L MULTIPLEX TERMINALS

CHANNEL CARRIER SUPPLY

A5 CHANNEL BANK

DESCRIPTION

CONTENTS PAGE

1. GENERAL

1.01 The channel carrier supply (J68857B) and the channel carrier distributing unit (J68857A) used with the A5 channel bank are described in this section. Information in this section supersedes similar information previously contained in Section 356-200-140.

1.02 The channel carrier supply is no longer considered an exclusive part of the LMX-2 terminals. Since it is physically separated from the group and supergroup carrier supplies, it is now classified as "common equipment."

2. CIRCUIT DESCRIPTION

2.01 The J68857B carrier generator and filter unit (Fig. 1) contains the following circuits:

(a) Plug-in 4-kHz amplifier

(b) Harmonic generator

(c) 12 bandpass filters

(d) Alarm circuit

(e) Spare 4-kHz amplifier.

2.02 The 4-kHz amplifier is a solid-state, plug-in unit and is identical to the amplifier used in the J68857N intermediate frequency supply. The amplifier receives its input signal directly from the distribution bus of the primary frequency supply. After amplification, the 4-kHz signal is coupled to the input of the harmonic generator through an impedance-matching transformer.

2.03 The harmonic generator circuit produces odd harmonics in a circuit employing a saturated core inductor. Even harmonics are produced in a full-wave bridge rectifier circuit. The odd and even harmonics are connected to individual bandpass filters which select the 12 channel carrrier frequencies, from 64 to 108 kHz at 4-kHz intervals.

2.04 The selected carrier frequencies are connected to individual distribution buses within the J68857A distribution unit (Fig. 2). The distribution unit supplies the 12 carrier frequencies to a maximum of 30 channel modems. Test jacks at the distribution unit are provided to measure the power of each carrier frequency. The power level at each bus may be adjusted by means of screw-down connectors across a resistive pad assembly. A typical bay arrangement for 30 A5 channel banks is shown in Fig. 3. A block diagram of the channel carrier supply circuit and its connecting circuits is shown in Fig. 4.

2.05 If the working 4-kHz amplifier or harmonic generator fails or the input signal from the primary frequency supply is lost, the channel carrier alarm circuit will activate office alarms, as well as light a panel-mounted alarm lamp. An alarm cut-off switch is provided to silence office alarms while repairs are being made.

2.06 The J68857B carrier generator unit is arranged (Fig. 5) to accommodate a spare plug-in 4-kHz amplifier. The spare amplifier, while in the standby condition, operates at reduced output into a dummy load.

2.07 A spare amplifier is generally provided with the first channel carrier generator in an office. The spare amplifier has its own alarm circuit. If the spare amplifier fails while in the standby condition, a minor office alarm will be activated and a panel-mounted alarm lamp will be

