

**ELECTRON TUBE RECEIVER CIRCUIT SD-26118-01**  
**(FOR COIN CONTROL AND RINGING SIGNAL DETECTION)**  
**ADJUSTING PROCEDURE USING THE NO. 72A FREQUENCY METER**  
**SD-59373-01 (J64072A)**  
**NO. 5 CROSSBAR OFFICES**

**1. GENERAL**

**1.01** This section describes a method of adjusting the gain control potentiometers, AGC1 and AGC2, of the electron tube receiver circuit, SD-26118-01. These adjustments compensate for normal variations and aging of V1 and V2 electron tubes. In the process of making the adjustments described in this section the rectified current values applied to the P1 and P2 relays are also checked.

**1.02** The adjustments of the AGC1 and AGC2 potentiometers are made by varying the settings from the front of unit J23058X.

**1.03** The adjustment of the AGC1 or AGC2 potentiometer is made when the V1 or V2 electron tube is replaced, or when the need for this adjustment is indicated during testing.

**2. APPARATUS**

**2.01** No. 72A frequency meter J64072A (SD-59373-01).

**2.02** No. 13A transmission measuring set, or equivalent.

**2.03** No. 35 test set.

**2.04** No. 5A attenuator, or equivalent.

**2.05** Weston Model 1 dc voltmeter 150-volt scale.

**2.06** Testing cord, W3BP cord, 6 feet long, equipped with one No. 241A plug and two No. 35 cord tips (No. 2W15B cord).

**2.07** Patching cord, P2AA cord, 6 feet long, equipped with two No. 241A plugs (No. 2P13B cord).

**2.08** Patching cord, P2T cord, 6 feet long, equipped with one No. 241A plug and one No. 347A plug (No. 2P12A cord).

**2.09** Patching cord, P2P cord, 10 feet long, equipped with one No. 309 plug and one No. 310 plug (No. 2P10 cord).

**3. PREPARATION**

**3.01** Arrange to make busy the trunk circuit associated with the electron tube receiver circuit.

**3.02** Allow the electron tube receiver circuit to warm up prior to adjustment.

**3.03** At the beginning of each adjustment it is assumed that no patching or testing cords are connected to the electron tube receiver circuit and that no keys or switches are operated on the test equipment.

**3.04** Connect the No. 13A transmission measuring set to the 110-volt ac supply. Operate the power supply switch to the ON position and wait at least 5 minutes for the set to warm up. After the transmission measuring set is warmed up, calibrate it, if necessary, as covered in the section describing this set. Prepare and maintain in calibration the No. 72A frequency meter as covered in the section describing this meter. Set the CAL-MEAS-SEARCH switch of the frequency meter to the MEAS position. Set the FREQUENCY CPS control to obtain either 700 or 1100 cps. For the adjustment of AGC1, set this control to obtain 700 cps and for the adjustment of AGC2, set this control to obtain 1100 cps. Connect the frequency meter, No. 5A attenuator, and the transmission measuring set

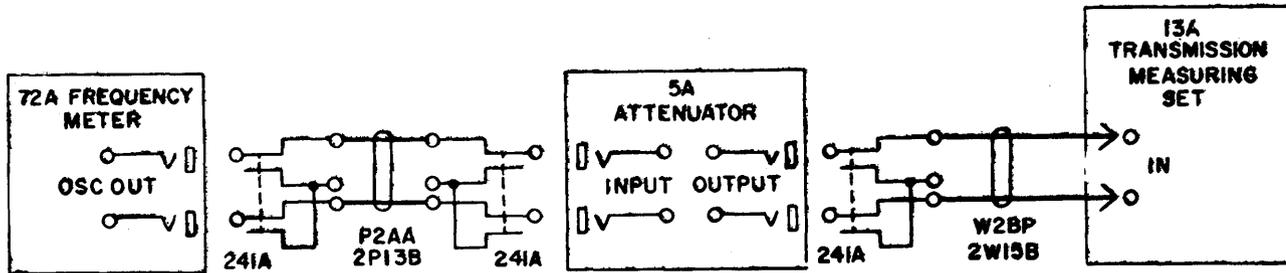


Fig. 1

as shown in Fig. 1 in order to adjust the output level of the frequency meter. Operate the 5-db and 10-db turn button keys of the No. 5A attenuator. Set the dial switch of the transmission measuring set to the white position 15 for the black scale readings. Adjust the OSC OUT control of the No. 72A frequency meter until a level of exactly  $-15$  dbm is read on the transmission measuring set. Remove the W2BP cord from the output jacks of the attenuator.

