3657-02 2W FXS/GT Channel Unit Installation Guide

®UL Complies with UL Standard 1459 Second Edition.

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1. GENERAL

1.1 Document Purpose

This document provides installation information for the Charles Industries 2-Wire Foreign Exchange Subscriber with Gain Transfer (2W FXS/GT) channel unit.

1.2 Document Status

This document is reprinted to include a general editorial update.

1.3 Equipment Function

The 3657-02 2-Wire Foreign Exchange Subscriber with Gain Transfer (2W FXS/GT) channel unit operates in a Charles 360/363 D4 Channel Bank. The 3657-02 provides an interface between the 2-wire VF extensions of the foreign exchange line, off-premises extensions, PBX/CO trunks (loop-start/ground-start), and the common equipment units of the 360/363 D4 Channel Bank. See Figure 1 for the block diagram. Additional information, such as Applications, Circuit Description, etc., is available in Section 365-700-208.

CAUTION

Field repairs/modifications may void compliance with UL 1459 — Second Edition. 3657-02 compliance with UL 1459 — Second Edition is restricted to inside plant wiring.

2. INSPECTION

2.1 Inspect for Damages

Inspect the equipment thoroughly upon delivery. If the equipment has been damaged in transit, immediately report the extent of damage to the transportation company.

2.2 Equipment Identification

Charles Industries' equipment is identified by a model and issue number imprinted on the front panel or located elsewhere on the equipment. Each time a major engineering design change is made on the equipment, the issue number is advanced by 1 and imprinted on subsequent units manufactured. Therefore, be sure to include both the model number and its issue number when making inquiries about the equipment.

