DIMENSION® PBX
PERIPHERAL INTERFACE CIRCUIT (PIC)
CROSS CONNECTION

CONTENTS

1. GENERAL

1.1 The PIC is used as an interface between a DIMENSION 600, 2000, or Custom PBX and a Journal Printer, Energy Communications Service (ECS) CRT console, Long Distance Billing (LDB) data set, or Property Management System (PMS).

1.2 The function of the PIC is analogous to that of a language translator. That is, it receives data from the PBX and converts it to data that the peripheral device (e.g. CRT) can understand and then transmits it to the peripheral. Conversely, the PIC converts data received from the peripheral to that which the PBX can understand.

1.3 A PIC is dedicated to one peripheral device. For example, if a system contains 3 printers and 1 LDB data set, then 4 PICs are required.

1.4 Within each PIC unit is a controller board (either HN9B or HN11), a power board (HP2), and an AC transformer. The HN11 must be used with Feature Package 11 systems and can be used with Feature Package 9 systems that are Issue 1.0 or later. With FP9 systems earlier than Issue 1.0, the HN9B must be used. Also, the Teletype 4310 AAC Printer requires the HN9B ckt pack PIC.

1.5 The PIC connects to a PBX data channel that consists of either a LC34B ckt pack or a LC366 ckt pack. The LC34B can go in the basic control carrier and growth control carrier. The LC366 goes in the newer control-growth carrier and supplementary I/0 carrier. See Tables B, C, D, and E.

