

HIGH SEAS AND OVERSEAS RADIO

B3 PRIVACY DEVICE

MAINTENANCE

<u>CONTENTS</u>	<u>PAGE</u>	<u>2. TRANSMISSION MAINTENANCE</u>
1. GENERAL	1	(A) <u>Gain Frequency Characteristics</u>
2. TRANSMISSION MAINTENANCE	1	2.01 The following test includes the amplifier and modulator as in Control Office application, that the amplifier follows the modulator. For trouble location, however, it may be necessary to test the components separately. Referency should be made in this even to the Original Section, (G), Par. 2.16-2.19.
(A) Gain Frequency Characteristics	1	
(B) Carrier Leak	2	2.02 <u>Apparatus</u>
(C) Insertion Loss	2	40B Transmission Measuring System
(D) Oscillator Frequency	2	19C or 13A Oscillator
		or
1. <u>GENERAL</u>		Transmission Measuring Set
1.01 The purpose of this addendum is to describe and authorize certain modifications in, and additions to, the test procedures specified in the original section. These procedures are more closely related to B-3 privacy installations in Overseas Central Offices, and reflect improvements in methods which experience with this equipment has brought to light. This issue replaces Issue A.		1. Oscillator
1.02 The specific tests which this addendum modifies are those described in the original Section 403-323-500, Subheadings (E), (G) and (H), dealing with, Oscillator Frequency Gain Frequency Characteristics and Carrier Leak respectively. In addition, another test, "Insertion Loss", is described in this addendum, though not contained in the original section.		Patch Cords, 3P14B
1.03 Some of the test described make use of the Privacy Input and Output jacks which, in Overseas Control offices, appear in a separate jack field.		Screwdriver, 4-inch
1.04 The Gain Frequency Characteristics Test described in this addendum (Part 2, A) differs from that in the original only by the use of the privacy IN and OUT jacks, rather than the jacks on the Inverter panel; and by the elimination of those parts which are not applicable to existing Control Office installations.		2.03 <u>Procedure</u>
1.05 The oscillator frequency tests, described in this addendum (Part 2, D) differs from that in the original in that it specifies a 72A frequency meter (if available) to check the 3000 cycle oscillator frequency.		(1) Patch from the SEND jacks of the measuring set to the PRV IN jacks on the separate jack field; and from the PRV OUT jacks to the REC jacks of the measuring set.
		NOTE: The Privacy jacks to which the measuring set is patched will be either TRSG or REC, depending on whether the transmitting or receiving privacy unit is being measured.
		(2) Observe the designated number on the terminal of the amplifier input transformer TA IN or RA IN to which the flexible lead from the grid cap of the amplifier tube T or R is connected.
		(3) Note the normal setting of the associated GAIN potentiometer and turn it to full clockwise position for maximum gain.
		(4) Send tone at -25 dbm and at the frequencies shown below; measure the output with the measuring set calibrated at the frequencies shown in Column (2) and calculate the gain of the modulator-amplifier combination.

Requirements

Input Freq. * (cps)	Output Freq. (cps)	Overall Max. Gain (db)	Gain Relative to Measured Value of 1500 cps Gain (db)
1500	1500	22.7-27.7 Less 4 (N-1) ϕ	
250	2750	--	+0.1 to -3.5
500	2500	--	+0.7 to -0.7
1000	2000	--	+0.9 to -0.5
2000	1000	--	+0.9 to -1.1
2500	2500	--	-0.9 to -2.3
2750	250	--	-0.5 to -3.7

N is the numerical designation of the terminal on the amplifier input transformer to which the flexible lead is connected. For example, if the flexible lead connects to Terminal 4, the overall gain range is 12 db less than that shown.

- (5) Restore the GAIN potentiometers to their normal operating settings.

(B) Carrier Leak

2.04 Apparatus

2B Noise Measuring Set
217-D 600 ohm plug
Patch cords and dummy plugs

2.05 Procedure

- (1) Terminate the TRSG (or REC) PRV IN jacks with the 600 ohm plug.
- (2) Using the LINE jacks of the 2B set (properly calibrated) patch the set to TRSG (or REC) PRV OUT jacks; throw Key K3 to FLAT; insert dummy plugs in SOUND jacks; place Key FIA-144, on 144.
- (3) Adjust the T BAL (or R BAL) potentiometer until the carrier leak, as measured on the 2B set, is at a minimum.

Requirement: The carrier leak shall measure at least -40 dbm.

NOTE: With the 2B set adjusted as described under (2), the measurable range of power is -21 to -96 dbm. The measured carrier leak, in db with respect to one milliwatt, is obtained by adding a correction of -106 to the potentiometer dial

reading plus the meter reading, in db. For example, if the dial is set on 30 and the meter reads +2, the carrier leak would be 30 +2 -106 = -74 dbm. In exceptional cases where the carrier leak exceeds -21 dbm, dummy plugs should be inserted in the VOL jacks, which will permit measuring values between +9 and -66 dbm. Under these circumstances, a correction of -76 should be added to the dial plus meter readings to obtain the power in dbm.

(C) Insertion Loss

2.06 Apparatus

40B Transmission Measuring System

or

6A Transmission Measuring Set
19C or 13A Oscillator
Patch Cords, 3PI4B

2.07 Procedure

- (1) Adjust the oscillator to send +5 dbm of 1500 cycle tone.
- (2) Patch the oscillator into the PRV IN jacks (TRSG or REC) located on the separate jack field.
- (3) Patch from the PRV OUT jacks (TRSG or REC) to the measuring set.
- (4) Measure the 1500 cycle output of the inverter (transmitting and receiving).

Requirement: The output shall measure +5 \pm 2.5 dbm.

- (5) If this requirement cannot be met, and the test described in the Original Section (G, Para. 2.18, Amplifier) is satisfactory, adjust the GAIN potentiometer to obtain the specified value.

(D) Oscillator Frequency

- 2.08 The following procedure which uses a 72A Frequency meter (if available) may be followed for checking the 3000 cycle oscillator frequency.

2.09 Apparatus:

72A Frequency Meter
Patch Cords, as required

2.10 Procedure:

(1) Patch from Terminals 1 and 3 of the (OSC)
299A Transformer to (BRDG) jacks of the
72A Frequency Meter.

(2) Observe the 3000 cycle stationary pat-
tern on the Oscilloscope screen.

Requirement: The rate of fluctuation
should not exceed 2 cycles
per second.

(3) If this requirement is not met, adjust
the strapping on the OSC capacitor as
required.