC . . . . . Connects meter to indicate bias supply voltage (S-9 = 72 volts).

3.1.4 PHONE PATCH 152J-1 OPERATING CONTROLS.

PHONE PATCH . . . . . Controls off, on, and station mute operation of phone patch.

STATION CONTROL . . . . . Controls transmit-receive operation of transceiver.

3.1.5 DIRECTIONAL WATTMETER 302E-2 OPERATING CONTROL.

REVERSE-FORWARD . . . . . Controls direction of power indication.

3.1.6 ADJUSTMENTS ON POWER SUPPLY CHASSIS.

BIAS ADJUSTMENT . . . . . Sets PA no-signal plate current.

3.2 OPERATING PROCEDURES, TRANSCEIVER 32RS-1.

a. When using the 32RS-1 under normal day-to-day operating conditions, leave the OVENS switch in the ON position at all times.

b. Leave L.V. switch in ON position during standby periods. This allows receiver monitoring of the channel in use and keeps all filaments heated.

c. Leave H.V. switch in the ON position only during operating periods. Leaving this switch in the OFF position during standby periods conserves power.

d. For best receive operation, adjust RECEIVE RF gain to make the ALC-S meter rest at approximately the same level as the peak ALC-S meter indication on a received signal; then adjust RECEIVER AUDIO GAIN for a desirable output level. Thereafter when changing channels or when signal level varies, adjust RECEIVE RF gain for a desirable output level; do not change RECEIVER AUDIO GAIN. Normal RECEIVER AUDIO GAIN setting is approximately at nine o'clock position.

e. Key the transceiver with the handset switch, and talk in a normal voice. Advance the TRANSMIT AUDIO gain control until the ALC-S meter kicks slightly on voice peaks. Maximum power is being transmitted when the ALC-S meter kicks to approximately S-3 on normal voice peaks.

f. If voice operation (vox) is desired, set SPEAKER switch to OFF, and advance VOX GAIN control until speaking into the microphone keys the transmitter when the handset key is not pressed. Normal VOX GAIN setting is at approximately nine o'clock.

g. Set the SPEAKER switch to ON, and advance ANTI-TRIP control slightly if loudspeaker output trips the vox circuit. Normal ANTI-TRIP setting is at approximately three o'clock.

h. No further adjustment of VOX GAIN and ANTI-TRIP controls should be necessary for normal vox operation by the same operator. The vox operation may be overridden at any time by pressing the push-to-talk switch on the handset.

i. When the operating period is over, hang the handset on its cradle. With the handset in the cradle, the cradle switch disconnects the microphone circuit. The SPEAKER switch may be left in the ON position during standby, and the receiver will monitor the channel. The RECEIVE RF may be set to the weakest expected signal to quiet background noise.

3.3 OPERATING PROCEDURES, ACCESSORIES.

3.3.1 PHONE PATCH 152J-1.

a. Set TRANSMIT AUDIO for normal operation. Turn VOX GAIN and ANTI-TRIP fully counterclockwise. Turn RECEIVE RF fully clockwise. Leave RECEIVE AUDIO GAIN at normal position.

b. Set BALANCE resistor on rear of the 152J-1 fully counterclockwise, and turn BALANCE capacitor to the OUT position.

c. Lift telephone and dial one number to remove dial tone, then turn the PHONE PATCH switch on.

d. Cover phone input with hand during the following adjustments. Slowly advance VOX GAIN control on the 32RS-1 until the vox relays just start dropping in and out.

e. Carefully readjust BALANCE resistor until the vox relays drop out.

f. Repeat steps d and e until it is no longer possible to drop out vox relays with very small adjustments of the BALANCE resistor. It may be necessary to turn the BALANCE capacitor, on the 152J-1, to the IN position to achieve the proper balance conditions. Under rare conditions, more capacity may be required in parallel with C6 and C7.

NOTE

If there are extension phones on the same line, about 0.5 uf capacity in parallel with the BALANCE capacitor, C7, may be required for each additional phone.

g. Hang up phone, turn PHONE PATCH switch off, reset the 32RS-1 operating controls for normal operation. This includes the ANTI-TRIP control.

h. The phone patch is now ready for use. The normal operating procedure is to call the party on the telephone (PHONE PATCH switch in the STATION MUTE position); then switch the phone patch on. Adjust RECEIVE RF on the 32RS-1 for normal telephone line level as monitored using the station telephone. It is suggested that the SPEAKER be turned off, and that the 32RS-1 handset be on its cradle.

i. Depending upon telephone line characteristics and voice volume of the incoming telephone signal, it may be necessary to make slight adjustments of the TRANSMIT AUDIO and VOX GAIN controls. In case of weak signals from the telephone line, use the TRANSMIT and RECEIVE positions of the STATION CONTROL switch on the 152J-1.