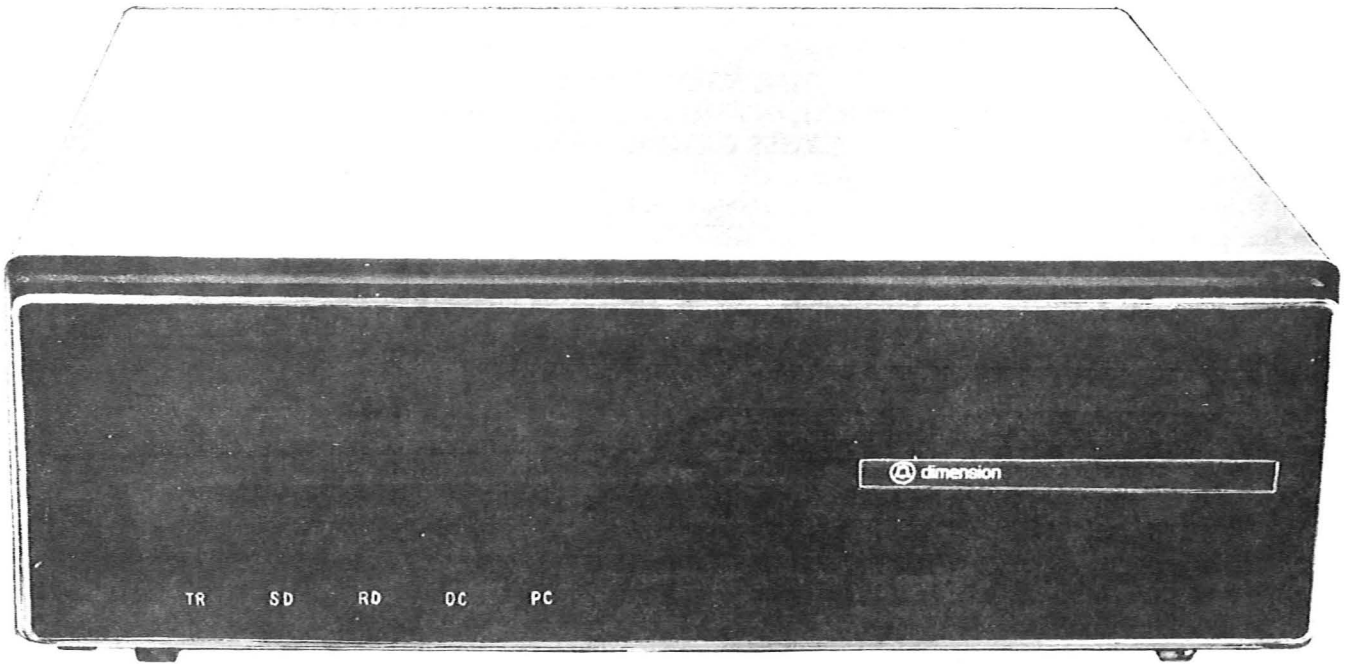


Fig. 1 - Peripheral Interface Circuit

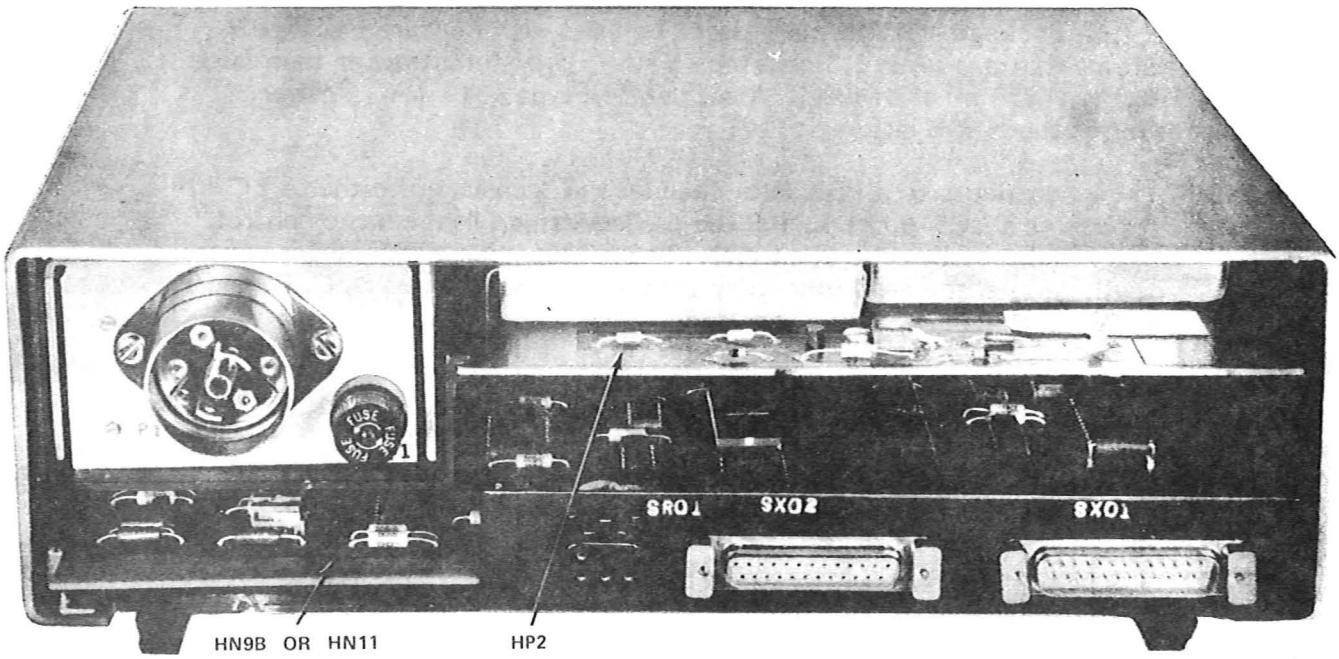


Fig. 2 - Peripheral Interface Circuit:
Rear View (Cover Removed)

