SUBSCRIBER LINE CARRIER SYSTEMS ADDED MAIN LINE AND THE SEISCOR SUBSCRIBER LINE CARRIER TELEPHONE DESCRIPTION AND INSTALLATION CENTRAL OFFICE TERMINAL

1. GENERAL

1.01 This section covers the description and installation of the Added Main Line (AML) or the Seiscor (SSC-1) subscriber line carrier Central Office Terminal.

1.02 The "Added Main Line" referred to as the "AML" system, and the "Seiscor Subscriber Line" referred to as the SSC-1 system, are two systems which have compatible components that may be interchanged. What is said of one system is applicable to the other; therefore, the general term "system" is used in this section to mean either one of the carrier systems.

2. SYSTEM DESCRIPTION

2.01 One carrier system channel can be added to an existing subscriber circuit to provide one party service. The physical circuit can be either one party or multi-party service.

2.02 AML or SSC-1, as with all carrier systems, will not operate through convential load coils. Therefore, the physical circuit must be a non-loaded facility.

2.03 No AC power connections are required at either the central office or the subscriber's premises. All power is derived from the C.O. 48 volt talk battery.

2.04 The unit can be mounted either on the HMDF or on a standard 19 or 23 inch relay rack.

2.05 Maintenance repair of the system is by substitution with spare units.

3. TECHNICAL DESCRIPTION

3.01 The AML or the SSC-1 is a one channel, completely transistorized, double side band, amplitude modulated system. They operate in the frequency bands of 25 to 31 KHz and 73 to 79 KHz, including side bands.

3.02 The carrier from the C.O. to the subscriber is 76 KHz; from the subscriber to the C.O., 28 KHz.

3.03 The "derived" voice frequency circuit is the demodulated output from the System.

3.04 The "physical" voice frequency circuit is the cable pair over which the carrier frequencies are transmitted. This physical circuit must be a working line (connected to a working subscriber number in the central office).

3.05 Ringing the carrier system subscriber is accomplished by detecting the ringing voltage at the central office system terminal. The Central Office Terminal (COT) then transmits carrier to the subscriber terminal. This carrier is detected and used to connect a 6 volt battery to an inverter which generates a nominal 70 volts at 20 Hz. The power provided is sufficient to ring up to three standard ringers.

3.06 Supervision and pulsing are accomplished by carrier on-off signaling controlled by either the telephone switch-hook or the dial.

4. INSTALLATION

4.01 Channel racks (shelves) of the various sizes are intended to mount on a 19" or 23" relay rack. This relay rack should be as near as possible to the MDF to keep interconnecting cable length to a minimum.

4.02 Wiring connections to the shelves are made on the back of the shelf at wire wrap terminals. Typical wiring arrangements are shown in Figure 1. Figure 2 is an application schematic of the "COT".

4.03 The channel shelves should be permanently cabled to a six point terminal block on the horizontal MDF. From there the channels can be cross-connected to the proper group and terminal or line link appearance and cable pair. Each channel unit requires three pairs in the cable.

4.04 One system channel card requires 35 milliamperes at 48 volts. Therefore, a 12 channel shelf will require about 420 milliamperes.

4.05 The battery terminals for all of the channels on a 10 or 12 channel shelf should be multiplied and fed from one 1 1/3 ampere fuse. This fuse can be located on a separate fuse panel at the top of the relay rack. On the 50 or 60 channel rack, each group of 10 or 12 channel units should be considered a separate shelf for purposes of providing battery and ground.

4.06 Each channel unit is equipped with an internal dropping resistor at the battery terminal. This will limit the current so that a component failure on a channel unit will not blow the common fuse.

4.07 The ground terminals on each shelf should be strapped and tied to a common relay rack ground.

4.08 Wire wrap connections on the socket pins on the rear of the channel shelf are designated A, B, C, D, E, F, G, I, J, K and L top to bottom. Cabling from the channel shelf to the MDF terminal block should correspond, front to back with the shelf socket pin connections top to bottom. The top two terminals on the shelf socket, A and B, are the carrier derived circuit tip and ring. The next two terminals, C and D, are the physical circuit tip and ring. Terminals E and F are the cable pair tip and ring. The next terminal, H, is blank. Terminal J is the ground connection. Terminal K is also blank and terminal L is the 48 volt battery connection point.

5. TROUBLE LOCATION PROCEDURE

5.01 Trouble location on these systems is entirely by a process of trouble analysis and substitution of spare parts. No special test equipment is required. A voltmeter is required to check the state of charge of the nickel-cadmium battery at the subscriber location.

5.02 The physical circuit subscriber provides a constant check on the outside plant facilities. A trouble affecting both the physical subscriber and the System subscriber is most likely outside plant trouble.