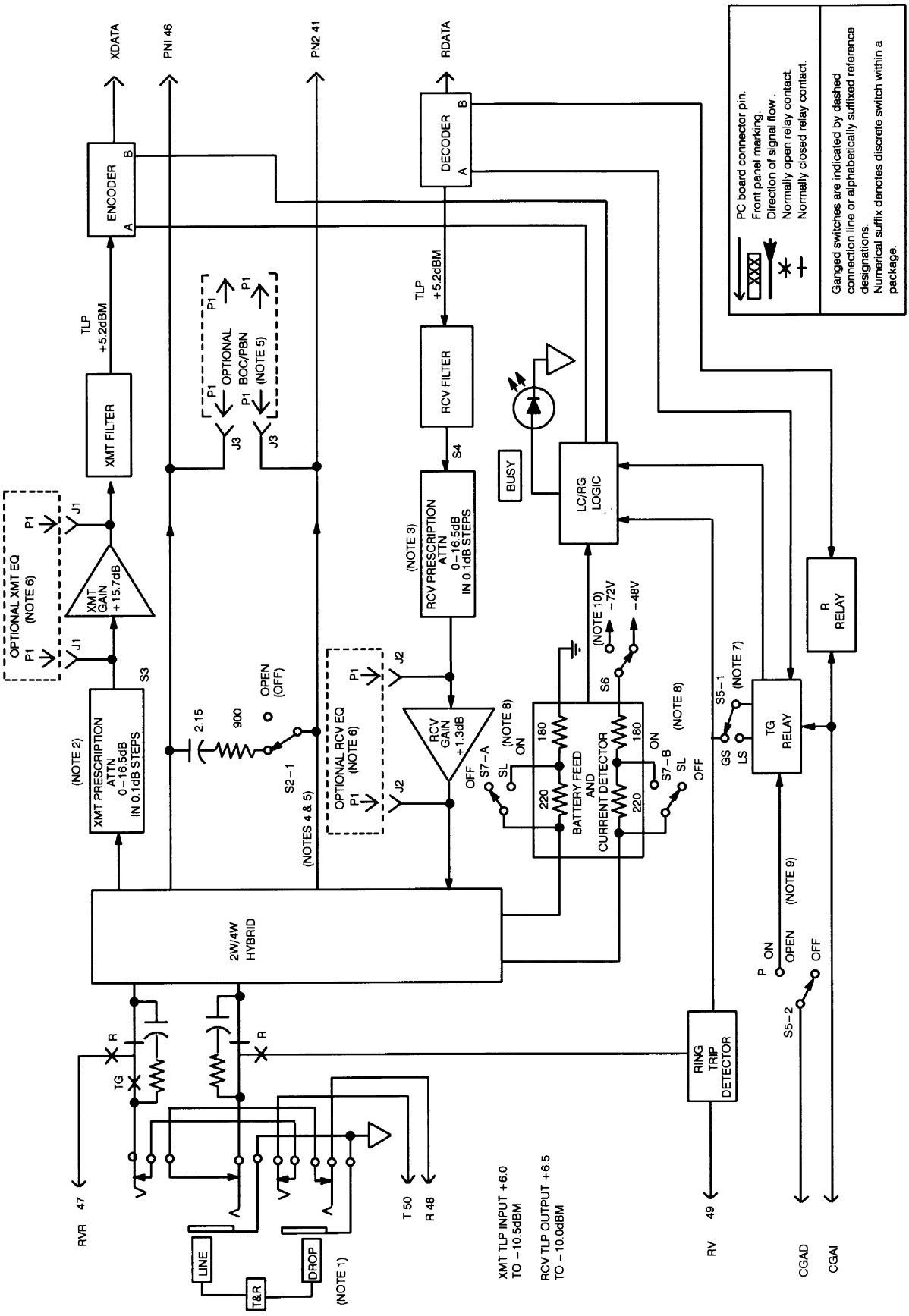

Figure 1. 3657-02 FXS/GT Channel Unit (Issue 8) Block Diagram

Table 1. Notes for Figure 1

#	Note
1.	PC mount test jacks: **Marking** — **Function** T&R Line — Access toward channel unit T&R Drop — Access toward office equipment
2.	The XMT INPUT range at T&R is +6.0 to –10.5dBm. The XMT ATTN is adjustable for 0 to 16.5dB in 0.1dB increments. For +6.0dBm input at T&R, the XMT ATTN should be set for 16.5dB of attenuation.
3.	The RCV OUTPUT range at T&R is +6.5 to –10.0dBm. The RCV ATTN is adjustable for 0 to 16.5dB in 0.1dB increments. For +6.5dBm output at T&R, the RCV ATTN should be set for 0dB of attenuation.
4.	Option A (S2-1) is used to select a comp net resistance of 900 ohms in series with a 2.15uF capacitor. Leave option OFF for external comp net.
5.	3690-XX PBN/BOC are ordered separately for 3657-02 and used when inserted into connector J3. Open Option A (S2-1) when PBN/BOC is used. For 3657-42, set (S2-1) to open because a 3690-10 comp net and BOC is included and factory installed.
6.	3691-00 non-loaded cable equalizer or 3691-01 loaded cable equalizer is ordered separately to provide post-equalization when inserted in connector J1 and pre-equalization when inserted in connector J2.
7.	For loop start operation, set S5-1 to LS. For ground start operation, set S5-1 to GS.
8.	For loop lengths from 300 to 2000 ohms, set (S7) SL to ON. For loop lengths less than 300 ohms or for –72 Volt operation (see Note 10), set SL to OFF.
9.	During a Carrier Group Alarm (S5-2), Option P can be configured for continuous idle—set S5-2 to OPEN, or 2 seconds idle, followed by continuous busy for the duration of the carrier failure—set S5-2 to P.
10.	Option Switch –48/–72 (S6) provides for either –48 Volt or –72 Volt operation. For loop lengths between 2000 and 3000 ohms, a –72 Volt supply must be provided. Also, set S7 (SL) to OFF. **Cable Length** — **S6 Position** 0 to 2000 ohms — –48V 2000 to 3000 ohms — –72V (See Note 8)

2.3 Static Concerns

Each unit is shipped in static-protective packaging to prevent electrostatic charges from damaging static-sensitive devices. Use approved static-preventive measures, such as static-conductive wrist straps and a static-dissipative mat, when handling units outside of their protective packaging. A unit intended for future use should be tested as soon as possible and returned to its original protective packaging for storage.

STATIC-SENSITIVE

This equipment contains static-sensitive electronic devices. To prevent electrostatic charges from damaging static-sensitive units:

- **Use approved static preventive measures (such as a static-conductive wrist strap and a static-dissipative mat) at all times whenever touching units outside of their original, shipped static-protective packaging.**
- **Do not ship or store units near strong electrostatic, electromagnetic, or magnetic fields.**
- **Use static-protective packaging for shipping or storage.**

3. INSTALLER CONNECTIONS

Installer connections are made to the channel unit by wire-wrapping leads onto the associated 50-pin connectors on the backplane assembly of the 360/363 D4 Channel Bank. On connectorized 360/363 D4 Channel Banks (360-10, -11, etc.) connections are made via 25-pair female connectors (CINCH 222-22-50-023 or equivalent) to the appropriate 25-pair male connectors of the 360/363 D4 Channel Bank. Refer to Section 360-000-200 for the wiring diagrams of the female connectors with respect to the 360/363 D4 Channel Bank being used.

4. OPTIONING INFORMATION

The 3657-02 channel unit is equipped with switch options, and also has jacks for mounting optional equipment. Refer to Figure 2 for option locations and conditioning requirements.