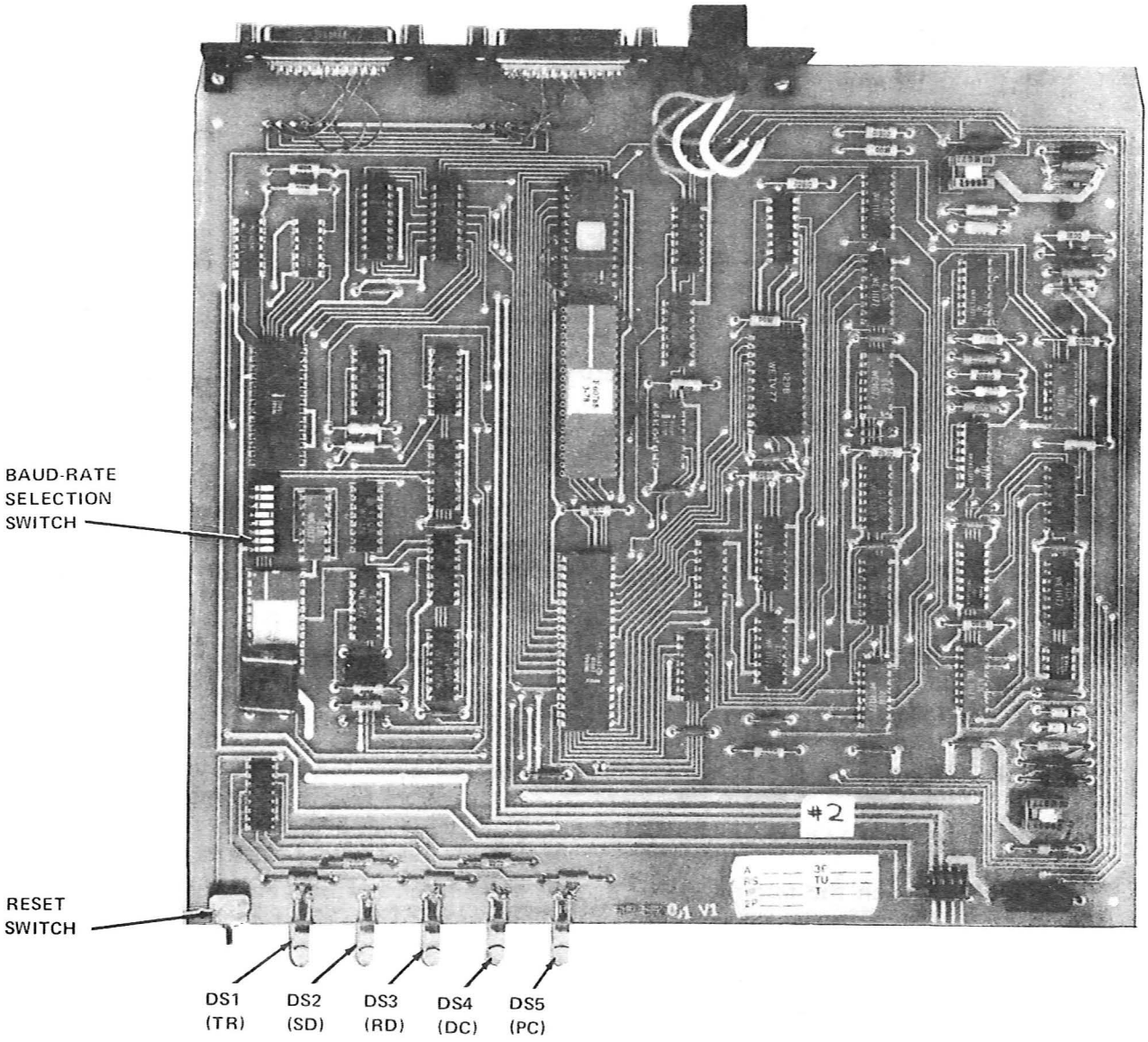


Fig. 3 - HN9B or HN11 Circuit Pack (Controller Board)

NOTE: There are 5 lamps (LEDs) and a reset switch on the front of the controller board. When the TR lamp is lit, the peripheral is in the ready state. A flashing SD or RD lamp indicates that data is being sent or received by the PIC, respectively. The DC lamp lights when the LC34B or LC366 data receiver is functional. A flashing PC lamp indicates normal PIC unit operation. The RESET switch (behind the front cover) can be pushed to initiate a self-test program which will cause the PC lamp to flash if the PIC passes the self-test and is available for PBX communication.

2. DOCUMENTATION

2.1 Customer Order Document (COD) sections required are:

2.1.1 Dual Data Channel Assignments

2.1.2 System Configuration

2.2 Helpful references include:

2.2.1 BSP# 554-010-102, titled "DIMENSION PBX Peripheral Interface Circuit."

2.2.2 TOP document #554-111-310 section DLP 609, titled "Test Journal Printer and PIC."

3. BAUD RATE SELECTION

3.1 The 4 different types of peripherals that utilize a PIC to interface to the PBX all use a unique data baud rate. To set the PIC up for the desired baud, do the following:

3.1.1 Disconnect all external cables from PIC, if connected.

3.1.2 Disconnect power cord.

3.1.3 Remove front and rear covers of PIC.

3.1.4 Remove cable between HP2 board and controller board.

3.1.5 Loosen the two mounting screws located on bottom rear of PIC unit. These screws secure the controller board to the chassis.

