

**L MULTIPLEX TERMINALS**  
**LMX-1**  
**CARRIER AND PILOT SUPPLY**  
**64-KHZ FREQUENCY COMPARATOR CIRCUIT**  
**BEAT FREQUENCY TEST**

At a controlled supply, the frequency comparator [FREQ COMP ( )] circuit compares the locally generated 64-kHz signal with the 64-kHz synchronizing signal received over the L1 line or with the 64-kHz signal received from the 4-kHz master supply circuit.

The rectified output current of the FREQ COMP ( ) circuit is derived from the difference in frequency between the two input signals. This output current operates a motor-driven capacitor in the 128-kHz oscillator of the 4-kHz primary frequency supply (PFS-1) circuit associated with the FREQ COMP ( ) circuit and compensates for the difference in frequency between the two signals.

**Note:** Any supply *not* controlled by a motor-driven capacitor is a free-running supply and is considered a master supply.

This section contains part of the information previously contained in Section 356-084-501 which has been divided into two sections. The remaining part, end-of-range alarm tests, is now in Section 356-183-502. **Equipment Test Lists are affected.**

This test indicates the degree of synchronism between the locally generated 64-kHz signal and the incoming 64-kHz synchronizing signal. A 1R or 1AC tube test set is connected to the F TST or S TST jacks of the FREQ COMP ( ) circuit under test in order to observe beats in the cathode current. The slower the beat, the nearer the two signals are to being synchronous.

**APPARATUS:**

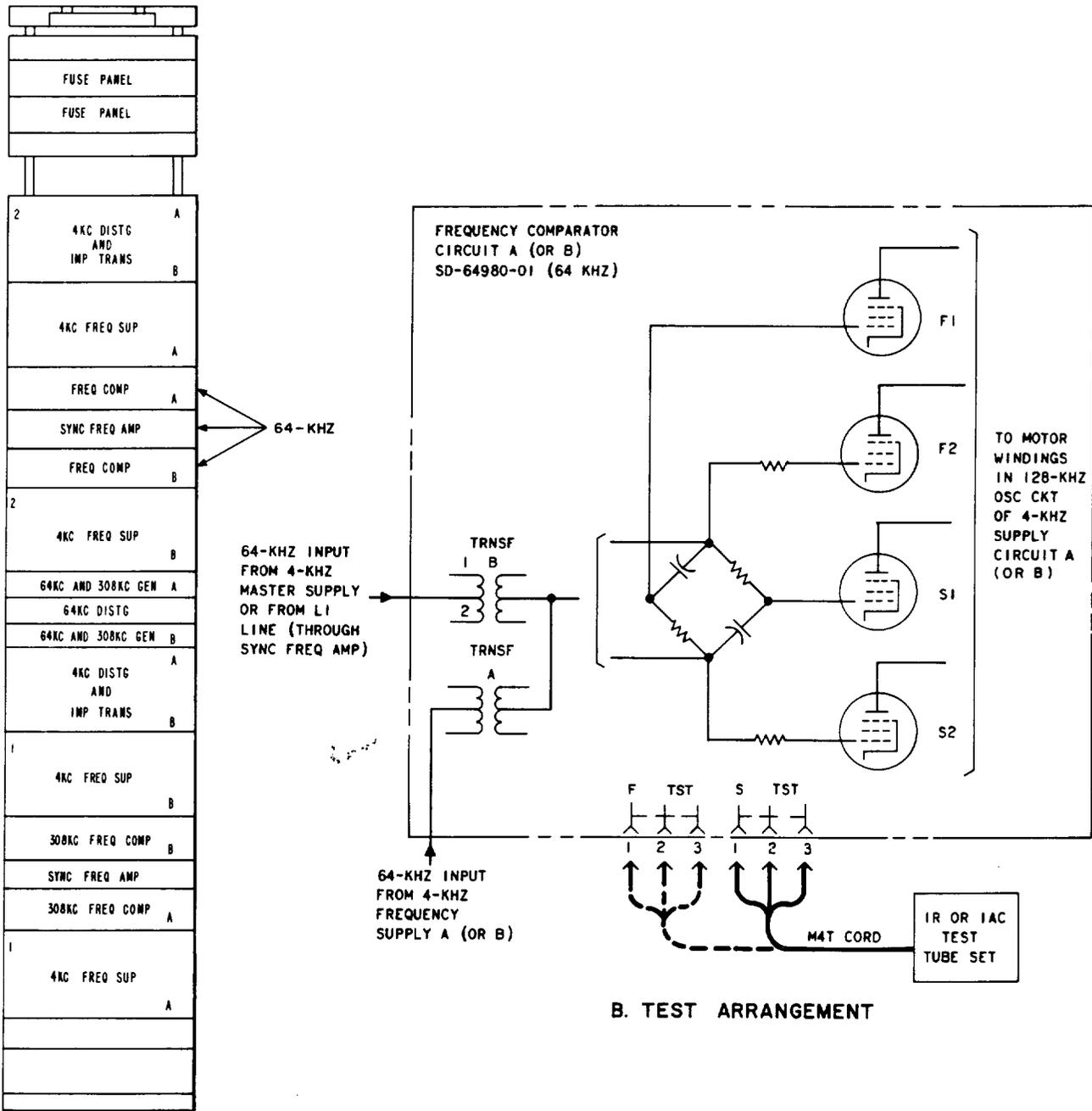
*1R or 1AC Tube Test Set*

*M4T Cord*

<b>STEP</b>	<b>PROCEDURE</b>
1	Connect the 1R or 1AC tube test set to the F TST or S TST jacks of the FREQ COMP circuit to be tested. (See Fig. 1.)  <b>Note:</b> Refer to Section 103-427-100 for operating procedures of the tube test set.

**SECTION 356-183-501**

<b>STEP</b>	<b>PROCEDURE</b>
2	Observe the tube test set meter indication.  <b>Requirements:</b> (a) Between 0 and 600 millivolts indication. (b) The time for one complete cycle shall be greater than 5 minutes.
3	If the requirements of Step 2 are met, proceed to Step 6. If they are not met, make tube tests <i>on an out-of-service basis</i> as prescribed in Section 356-051-501.
4	If the results of the tube tests were good or if tubes were replaced and the requirements of Step 2 still cannot be met, suspect a "frozen" (CC) capacitor or a burned-out sync (CU) motor in the 4-kHz primary frequency supply circuit associated with the FREQ COMP circuit being tested.
5	If a CC capacitor or a CU motor is replaced, make the end-of-range alarm test as prescribed in Section 356-183-502.
6	Disconnect the 1R or 1AC tube test set.



A. EQUIPMENT ARRANGEMENT

B. TEST ARRANGEMENT

Fig. 1—64-KHZ Frequency Comparator Circuit—Beat Frequency Test