**3.05** Using the dc voltmeter, check the plate voltage of the V1 and V2 tubes by connecting the voltmeter across A13 and A31 terminals of the terminal strip of the circuit under test. When Part 4 Method is applied, this voltage reading is necessary to determine the correct current reading of the No. 35 test set milliammeter. When Part 4 Method is applied, and the plate voltage is 130 volts, the current reading of the No. 35 test set milliammeter should be  $12 \pm .01$  ma. For plate voltages other than 130 volts, correct the current value directly by 0.1 ma per volt difference from 130 volts. For example, if the plate voltage is 132 volts the current reading should be  $12.2 \pm .01$  ma, and if the plate voltage is 128 volts the current reading should be  $11.8 \pm .01$  ma.

#### 4. METHOD

##### A. Adjustment of the AGC1 Potentiometer, Input Level Control for the 700-Cps Amplifier

**4.01** The following procedure covers the adjustment of the AGC1 potentiometer which controls the input to the V1 amplifier tube and is associated with the 700-cps signal. Connect the frequency meter, No. 5A attenuator, and electron tube receiver circuit as shown in Fig. 2. Connect the T and R jack of the No. 35 test set to the RC1 jack of the circuit under test, using a P2P cord. Operate the BAT. and GRD CO key of the No. 35 test set. Move all the resistance sliders on the No. 35 test set to the extreme left. Lock operated the No. 1 key on the No. 35 test set. The current reading of the No. 35 test set meter depends upon the output voltage of the V1 tube, which depends on the plate voltage of the V1 tube. If the current reading is not within the specified limits for the plate voltage which was measured in the preparation, loosen the locknut of the AGC1 potentiometer and adjust this potentiometer until the current reading is the required value; tighten the locknut of this potentiometer. Remove all connections and restore all keys.

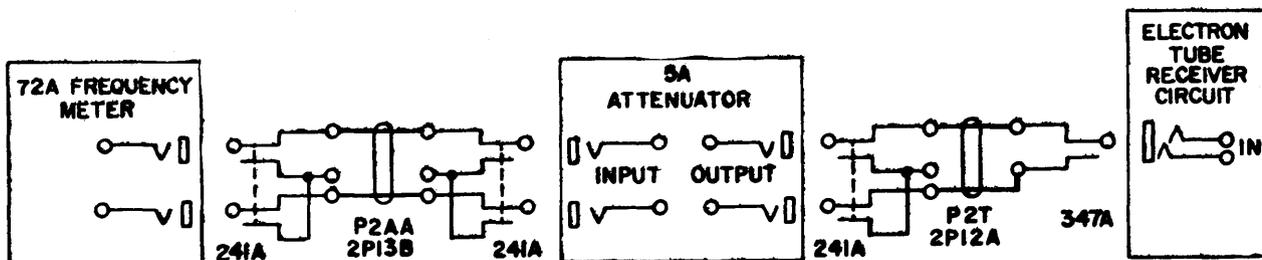


Fig. 2

**B. Adjustment of the AGC2 Potentiometer, Input Level Control for the 1100-Cps Amplifier**

**4.02** The following procedure covers the adjustment of the AGC2 potentiometer which controls the input to the V2 amplifier tube and that is associated with the 1100-cps signal. Connect the frequency meter, No. 5A attenuator, and the electron tube receiver circuit as shown in Fig. 2. Connect the T and R jack of the No. 35 test set to the RC2 jack of the circuit under test, using a P2P cord. Operate the BAT. and GRD CO key of the No. 35 test set.

Move all the resistance sliders on the No. 35 test set to the extreme left. Lock operated the No. 1 key on the No. 35 test set. The current reading of the No. 35 test set meter depends upon the output voltage of the V2 tube, which depends on the plate voltage of the V2 tube. If the current reading is not within the specified limits for the plate voltage which was measured in the preparation, loosen the locknut of the AGC2 potentiometer and adjust this potentiometer until the current reading is the required value; tighten the locknut of this potentiometer. Remove all connections and restore all keys.