3.1.6 Slide the controller board ckt pack (see Fig. 3) out of the chassis. The baud rate DIP switch is now exposed.

3.1.7 Set the baud rate by closing the switch that corresponds to the peripheral used (see Table A). Only one switch is closed and the rest are left open (e.g., switch 2 closed and the other switches open will select 2400 baud). If the switch has white characters or dots, the particular switch is closed when the rocker arm is pressed toward the characters or dots. If the switch has orange characters or dots, press the rocker arm away from the characters or dots to close the switch.

3.1.8 To reassemble PIC, reverse steps 3.1.1 thru 3.1.6.

TABLE A

BAUD RATE SELECTION		
SWITCH CLOSED	BAUD RATE	DEVICE
1	9600	--
2	2400	ECS CRT
3	1200	PMS (Equipment)
4	300	Printer
5	110	LDB (Data Set)

Note: The 6, 7, and 8 switches are not used and are left open.

4. PROCEDURE

4.1 Cross-Connect PIC to PBX:

4.1.1 Refer to the Customer Order Document (COD) section titled "Dual Data Channel Assignments". PMS, Energy Control, Journal Printers, and LDB Data Sets are the peripherals that require a PIC interface. The data channel location of these peripherals is listed by CAR/SLOT/CKT in this COD section. An alternate method in determining the data channel location is to use the display mode of PROC 253 on the MAAP panel.

4.1.2 The carrier where the data channel (i.e. LC34B or LC366 ckt pack) is located can now be identified. By referring to the corresponding carrier cross-connect table (see Tables B, C, D, and E), determine the exact cross-connect block location of the data channel.

EXAMPLE: Say the data channel for journal printer no. 2 is found to be located at (CAR/SLOT/CKT) 0/33/1. By inspection of the COD section "System Configuration", it is determined that this data channel is in the basic control carrier in the common control cabinet. By referring to the basic control carrier cross-connection table (TABLE B), the four leads (IOXB, IOXA, IORB, IORA) that correspond to the data channel 0/33/1 are seen to be CONN BLK TERMINALS # 13, 14, 15 and 16 of the BX01 connector cable.

4.1.3 Route the open-ended PM-CA-01 cable (#840608624) from the PIC location to the cross-connect field.

4.1.4 Punch down the W-BL, BL-W, W-O, and O-W leads of the PM-CA-01 cable on the CONN BLK TERMINALS that were found in steps 4.1.1 and 4.1.2. See Fig. 4 for more details.

4.1.5 Insert the plug end of the PM-CA-01 cable into the SR01 receptacle on back of PIC.

4.1.6 If data channel repeaters are necessary to extend the distance between the PBX and PIC, see section 250.20 of this handbook for connection procedures of repeaters.

4.2 Connect PIC to peripheral device:

4.2.1 The PIC connects to the peripheral device thru a single 25-conductor cable. This cable is either a DB-25-S connector cable (for PMS), M25A cord (for Teletype printers and LDB), or a M25B cord (for Victor printers and ECS CRTs).

→ 4.2.2 If the peripheral is either a printer or CRT, use the SX02 connector on back of PIC (see Fig. 5). If the peripheral is a LDB data set, use the SX01 connector on back of PIC. If the peripheral is a PMS system, use the SX02 connector.

4.2.3 For more information on the connection and set-up of CRTs, Printers, Data Sets, and PMS see sections 250.26, 250.28, 250.30, and 250.31 in this handbook.

4.3 Data Channel (ckt packs LC34B and LC366) options:

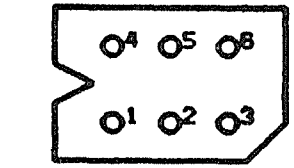
4.3.1 The data channel used by a PIC should be set for slow speed data (185 kilobits per second). See section 10T of Handbook 281 for instructions on selecting this option on the LC34B or LC366 ckt packs, if necessary.

4.4 Power connection:

4.4.1 The PIC connects to 120 Vac 60 Hz via a 3-wire, 9-foot power cord that supplies grounding for the PIC too. Fusing is provided at a minimum of 1 amp. Apply power to the PIC by plugging it in to an AC outlet and turn on the peripheral.