3.3.2 DIRECTIONAL WATTMETER 302E-2.

a. Set power switch on the 302E-2 to FORWARD position.

b. Tune and load transmitter according to paragraph 2.4 of this handbook.

c. Note forward power reading on 302E-2 meter.

d. Set power switch to REVERSE position and note meter reading. Use forward and reflected readings with vswr chart, figure 3-2, to compute standing-wave ratio of antenna and feed-line system. If the vswr is 2.5 to 1 or less, the directional wattmeter indications may be used to calculate the power delivered to the feed line by subtracting reflected power from forward power.

e. If the vswr is greater than 2.5 to 1, use an antenna coupler or change the antenna. Adjust the antenna coupler or antenna for minimum reflected power.

NOTE

The procedure in step e provides optimum operating conditions for the transmitter. It will not correct standing-wave conditions on the feed line unless the antenna tuner is located at the junction of the feed line and the antenna.

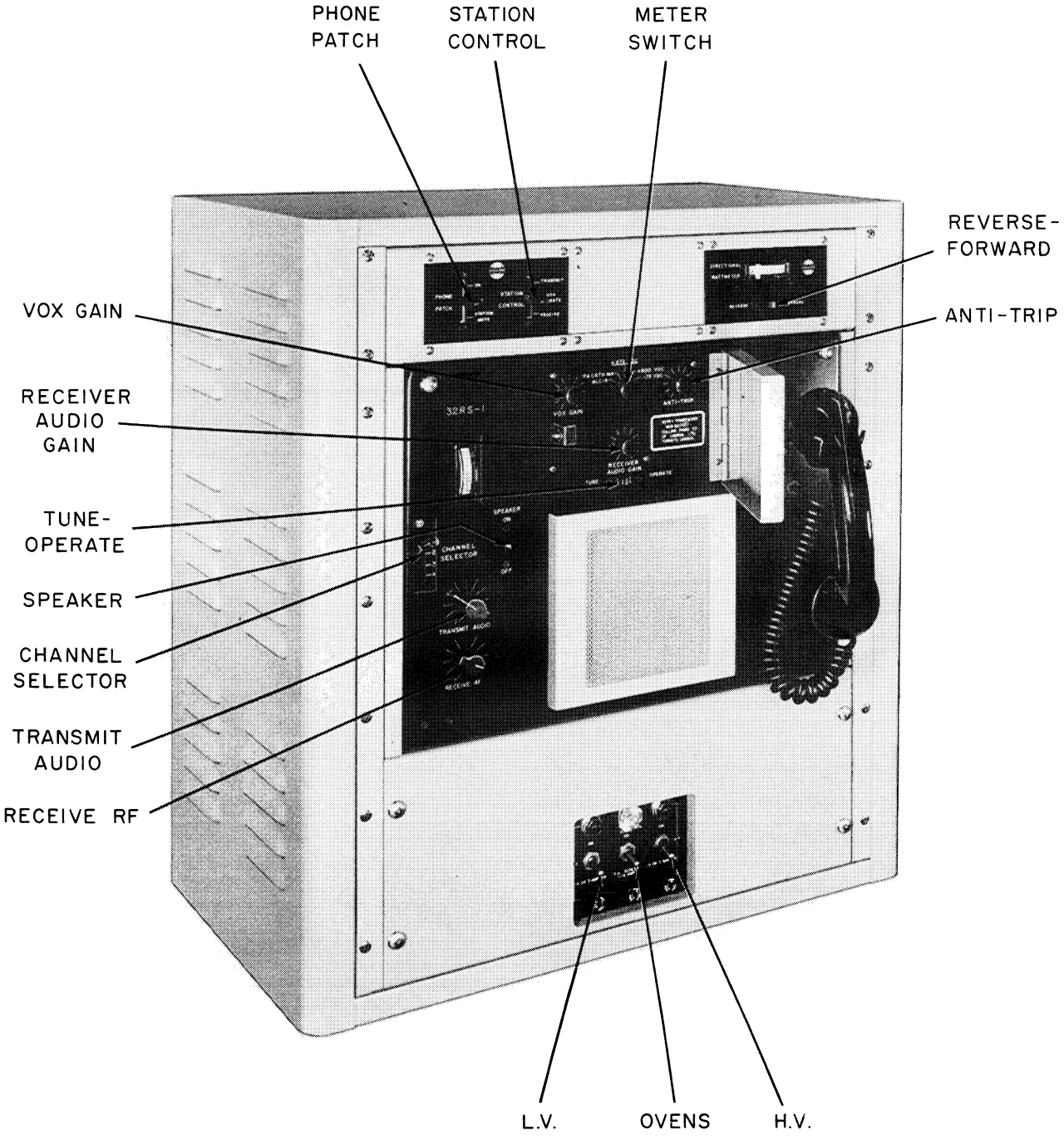

Figure 3-1. Transceiver 32RS-1, Operating Controls

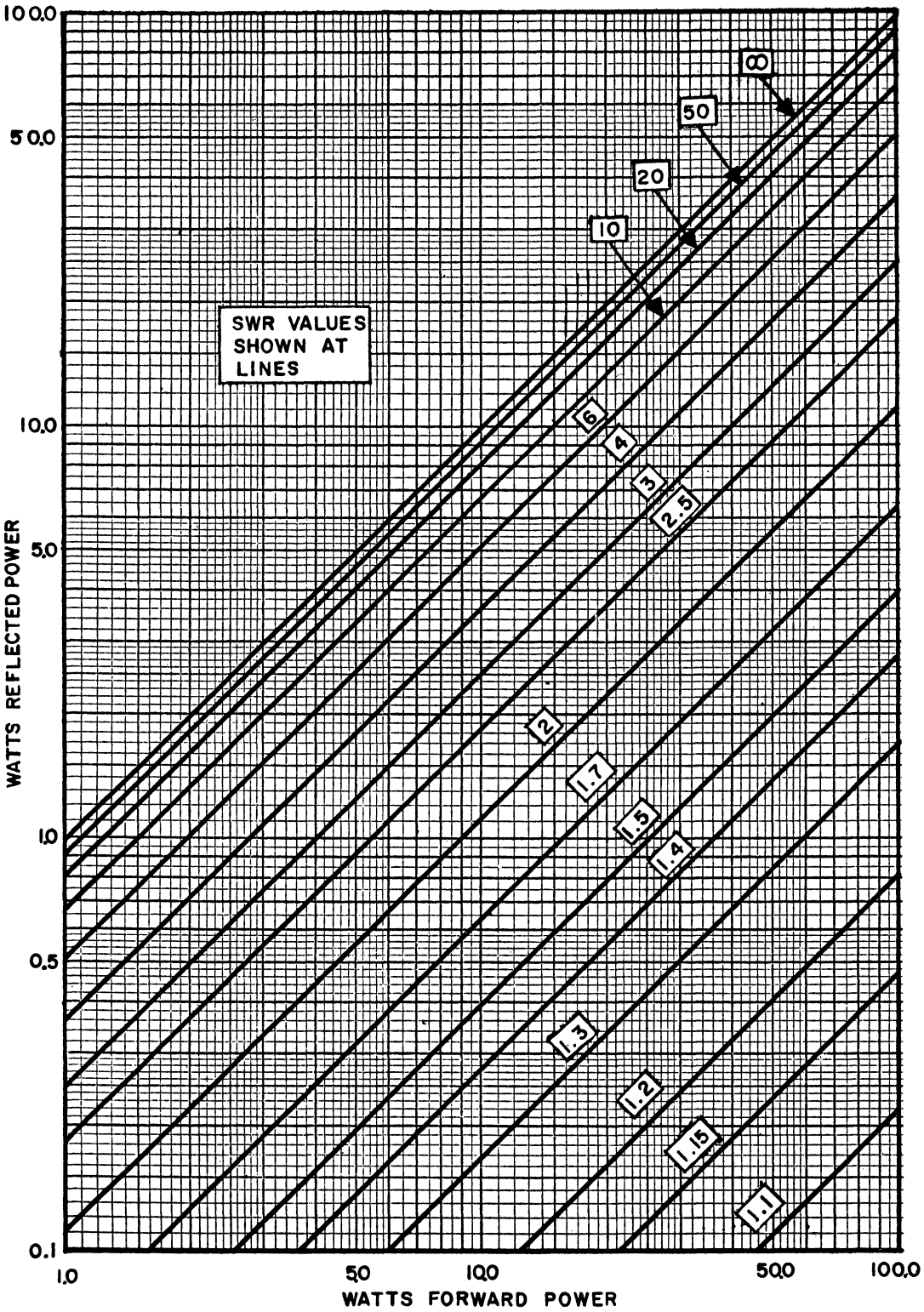

Figure 3-2. Voltage Standing-Wave Ratio Chart