RINGING MACHINES AND INTERRUPTERS

TEST AND INSPECTION

1. GENERAL

1.01 This section describes the procedures for routine inspection of ringing machines and ringing interrupters.

1.02 It is reissued to:

- Update the format to comply with Pacific Company (PAC) Standards.
- Include the appropriate legend on Page 1 in accordance with AT&T's "Guidelines and Procedures for Safeguarding Information" and PAC's System Instruction (SI) 178.

Note: Marginal arrows used to denote changes are omitted.

1.03 No attempt should be made to remove machines from service nor to make major repairs as a result of inspections except during light traffic periods and then only after a thorough operating test has been made of the reserve apparatus.

1.04 Where automatic transfer equipment is provided and the reserve ringing machine is placed in service while work of any kind is to be done on the regular AC driven set, see that the control switch on the power board is in the manual position.

1.05 When lubrication or repairs are required, reference should be made to sections for requirements and adjusting procedures covering the particular type of machine involved.

2. APPARATUS

2.01 The following tools and materials are required to perform the test and inspection.

(a) Flashlight or Portable Hand Lamp with Guard, as available.

(b) Cleaning Cloth, KS-14666.

(c) No. 1 White Wiping Cloth. (Discarded cleaning or polishing cloths may be substituted.)

(d) KS-7860 Petroleum Spirits.

(e) Headset composed of a No. 716A Receiver equipped with a 11A headband and a W2AB Cord equipped with 2 No. 360A Tools and connecting tools as required.

(f) Oil, 90-130 S 100. (Light machine oil.)

3. METHOD

General Inspection Procedure

3.01 Clean the metal parts of all apparatus. Slate table tops and slate panels should be dusted and then wiped with a clean wiping cloth slightly oiled with machine oil. Metal table tops should be cleaned with dry cleaning cloths. Oil spots should be removed with cloth moistened with petroleum spirits.

3.02 Observe that the machine operates freely with no apparent bind in bearings or gears.

3.03 Note that all screws and mounting bolts are secure and that all screws or soldered connections are tight.

3.04 Brushes should be removed (see 1.03 and 1.04), wiped with a dry cleaning cloth or, if very greasy, cleaned with petroleum spirits and, if necessary, sanded in accordance with requirements. Wipe brushes with a dry cleaning cloth after use of petroleum spirits.

Note: Brushes should be removed from one interrupter drum at a time and be replaced before starting the cleaning operations on another drum to avoid extended delay in case of a failure of the set that is in operation. When removing brushes,

note their positions in the holders and mark them if necessary to ensure replacement in the same holders and in the same position in the holders.

3.05 Observe that oil gauges are not broken or cracked; are free from leaks, clean, and indicate the level of oil distinctly and at the proper level.

3.06 Observe that the surface of the commutator, the collector, pulsating and interrupter rings are clean and free from scoring, pitting, or other deformation of the surface.

3.07 Observe that interrupter spring contacts, if there are any, are clean and free from pitting. Check for spring adjustment and tension.

General Lubrication

3.08 Drain and flush all bearings. Replace the oil and grease in accordance with standard procedures.

Testing of *Tone* Quality

3.09 By means of the headset connected in accordance with circuit requirements, observe the quality of the howler, busy back, dial, low, and high *tones.*

Type QD Ringing Machines

3.10 Type QD ringing machines should be inspected, tested, and lubricated in accordance with the instructions.

3.11 In offices where a reserve or alternate ringing machine is permanently mounted on the ringing machine panel, it should be placed in operation for use at alternate periods.

3.12 In offices where the ringing panel is equipped with jack type mounting for one ringing machine and a reserve set is available, the one in service should be removed and the reserve machine inserted in the jack mounting for operation at alternate periods. The reserve machine should also be inspected as outlined in 3.10.

Charging the KS-7869 Condenser

3.13 In offices that have the 803C ringing power plants, the High Voltage (HV) KS-7869 electrolytic condenser shall be charged for at least 30 minutes using the following procedure:

(a) Block the (HV) relay non-operated.