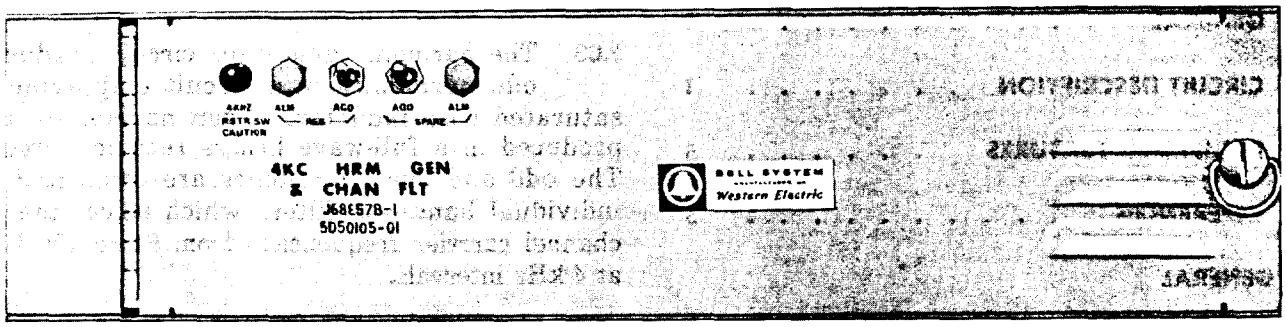

Fig. 1—J68857B Channel Carrier Generator and Filter Unit—Front View

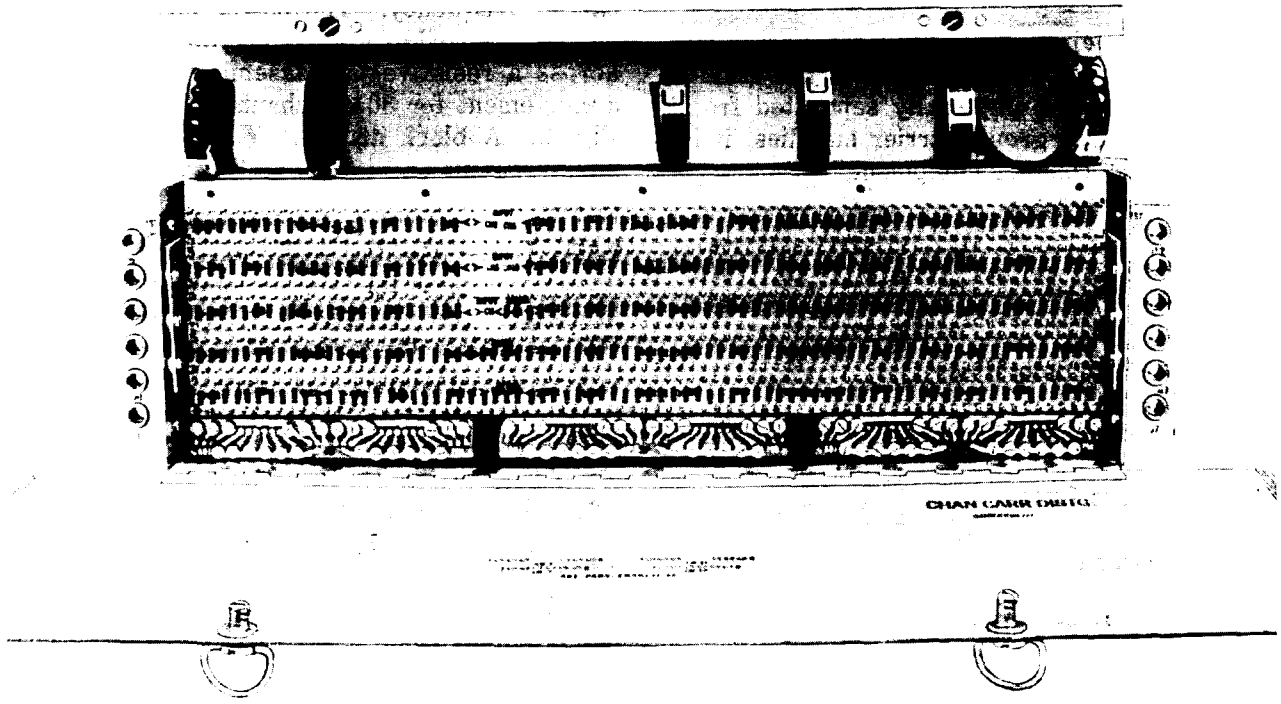

Fig. 2—J68857A Channel Carrier Distributing Unit—Front Cover Lowered

lighted. An alarm cut-off switch is provided to silence office alarms.

2.08 Engineering Memorandum (EM) 1682, dated October 28, 1969, provides information for the addition of an optional 4-kHz manual restoration switch to the A5 channel carrier supply. The switch provides the capability of manually switching the working drive amplifier and harmonic generator circuit between regular and spare 4-kHz inputs originating at different primary 4-kHz supplies.

