N3 CARRIER TELEPHONE SYSTEM
VOICE-FREQUENCY AMPLIFIER OVERALL LINE-UP
TRANSMITTING AND RECEIVING

The N3 VF amplifier plug-in unit is used in place of the N3 compandor unit whenever noncompandored channel operation is required. The VF amplifier may be used in N3 Terminals, and Type B or C N3-L Junctions to provide noncompandored channels for data or other such special services, or it may be used for through-channel service. In the through-channel application, VF amplifier plug-in units are installed at the intermediate office in both terminals when two channels of separate N3 or N3-L systems are wired together to form a built-up circuit. Thus, the distortions contributed by a second compressor and expandor are avoided.

In this procedure, a 1000-Hz tone is applied to the transmitting end of a channel and appropriate adjustments are made at the transmitting and receiving ends to adjust the respective VF amplifier gains. In the transmitting VF amplifier, the IN ADJ control permits adjustment of the signal input level to the channel modem. In the receiving VF amplifier, the OUT ADJ control permits adjustment of the VF amplifier output level. Adjustment of the controls should be made only when the high-frequency line and the transmitting and receiving terminal modem units are within requirements. Test connections, except for the vacuum tube voltmeter, are made at the 4-wire VF jacks in the jack field, whether located in the packaged N3 Terminal or N3-L junction bay or at a central location in the office. The adjustments are made so that the VF output from the N3 Terminal or N3-L Junction is at the standard office level of +7 dBm at the 4-wire jacks.

When two N3 or N3-L channels are connected in tandem, standard office levels of +7 dBm and -16 dBm are provided at each jack appearance. The input level of -16 dBm is provided by two pads totaling 23-dB attenuation (per direction) in the 4-wire path between the channels. Figure 1 shows the application of VF amplifier units to provide a noncompandored circuit for data transmission; Fig. 2 shows VF amplifier units used for through-channel interconnection of two N3 or N3-L channels.

A channel equipped with VF amplifier units should not be put into service until the following tests have been completed. If this test is to be performed on a working channel, the channel must be removed from service prior to the test.

The purpose of this test is to measure and adjust the overall channel net gain.

This section is reissued to include the Type B and C N3-L Junctions.

APPARATUS:

J94021A Transmission Measuring Set (TMS) or J64040B Transmission Measuring System

400-Type Hewlett-Packard Vacuum-Tube Voltmeter (VTVM)

APPARATUS: (Cont)

W2FP Cord

3P6 Cord

3P17 Cord

STEP	PROCEDURE
1	Remove the channel from service.
	At Transmitting Terminal
2	Using the 3P6 cord, patch a 1000-Hz (600-ohm source) test tone at -16 dBm to the MOD IN or VF IN jack in the patch field.
3	Using the W2FP cord, connect the VTVM to the VI 1 and VI 2 jacks on the VF amplifier.
	Requirement: -15.8 to -16.5 dB
4	Using the W2FP cord, connect the VTVM to the MOD IN and MOD GD (ground) jacks on the channel associated with the VF amplifier.
	Requirement: +16.8 dB
5	If the requirement of Step 4 is not met, adjust the IN ADJ potentiometer on the VF amplifier.
	At Receiving Terminal
6	Using the 3P17 cord, connect the TMS to the DEM OUT or VF OUT jack in the patch field.
	Requirement: +7.0 dBm
7	If the requirement of Step 6 is not met, adjust the OUT ADJ potentiometer on the VF amplifier unit.
8	If the requirement is not met by adjustment of the OUT ADJ potentiometer, replace the VF amplifier.

