

**COASTAL HARBOR, HIGH SEAS, AND OVERSEAS RADIO  
COMMON EQUIPMENT  
J68313E SYLLABIC FREQUENCY AMPLIFIER-DETECTOR  
MAINTENANCE**

1. GENERAL

1.01 The syllabic frequency amplifier-detector is normally connected permanently in a radiotelephone control terminal circuit and is energized continuously. Tests of its 209-FA relays and vacuum tubes will normally be included with others in the control terminal.

2. TESTS AND ADJUSTMENTS

(A) Sensitivity

2.01 Apparatus

40B or 13A Trans. Meas. Set or equivalent  
13A or 19-Type Oscillator or equivalent  
1A Attenuator  
3F13A Patch Cords  
Screwdriver, 4-inch

2.02 Procedure

- (1) Calibrate the oscillator for 1M $\mu$  of 1300-cps tone.
- (2) Patch from  
TRANS MEAS SEND to 1A Attenuator  
1A Attenuator to TR AD IN TST
- (3) Adjust the attenuator for 23.5-db loss. Operate the TST key on the amplifier-detector panel and adjust the V SENS control with a screwdriver until the external direction-indicating lamp just lights.
- (4) Calibrate the oscillator for 1M $\mu$  of tone at the successive frequencies shown below, decrease the loss in the attenuator until the external lamp just lights and record the attenuator loss.

Requirement: The decrease in voltage sensitivity shall be as follows, referred to the sensitivity at 1300 cps:-

| <u>Frequency</u><br>cps | <u>Decrease in Sensitivity</u><br>db |
|-------------------------|--------------------------------------|
| 500                     | 12 to 21                             |
| 1200                    | 1 to 5                               |
| 1400                    | 1 to 5                               |
| 2000                    | 3.5 to 8.5                           |

- (5) If necessary, remove the cover of the VIS condenser and change its straps until the 1200 and 1400-cps values are met.
- (6) Calibrate the oscillator for 1M $\mu$  of 1800-cps tone.

(7) With the attenuator set for 23.5-db loss, suddenly apply and remove the tone and adjust the S SENS control with a screwdriver until the TST lamp is just extinguished.

(8) If necessary, adjust the BAL rheostat with a screwdriver to make the sensitivities of the TMI and TMF relays equal or not more than 1 db apart, the TMI relay to be the more sensitive. If BAL rheostat is readjusted, S SENS must be readjusted to 23.5 db.

(9) Calibrate the oscillator for 1M $\mu$  of tone at the successive frequencies shown below, decrease the loss in the attenuator until the TST lamp is just extinguished and record the attenuator loss.

Requirement: The decrease in syllabic sensitivity shall be as follows, referred to the sensitivity at 1800 cps.

| <u>Frequency</u><br>cps | <u>Decrease in Sensitivity</u><br>db |
|-------------------------|--------------------------------------|
| 500                     | 12 to 21                             |
| 1600                    | 1 to 5                               |
| 2000                    | 1 to 5                               |
| 2400                    | 0.5 to 4                             |

- (10) If necessary, remove the cover of the SIS condenser and change its straps until the 1600 and 2000-cps values are met.
- (11) Turn the TST key to normal.

(B) 209-FA Relays

2.03 The 209-FA relays are adjusted mechanically in an A-1 Relay Test Panel (J68307A) or equivalent in accordance with BSP 040-231-701 and 211-214-702.

Note: If a relay test panel is not available, a test circuit per Drawing SD-90411-01 may be used in conjunction with a 35-D Test Set as described in BSP 040-231-713.

(C) Vacuum Tubes

2.04 Apparatus

Hickok Model 530B Tube Tester or equivalent

2.05 Procedure:

- (1) Test each tube in accordance with BSP 100-640-101.

Requirements: The tubes shall meet the requirements as given on the roll chart of the tube tester.

resistance FIL as required. Check to see that the plate voltage, as measured between terminals AB and B6 is in the range of 125-135 volts. Check to see that the grid bias voltage as measured across the resistance P (lowest resistance on left-hand vertical mounting strip) is in the range of 14.2-15.8 volts.

### 3. TROUBLE LOCATION

3.01 Check the filament current in accordance with Note 101 of Drawing SD-64942-01, and adjust the 116A

3.02 Measure the values of the several resistances and check against the values shown on Drawing SD-64942-01.