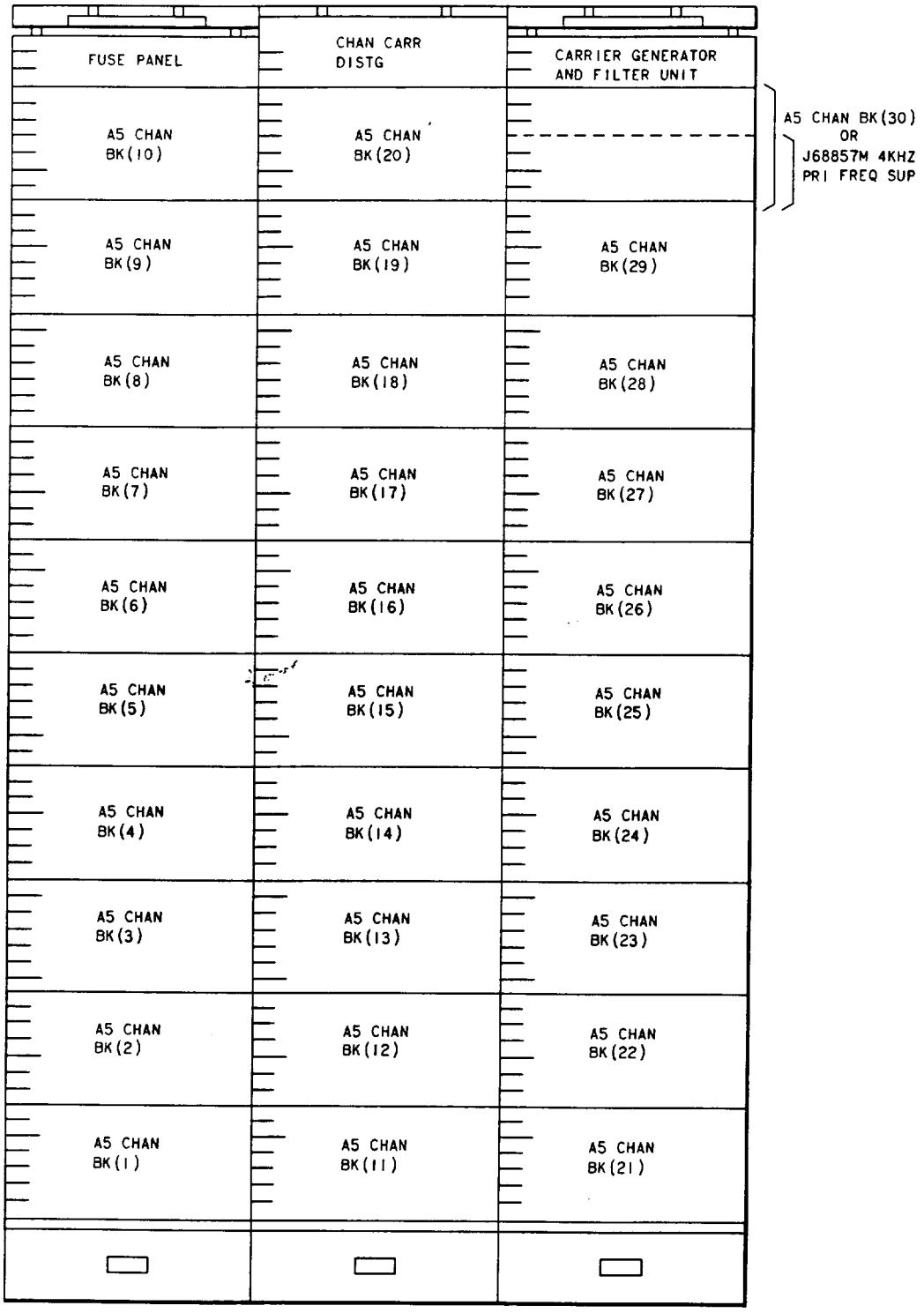

Fig. 3—Typical Bay Arrangement for 30 A5 Channel Banks

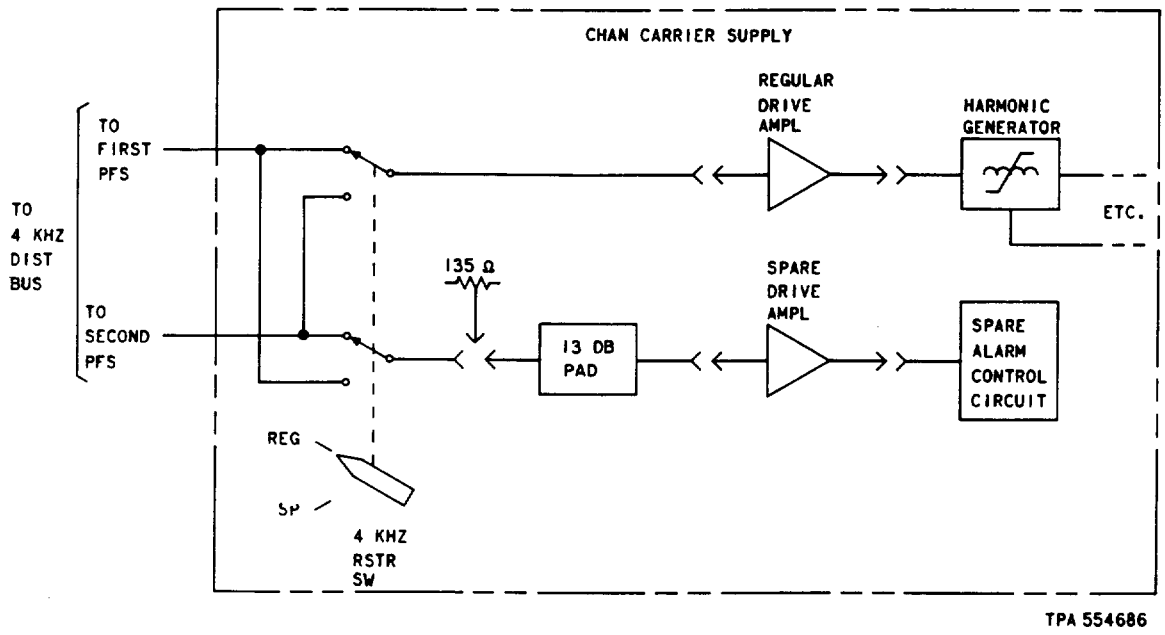

Fig. 4—Channel Carrier Supply—Block Diagram

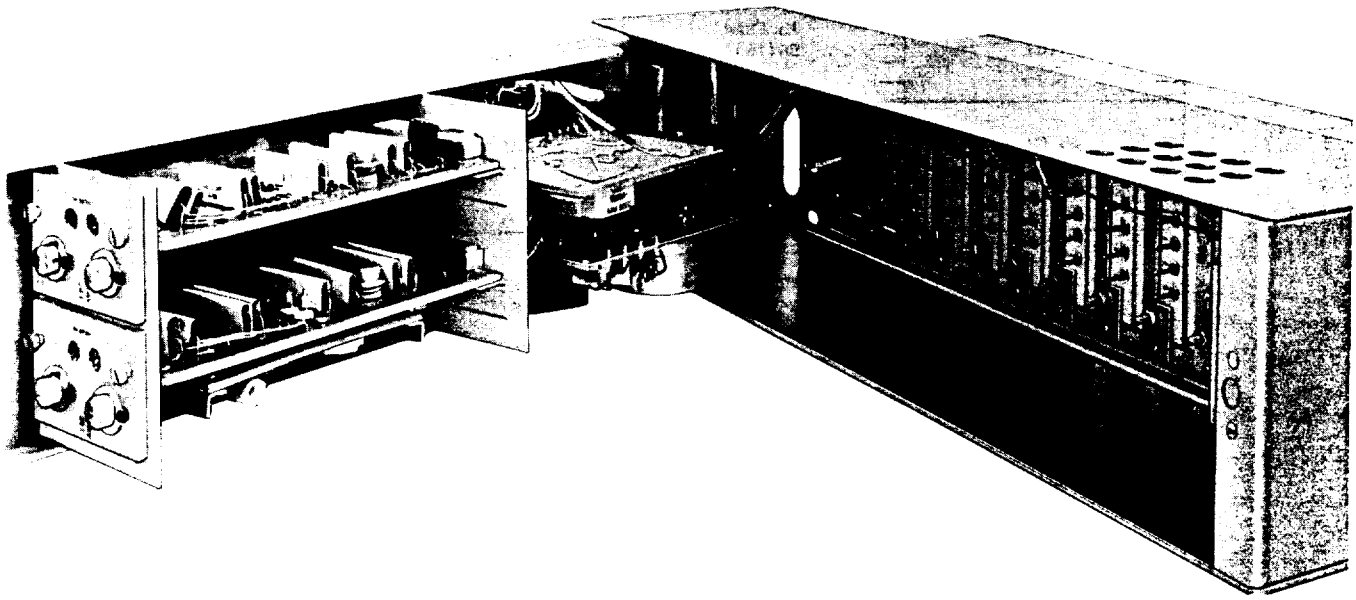

Fig. 5—J68857B Channel Carrier Generator and Filter Unit—Door Open

The purpose of the switch is to provide manual restoration of the channel carrier supply in the event of failure of the regular 4-kHz source (see Fig. 4).

3. EQUIPMENT FEATURES

3.01 The J68857B channel carrier generator and filter unit is 5-1/4 inches high and is designed to mount in a standard 19-inch duct-type bay. The unit has a front-to-back depth of 10-1/2 inches and is designed for back-to-back bays. A hinged front panel cover allows access to all individual modules for maintenance. The alarm lamps and alarm cutoff switches are mounted on the front cover. The 4-kHz restoration switch (RSTR SW) may be mounted in the top left corner of the panel (see Fig. 1).

3.02 The J68857A channel carrier distributing unit occupies three mounting plates and contains a 3-inch cable duct at the top of the unit. The carrier distributing unit mounts in a standard 19-inch duct-type bay. A hinged front panel cover provides access to the 12 distribution buses for adjustment and maintenance.

3.03 Both the carrier generator unit and the distribution unit are generally mounted at the top of the bay containing the associated A5 channel banks (Fig. 3).

4. REFERENCES

4.01 The following schematic drawings apply to the channel carrier supply circuits described in this section.

SD-50095-01	Application Schematic— Carrier Supply Circuits
SD-50098-01	Channel Carrier Distributing Circuit
SD-50105-01	Channel Carrier or Intermediate Frequency Supply
SD-59425-01	Application Schematic, 4-kHz Frequency Supply and Distributing Circuit.