

CIRCUIT DESCRIPTION

CD-5D089-01  
ISSUE 1  
APPENDIX 4B  
DWG ISSUE 5B  
DISTN CODE AT13

**SESS® SWITCHING EQUIPMENT  
INTEGRATED SERVICES LINE UNIT  
COMMON SHELF  
CIRCUIT**

**CHANGES**

*D. Description of Changes*

The following changes are documentation changes only and do not affect the hardware in any way.

Options P and Q were added to document new high level service circuit (HLSC) packs. This resulted in the updating of composite diagrams, functional schematic tables, apparatus figures, and information notes 302 and 303.

Options R and S were added to document European Conference of Postal and Telecommunication Administrations (CEPT) compatible ringing generator circuit packs. This resulted in the updating of composite diagrams, functional schematic tables, apparatus figures, and information notes 302 and 303.

Removed common language equipment identification (CLEI) information from note 304 and replaced it with information that specifies which HLSC is required.

Modified composite diagrams and functional schematic tables on HLSC packs to reflect note 304.

Modified composite diagrams and functional schematic tables in functional specification 1 (FS1) to correct circuit pack designations.

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DEPT NA5340100-CJP-CHS

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INTEGRATED SERVICES LINE UNIT  
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CIRCUIT**

**CHANGES**

*D. Description of Changes*

The following changes are documentation changes only and do not affect the hardware in any way.

Options T and U were added to reflect a new common control processor circuit pack. This resulted in the updating of composite diagrams, functional schematic tables, apparatus figures, and information notes 302 and 303.

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5ESS™ SWITCHING EQUIPMENT  
INTEGRATED SERVICES LINE UNIT - COMMON SHELF  
CIRCUIT

CHANGES

D. Description of Changes

- D.9 Add option V to allow fan alarm circuitry wiring which is required when two ISLUs are mounted in a single cabinet.

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SESS™ SWITCHING EQUIPMENT  
INTEGRATED SERVICES LINE UNIT  
COMMON SHELF  
CIRCUIT

CHANGES

D. Description of Changes

- D.1 The following changes are documentation changes only and do not affect the hardware in any way.
- D.2 Move options "Y and Z" from apparatus Figure 4 to apparatus Figure 3.
- D.3 Move options "W and X" from apparatus Figure 5 to apparatus Figure 4.
- D.4 Correct the PIDB descriptions in the Unit Symbol Table of Contents for PIDB cables sides 0 and 1.
- D.5 Add two missing lead designations to element "CN" in CAD 1.
- D.6 Change all of the lead designations for -48 ground from -48RTN (alpha suffix) to -48 RTN.
- D.7 Change the CLEI code in Note 304 for UN306 to E5PQ38DAXX.
- D.8 Add Note 203 stating the circuit pack removal procedures for the Common Shelf Unit.

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5ESS™ SWITCHING EQUIPMENT  
 INTEGRATED SERVICES LINE UNIT  
 COMMON SHELF  
 CIRCUIT

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1. PURPOSE OF CIRCUIT. . . . .	1	<u>1. PURPOSE OF CIRCUIT</u>
2. GENERAL DESCRIPTION OF OPERATION . . . . .	1	1.01 The integrated services line unit (ISLU) consists basically of two units. The first of these, the common shelf unit (CSU), controls customer line interface circuits in the second unit, the (line group) drawer unit (LGDU). Only the common shelf unit is described here.
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SECTION II - DETAILED DESCRIPTION

1. PHYSICAL STRUCTURE

1.01 Figure 1 is a physical view of the common shelf. The shelf holds two service groups (SGs), arranged in a mirror image fashion about the center of the unit. Service group 0 is on the left, while service group 1 is on the right.

1.02 Before going further, here are the abbreviations for the functional blocks in this unit:

- CC(0,1) Common control in service group (0,1)
- CD(0,1) Common data in service group (0,1)
- MAN(0,1) Metallic access network in service group (0,1)
- HLSC(0,1) High level service circuit in service group (0,1)
- RG(0,1) Ringing generator in service group (0,1)

1.03 A brief description of one service group follows (see Figure 1).

1.04 There are five functional blocks in a service group. Starting at the left boundary of SG1, we have the CC. Next to it is the CD, flanked by the MAN packs. The HLSCs and RG complete the SG1 half of the unit.

2. OVERALL SIGNAL FLOW

2.01 See Block Diagram, Figure 2.

A. Control Flow

2.02 At the top of the drawing are the two CCs. Each CC is formed from a common control processor (CCP) and a common control interface (CCI). Any CC can control and communicate with any other pack. The line between CCs permits information to pass between the off-line CC and its on-line mate.

2.03 Not shown on the block diagram is the control connection to each of the two CCI packs from the switching module (SM) via a peripheral interface control bus (PICB).

B. Data Flow

2.04 Data from the SM arrives on peripheral interface data buses (PIDBs), which terminate at the CDs. The data is then switched down to the line groups (LGs) and exits through one of the line interface circuits. The PIDBs and the line interface circuits are not shown on the block diagram.

2.05 Data from the customer's line feeds into a line interface circuit. It is then passed up into one of the CDs and out via a PIDB.

C. Metallic Bus Flow

2.06 Three types of circuits are involved with metallic connections: the HLSCs, RGs, and LGs. The MAN packs form the fabric between these three circuits. Voltages generated on the HLSCs and RGs are applied to the outside plant via the MAN packs and LGs.

3. INDIVIDUAL CIRCUIT OPERATION

A. General

3.01 The preceding is a general explanation of how an ISLU works. A little more detail follows. For additional information, see the circuit descriptions for the overall ISLU, the ISLU drawer, and the individual circuit packs.