(b) Short-circuit the (HV) rheostat.

3.14 Electrolytic condensers should be maintained in accordance with the instructions.

Changing 313 Vacuum Tube of Automatic Transfer Circuits

Circuit Drawing SD-80866-01

3.15 *LV Tube:* Operate the Ringing Transfer (RING TRNS) key to the (G2) position. Verify that the Low Voltage (LV) relay is in adjustment. Block (T) relay released and place (RING TRNS) key in the (G1) positions. Turn rheostat (C) counter-clockwise as far as it will go and adjust as follows:

1. Replace the LV tube. Remove straps from (A) and (B) resistances.

2. Turn (C) rheostat slowly clockwise until relay (LV) just operates and holds. Turn an additional 30° (approximately) clockwise. When changing setting of rheostat allow a minute or so for the (LV) condenser to become charged.

3. If the rheostat is turned all the way clockwise and (LV) relay does not operate, return rheostat to counter-clockwise position. Strap out resistance A and proceed as in Step 2.

4. If (LV) relay still does not operate return rheostat to counter-clockwise position. Remove strap from the (A) resistance, strap out the (B) resistance and proceed as in Step 2. [Resistances (A) and (B) should not be strapped out at same time.]

5. When adjustments have been completed remove block from (T) relay.

3.16 *V Tube:* Block (B) and (T) relay operated. Remove old tube (V) from socket and insert new tube. Verify that the (A) relay is in adjustment. Turn rheostats (CA) and (MA) clockwise as far as they will go. Hold Adjust (ADJ) key depressed and

turn rheostat (CA) counter-clockwise until it just operates. Still holding (ADJ) key operated, turn rheostat (MA) counter-clockwise until the (A) relay releases, then clockwise until the (A) relay operates. Turn the (MA) rheostat clockwise an additional 10 or 15 degrees to give the main gap some margin over minimum requirements. Remove clock from (B) relay.

Circuit Drawing SD-80686-01

3.17 Replace the (HV), (LV1), and (LV2) tubes with new tubes. Verify that relays (LV1), (LV2), (BF), (HV), (HVA), (FT), (A), and (B) are in adjustment. Place rheostats (LV1), (LV2), and (HV) in "Res. All In" position. Pull out (release) test key (A).

3.18 Operate Ringing Machine (RING M2) switch to (START) position and (RING TRNS) key to Manual (MAN) position to transfer load to the reserve machine.

3.19 Adjust the voltage of (RING G1) by means of its voltage regulator to 93 volts. Cut out resistance of the (HV) rheostat until the (HV) relay operates. After any change in the adjustment of the (HV) rheostat, an interval of about 10 seconds should be allowed in order that the (HV) condenser may have time to charge. With this setting the (HV) relay should operate at 93 volts and release at about 91 volts.

3.20 Pull out (release) test key (B). Adjust the voltage of the (RING G1) to 78 volts. Strap out resistance (L2) temporarily. Cut out resistance in rheostat (LV1) until the (LV1) relay operates. With this setting the (LV1) relay should operate at 78 volts and release at about 77 volts. Remove strap from resistance (L2). Lower the voltage until the (LV1) relay releases and then raise it slowly to 79 volts. If relay (LV1) does not operate, strap out resistance (L3) and again lower the voltage until LV1 releases and then raise to 79 volts. If relay (LV1) still does not operate, remove strap from resistance (L3) and strap out resistance (L2). [Resistances (L2) and (L3) should not be strapped out at the same time.]

3.21 For adjustment of the (LV2) relay follow the same procedure as for the (LV1) relay, strapping out the (B2) or (B3) resistance as required in a similar manner as the (L2) or (L3) resistance.

3.22 Push in (operate) test key (B) and then (A). Adjust voltage of Ring G1 to 84 to 88 volts. Operate (RING TRNS) key to Automatic (AUTO) position and (RING M2) switch to normal position.

4. REPORTS

4.01 The required record of this routine should be entered on the proper form.