4.4.2 If the Uninterruptible Power Supply (UPS) feature is provided in the system, both the PIC and the peripheral device connected to it can be plugged into either the same UPS unit outlet or separate UPS unit outlets.

TABLE B		
SR01 CONN. CABLE (#840608624)		
CONTACT NO.	WIRE COLOR	LEAD DESIG.
1	W-BL	IOXB
2	BL-W	IOXA
3	W-O	IORB
4	O-W	IORA
5	W-G	NOT USED
6	G-W	NOT USED



SR01 CONNECTOR
(END VIEW)

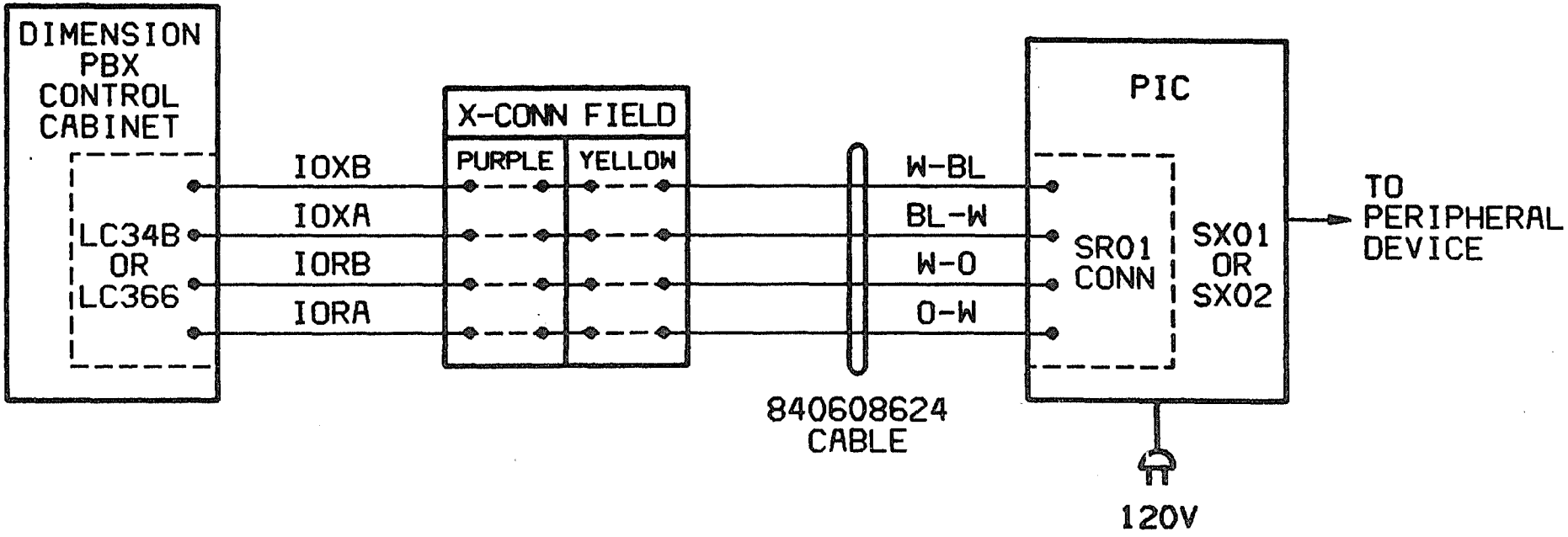


FIG.4 - PIC CROSS CONNECTION

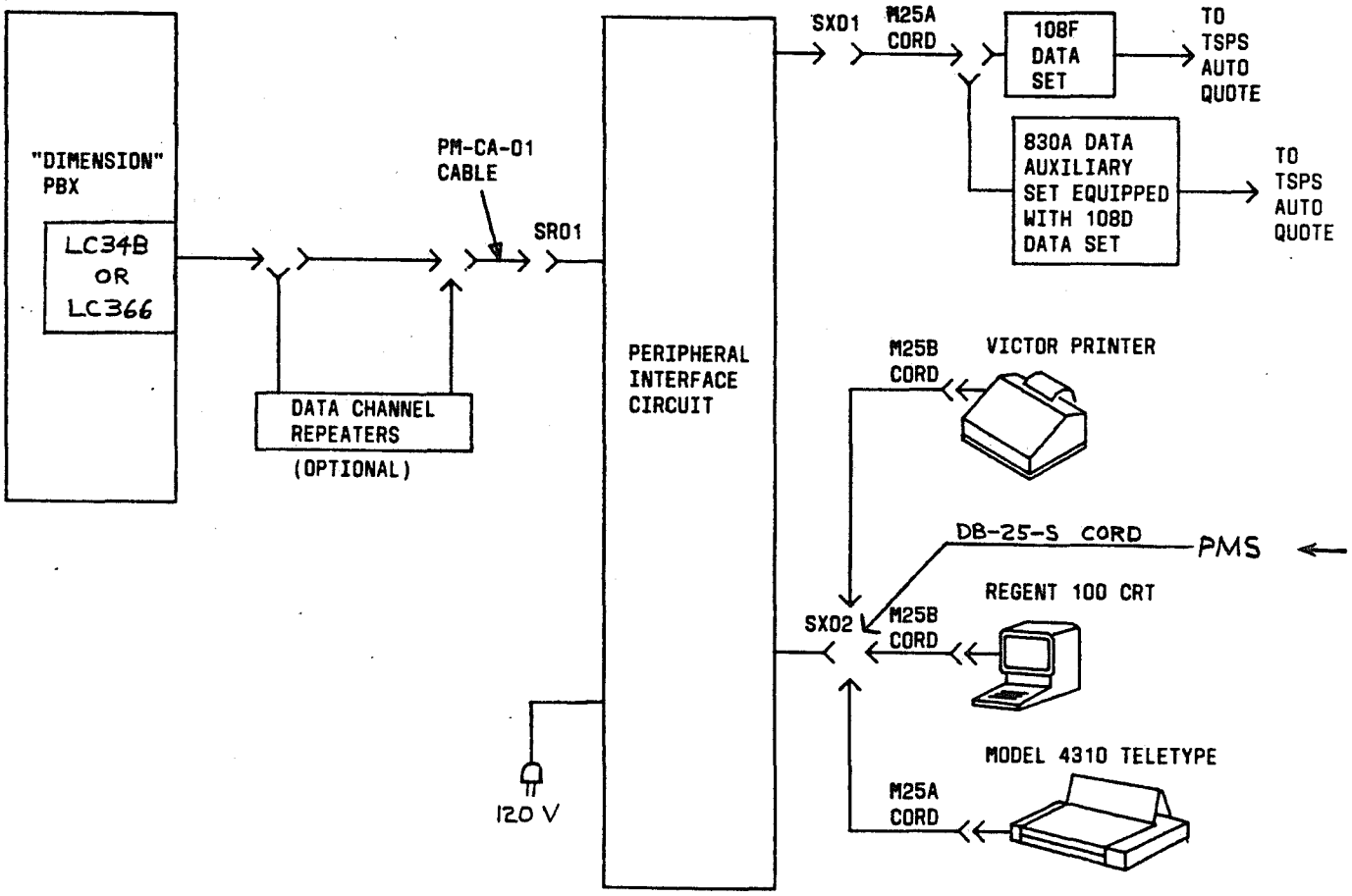


Fig. 5 - PIC Cable Connections

A25D CONNECTOR CABLES FROM BASIC CONTROL CARRIER CONNECTORS (NOTE 1)		TO PURPLE BACKBOARD	
		CUT LEADS DOWN ON	
_ _ BX01	_ _ BX02	LEAD COLOR	CONN BLK TERMINALS
LEAD DESIGNATION FOR LC34B (NOTE 2)			
IOXB IOXA 04 IORB IORA SLOT 32 IOXB IOXA 05 IORB IORA SLOT 31 IOXB IOXA 03 IORB IORA CKT 1 IOXB IOXA 07 IORB IORA SLOT 33 IOXB IOXA 08 IORB IORA SLOT 34 IOXB IOXA 09 IORB IORA IOXB IOXA 10 IORB IORA SLOT 35 IOXB IOXA 11 IORB IORA IOXB IOXA 12 IORB IORA SLOT 36 IOXB IOXA 13 IORB IORA IOXB IOXA 14 IORB IORA SLOT 37 IOXB IOXA 15 IORB IORA	IOXB IOXA 16 IORB IORA