B. Common Control

3.02 Each CC connects to every circuit pack on the common shelf. Within each CC are many connections between its CCI and its CCP. A data bus also extends between CCs.

C. Common Data

3.03 The CDs connect to the CCs and to the LGs. Control is sent down to the CDs from the CCs, with two end destinations: One set of control paths from the CC manipulate the CDs; the other set of control paths flow through the CDs and control the LGs. Data also enters each CD. It arrives via the PIDBs and is passed down to the LGs.

D. Metallic Access Network

3.04 The MAN packs connect to the HLSCs, RG, and all LGs.

E. High Level Service Circuit

3.05 Signals generated by the HLSCs pass through the MAN and to the RG, other HLSCs, or an LG.

F. Ringing Generator

3.06 Ringing voltage from this pack drives the two ringing buses that reside on the MANs.

G. Bulk +5/-5 Volt Converter

3.07 One bulk converter is used in each SG. The out-of-service LED for each converter is controlled and powered from the opposite SG.

SECTION III - REFERENCE DATA

1. WORKING LIMITS

1.01	<u>Battery</u>	<u>Voltage Range</u>
	-48V	-42.75V to -52.25V

2. GLOSSARY

CC	Common control
CCI	Common control interface
CCP	Common control processor
CD	Common data
CSU	Common shelf unit
DSL	Digital subscriber line
HLSC	High level service circuit
ISLU	Integrated services line unit
LG	Line group
LGDU	Line group drawer unit
MAN	Metallic access network
PICB	Peripheral interface control bus
PIDB	Peripheral interface data bus
RG	Ringing generator
SG	Service group

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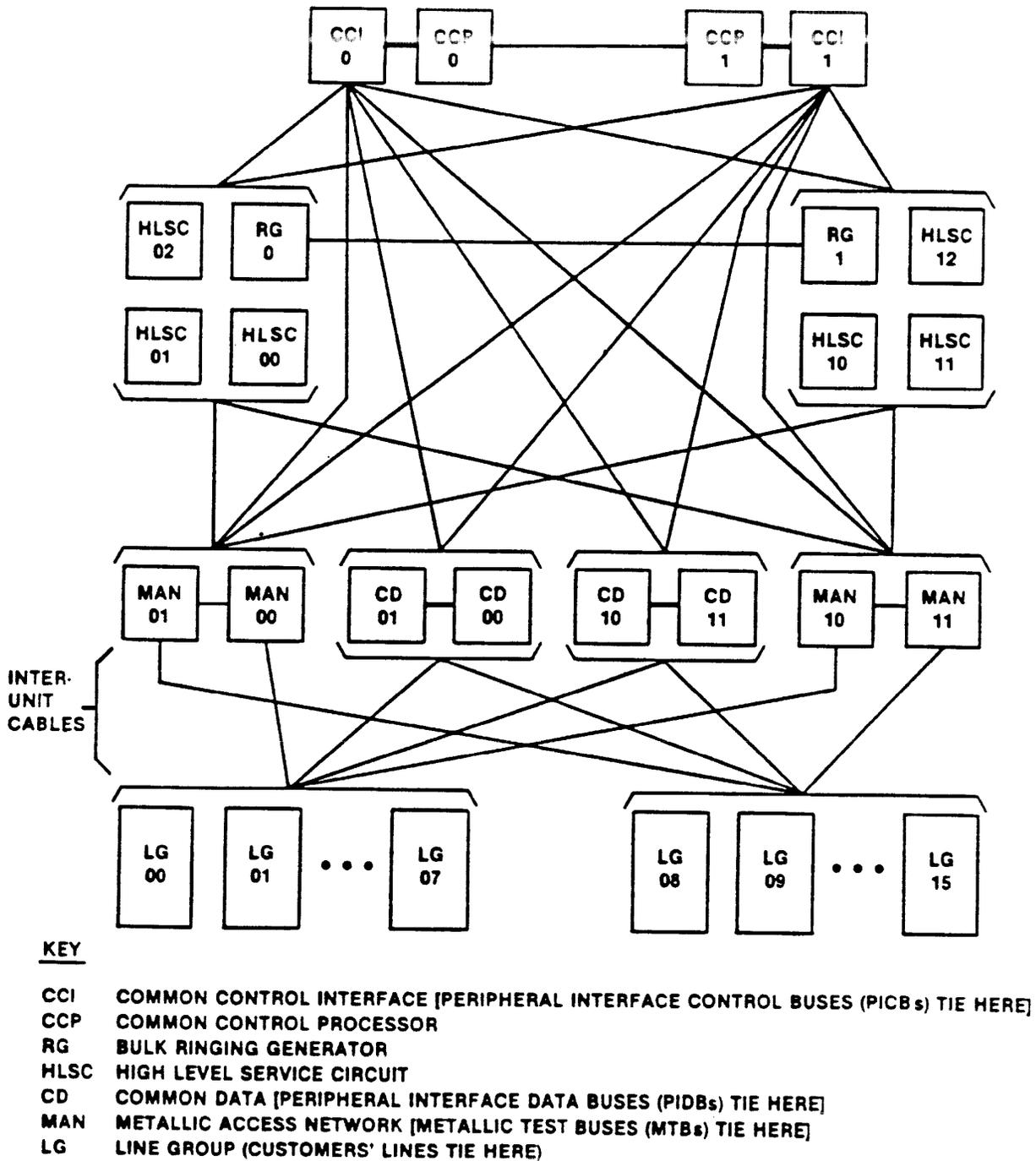


Figure 2. Integrated Services Line Unit (ISLU) Block Diagram