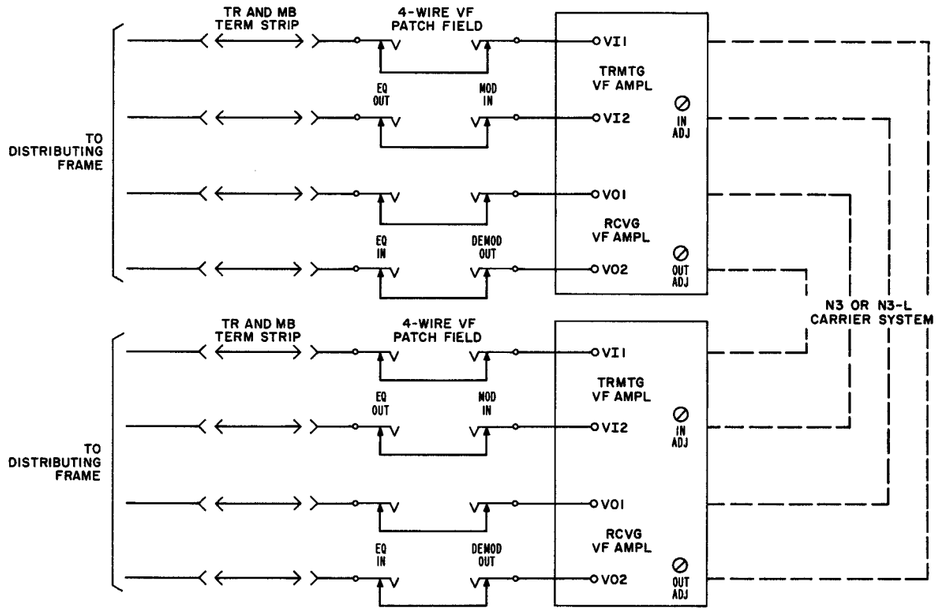

Fig. 2—Voice-Frequency Amplifier—Use to Provide Through-Channel Service

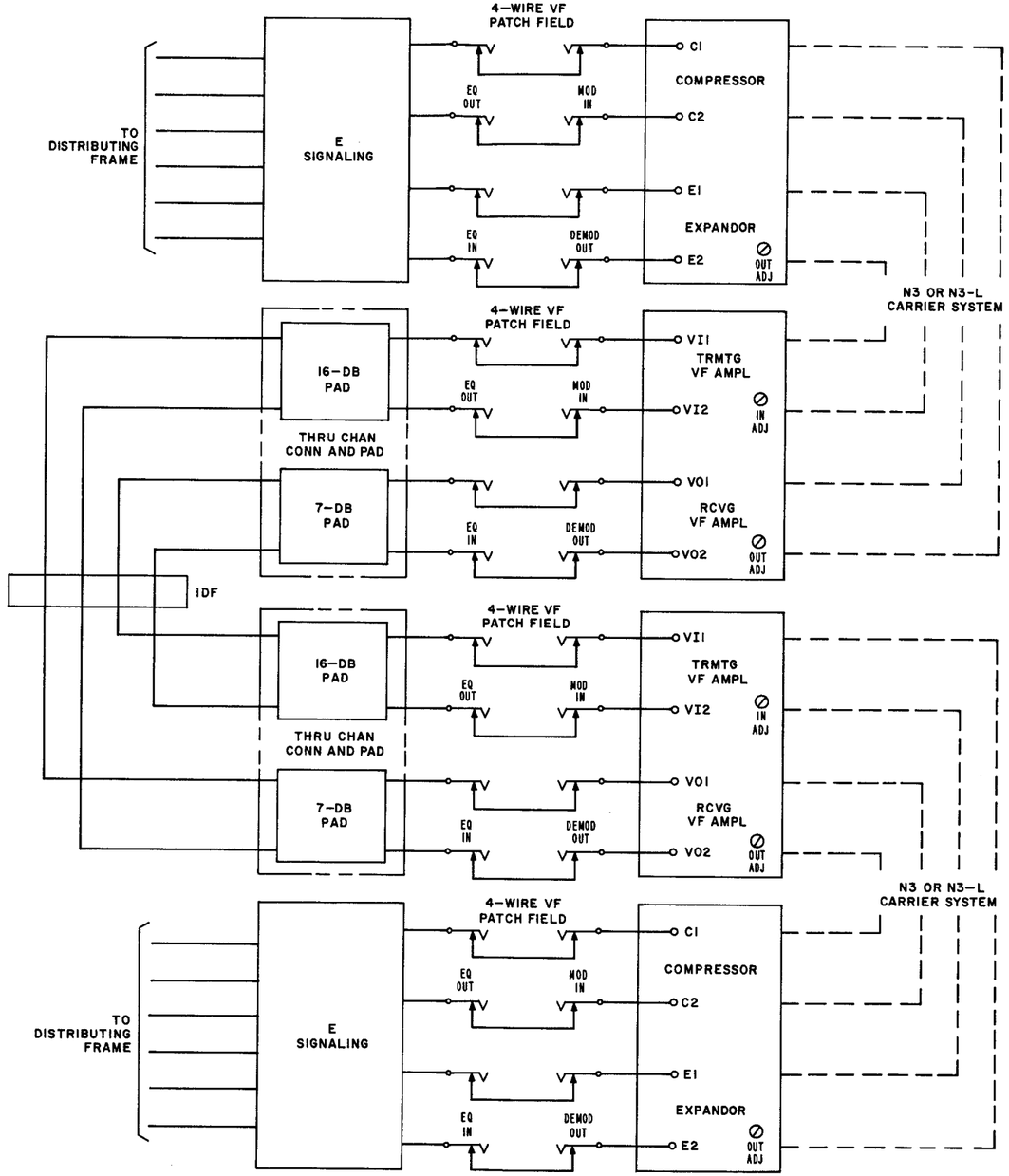

Fig. 1—Voice-Frequency Amplifier—Use to Provide Noncompandored Channel for Data or Special Service Transmission

Fig. 1 and Fig. 2