SLOT 38 IOXB IOXA 17 IORB IORA BXP07 IOXB SLOT IOXA 02 31 IORB IORA CKT 0 IOXB BXP09 IOXA 06 SLOT IORB 33 IORA CKT 0	W-BL 1 BL-W 2 W-O 3 O-W 4 W-G 5 G-W 6 W-BR 7 BR-W 8 W-S 9 S-W 10 R-BL 11 BL-R 12 R-O 13 O-R 14 R-G 15 G-R 16 R-BR 17 BR-R 18 R-S 19 S-R 20 BK-BL 21 BL-BK 22 BK-O 23 O-BK 24 BK-G 25 G-BK 26 BK-BR 27 BR-BK 28 BK-S 29 S-BK 30 Y-BL 31 BL-Y 32 Y-O 33 O-Y 34 Y-G 35 G-Y 36 Y-BR 37 BR-Y 38 Y-S 39 S-Y 40 V-BL 41 BL-V 42 V-O 43 O-V 44 V-G 45 G-V 46 V-BR 47 BR-V 48 V-S 49 S-V 50	

NOTES:

1. IF CONNECTORS BX01 OR BX02 ARE OCCUPIED BY A "Y" CABLE RUNNING TO ANOTHER BASIC CONTROL UNIT, PLUG A25D CONNECTOR LOCATED ON "Y" CABLE
2. LEADS NOT DESIGNATED ARE CUT DOWN ON CONNECTING BLOCKS, BUT NOT USED FOR CROSS-CONNECTIONS

TABLE B -- Basic Control Carrier Cross-Connections

A25D CONNECTOR CABLES FROM GROWTH CONTROL AND SECOND GROWTH CONTROL CARRIERS CONNECTORS			TO PURPLE BACKBOARD	
LEAD DESIGNATION(S) FOR LC34B (SEE NOTE)			CUT LEADS DOWN ON	
-1GX01 OR -2SX01	-1GX02 OR -2SX01	-1GX03 OR -2SX03	LEAD COLOR	CONN BLK TERMINALS