5.03 Procedure for testing on a carrier system circuit is as follows:

1. Verify that the physical circuit subscriber's service is normal.
2. If the physical circuit tests good and the system subscriber has reported "can't hear", "can't be heard" or "no ring", bridge a spare subscriber terminal and telephone set across the cable pair at the main frame. If operation of the spare subscriber terminals is normal, the trouble is at the subscriber location.
3. If operation of the spare subscriber terminal is not normal, replace the associated central office terminal unit. If this does not clear the trouble

completely, some problems also exist at the subscriber terminal.

6. REFERENCE SECTIONS

6.01 Section 201-829-901SW is the general description and Administrative Procedures of the AML and SSC-1.

6.02 Section 640-200-901SW gives installation and maintenance procedures for the AML and SSC-1 subscriber terminal.

6.03 Addendum V66.203.3 describes service order procedures for AML or SSC-1.

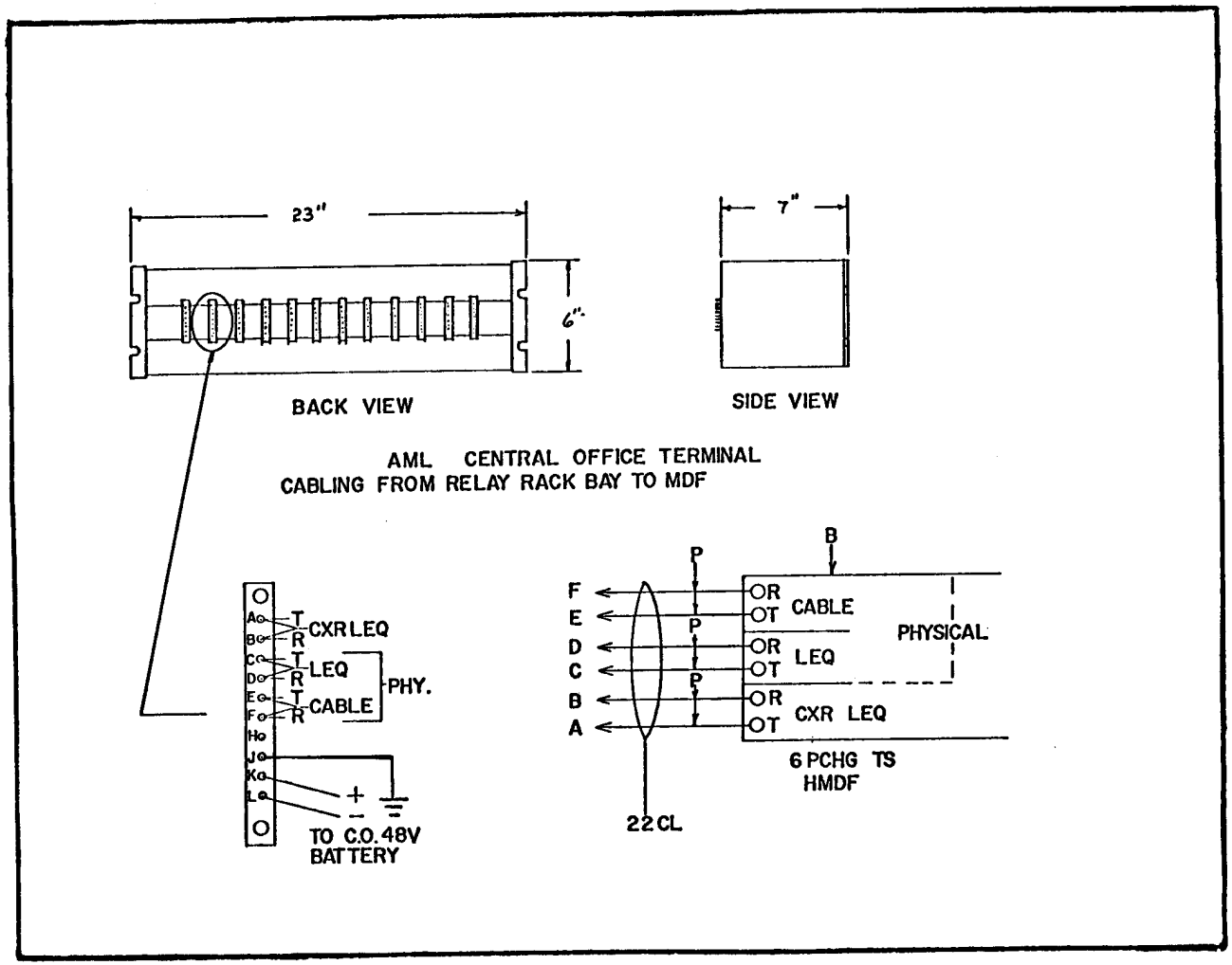
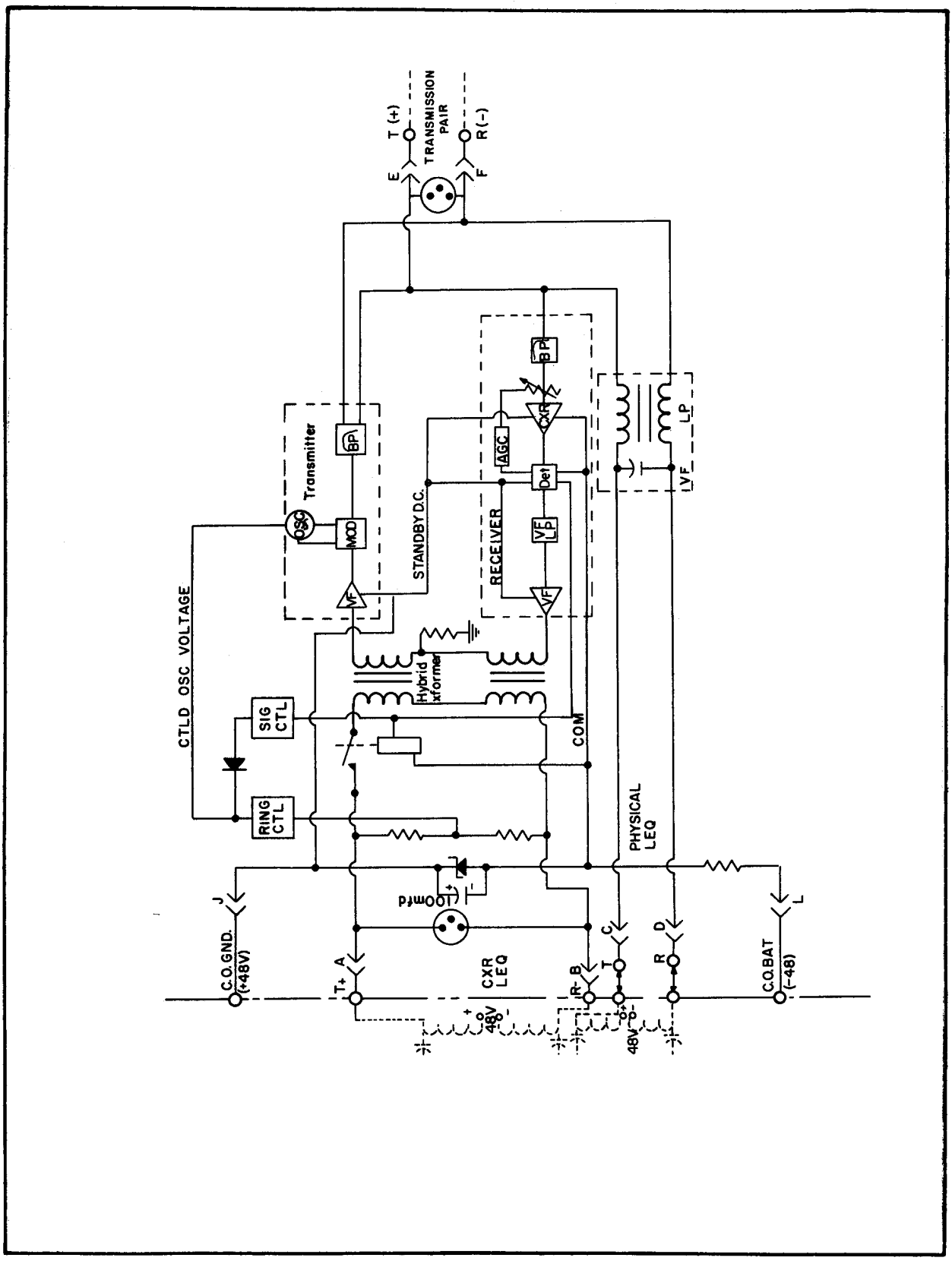

23"
6"
7"
BACK VIEW
SIDE VIEW
AML CENTRAL OFFICE TERMINAL
CABLING FROM RELAY RACK BAY TO MDF
T
R
CXR LEQ
LEQ
CABLE
PHY.
TO C.O. 48V
BATTERY
P
B
F
E
D
C
B
A
OR
OT
CABLE
LEQ
CXR LEQ
PHYSICAL
6 PCHG TS
HMDF
22 CL

Figure 1

FIGURE 2


T (+)
TRANSMISSION PAIR
R(-)
E
F
BP
CXR
AGC
Det
LP
VF
Transmitter
OSC
MOD
VF
STANDBY D.C.
RECEIVER
VF
LP
CTLD OSC VOLTAGE
Hybrid xformer
SIG CTL
RING CTL
COM
PHYSICAL LEQ
Comtd
J
C.O.GND. (+48V)
A
T+
CXR LEQ
B
R-
C
T
D
R
L
C.O.BAT (-48)
48V
48V