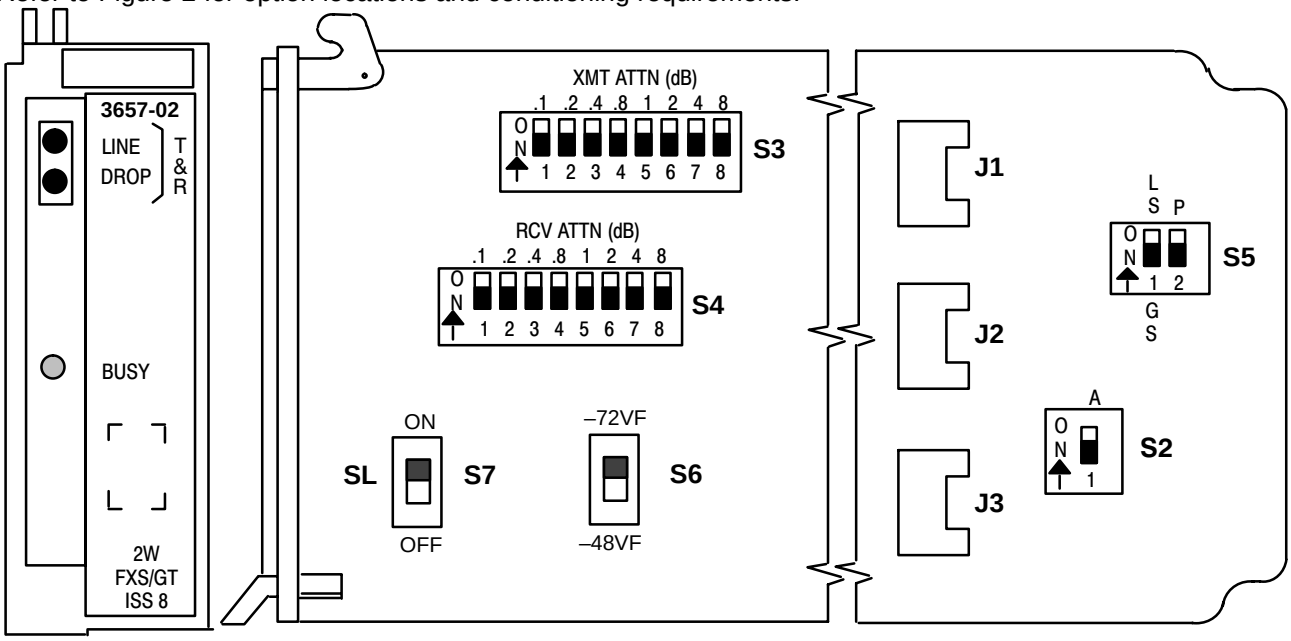

Figure 2. 3657-02 2W FXS/GT Option Locations

Table 2. 3657-02 2W FXS/GT Optioning Summary

Option	Position	Function/Remarks
J1	See Section 369-100-201	Jack for mounting optional XMT post-equalizer 3691-00/01.
J2	See Section 369-100-201	Jack for mounting optional RCV pre-equalizer 3691-00/01.
J3	See Section 369-000/010-201, 369-001/011-201, 369-002/012-201, or 369-003/013-201	Jack for mounting optional Comp Net/PBN 3690-00/10, -01/11,-02/12, or -03/13.
S2-A	ON	To select a compromise net resistance of 900 ohms +2.15uF.
	OFF	If an external Comp Net/PBN is used or if jack J3 is equipped.
S3	See ALIGNMENT	8 sections total 16.5dB of transmit attenuation when all sections are ON.
S4	See ALIGNMENT	8 sections total 16.5dB of receive attenuation when all sections are ON.
S5	LS	To select loop-start mode of operation.
	GS	To select ground-start mode of operation.
	ON	During CGA: To select two seconds idle followed by continuous busy.
	OFF	To select continuous idle.
S6	–48VF	To select talk-battery input of –48Vdc.
	–72VF	To select talk-battery input of –72Vdc.
S7	OFF	If loop is less than 300 ohms or –72 Volt operation.
	ON	If loop is from 300 to 2000 ohms.

5. ALIGNMENT

5.1 Transmit Alignment

The XMT ATTN switch S3 provides attenuation from 0 to 16.5dB, in increments of 0.1dB, to accommodate an input TLP range from +6.0 to –10.5dBm. To adjust the transmit path to the proper operating level, the difference between –10.5 and the transmit TLP at T&R must be obtained.

Example: For an input TLP of +6.0dBm
+6.0 – (–10.5) = 16.5dB

Set the sum of the S3 switch settings to 16.5.

5.2 Receive Alignment

The RCV ATTN switch S4 provides attenuation from 0 to 16.5dB, in increments of 0.1dB, to accommodate an output TLP range from +6.5 to –10.0dBm. To adjust the receive path to the proper operating level, the difference between +6.5 and the receive TLP at T&R must be obtained.

Example: For an output TLP of –6.0dBm
+6.5 – (–6.0) = 12.5dB

Set the sum of the S4 switch settings to 12.5.

6. MOUNTING

The 3657-02 mounts in one channel unit slot of a 360/363 D4 Channel Bank. The 3657-02 is equipped with an insert/eject lever in the form of a top-hinged front panel, which ensures positive connection of the channel unit's card-edge connector to the backplane connector. The insert/eject lever also facilitates channel unit removal.

CAUTION

Installation and removal of channel units should be done with care. Do not force a unit into place. If excessive resistance is encountered during installation, remove the unit and check the card guides and connector to verify proper alignment and the absence of foreign material.

7. TESTING

After completing Optioning, Installation, and Alignment, place a call through the facility to verify proper operation. If trouble is encountered, recheck installer connections, option settings, and alignment adjustments. Verify that the unit is making positive connection to the backplane connector. If trouble persists, replace the unit with a similar unit known to be in proper operating order, and retest the facility. (Channel unit testing for fault diagnosis is located in Section 360-001-205.)

8. TECHNICAL ASSISTANCE

If technical assistance is required, contact Charles Industries' Technical Services Center at:

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