IOXB IOXA IORB IORA — 100 — SLOT 20 IOXB IOXA IORB IORA — 101 — IOXB IOXA IORB IORA — 102 — SLOT 21 IOXB IOXA IORB IORA — 103 — IOXB IOXA IORB IORA — 104 — SLOT 22 IOXB IOXA IORB IORA — 105 — IOXB IOXA IORB IORA — 106 — SLOT 23 IOXB IOXA IORB IORA — 107 — IOXB IOXA IORB IORA — 108 — SLOT 24 IOXB IOXA IORB IORA — 109 — IOXB IOXA IORB IORA — 110 — SLOT 25 IOXB IOXA IORB IORA — 111 —	IOXB IOXA IORB IORA — 112 — SLOT 26 IOXB IOXA IORB IORA — 113 — IOXB IOXA IORB IORA — 114 — SLOT 27 IOXB IOXA IORB IORA — 115 — IOXB IOXA IORB IORA — 116 — SLOT 28 IOXB IOXA IORB IORA — 117 — IOXB IOXA IORB IORA — 118 — SLOT 29 IOXB IOXA IORB IORA — 119 — IOXB IOXA IORB IORA — 120 — SLOT 30 IOXB IOXA IORB IORA — 121 — IOXB IOXA IORB IORA — 122 — SLOT 31 IOXB IOXA IORB IORA — 123 —	IOXB IOXA IORB IORA — 124 — SLOT 32 IOXB IOXA IORB IORA — 125 — IOXB IOXA IORB IORA — 126 — SLOT 33 IOXB IOXA IORB IORA — 127 —	W-BL BL-W W-O O-W W-G G-W W-BR BR-W W-S S-W R-BL BL-R R-O O-R R-G G-R R-BR BR-R R-S S-R BK-BL BL-BK BK-O O-BK BK-G G-BK BK-BR BR-BK BK-S S-BK Y-BL BL-Y Y-O O-Y Y-G G-Y Y-BR BR-Y Y-S S-Y V-BL BL-V V-O O-V V-G G-V V-BR BR-V V-S S-V	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

NOTE: LEADS NOT DESIGNATED ARE CUT DOWN ON CONNECTING BLOCKS, BUT NOT USED FOR CROSS-CONNECTIONS

TABLE C -- Growth Control and Second Growth Control Carriers -- Cross-Connections

A25D CONNECTOR CABLE FOR CONTROL-GROWTH CARRIER CONNECTORS				TO PURPLE BACKBOARD	
LEAD DESIGNATIONS FOR LC36G (NOTE)				CUT LEADS DOWN ON	
--BX01A	--BX02A	--GX01A	--GX02A	LEAD COLOR	CONN BLK TERMINALS
IOXB, IOXA, IORB, IORA — 0004 — SLOT 32/36B	IOXB, IOXA, IORB, IORA — 0016 — SLOT 34/38B	IOXB, IOXA, IORB, IORA — 0100 — SLOT 20/24G	IOXB, IOXA, IORB, IORA — 0112 — SLOT 22/26G	W-BL	1
IOXB, IOXA, IORB, IORA — 0005	IOXB, IOXA, IORB, IORA — 0017	IOXB, IOXA, IORB, IORA — 0101	IOXB, IOXA, IORB, IORA — 0113	BL-W	2
				W-O	3
				O-W	4
				W-G	5
				G-W	6
				W-BR	7
				BR-W	8
				W-S	9
				S-W	10
IOXB, IOXA, IORB, IORA — 0007 — SLOT 33/37 B		IOXB, IOXA, IORB, IORA — 0102 — SLOT 21/25G	IOXB, IOXA, IORB, IORA — 0114 — SLOT 23/27G	R-BL	11
				BL-R	12
				R-O	13
				O-R	14
				R-G	15
				G-R	16
IOXB, IOXA, IORB, IORA — 0008 — SLOT 34/38B		IOXB, IOXA, IORB, IORA — 0103	IOXB, IOXA, IORB, IORA — 0115	R-BR	17
				BR-R	18
				R-S	19
IOXB, IOXA, IORB, IORA — 0009		IOXB, IOXA, IORB, IORA — 0104 — SLOT 22/26G		S-R	20
				BK-BL	21
				BL-BK	22
				BK-O	23
IOXB, IOXA, IORB, IORA — 0010 — SLOT 31/35B		IOXB, IOXA, IORB, IORA — 0105		O-BK	24
				BK-G	25
				G-BK	26
IOXB, IOXA, IORB, IORA — 0011		IOXB, IOXA, IORB, IORA — 0106 — SLOT 23/27G		BK-BR	27
				BR-BK	28
				BK-S	29
				S-BK	30
				Y-BL	31
				BL-Y	32
IOXB, IOXA, IORB, IORA — 0012 — SLOT 32/36B		IOXB, IOXA, IORB, IORA — 0107		Y-O	33
				O-Y	34
				Y-G	35
IOXB, IOXA, IORB, IORA — 0013		IOXB, IOXA, IORB, IORA — 0108 — SLOT 20/24G		G-Y	36
				Y-BR	37
				BR-Y	38
				Y-S	39
IOXB, IOXA, IORB, IORA — 0014 — SLOT 33/37B		IOXB, IOXA, IORB, IORA — 0109		S-Y	40
				V-BL	41
				BL-V	42
				V-O	43
IOXB, IOXA, IORB, IORA — 0015		IOXB, IOXA, IORB, IORA — 0110 — SLOT 21/25G		O-V	44
				V-G	45
				G-V	46
				V-BR	47
				BR-V	48
		IOXB, IOXA, IORB, IORA — 0111		V-S	49
				S-V	50

NOTE:
LEADS NOT DESIGNATED ARE CUT DOWN OR CONNECTING BLOCKS BUT NOT USED PER CROSS-CONNECTIONS.

TABLE D -- Control-Growth Carrier Cross-Connections

A25D CONNECTOR CABLES FROM SUPPLEMENTARY I/O CARRIER CONNECTORS LEAD DESIGNATIONS FOR LC366 (SEE NOTE)			TO PURPLE BACKBOARD CUT LEADS DOWN ON	
-1JX01	-1JX02	-1JX03	LEAD COLOR	CONN BLK TERMINALS
IOXB	IOXB	IOXB	W-BL	1
IOXA 0200	IOXA 0212	IOXA 0224	BL-W	2
IORB	IORB	IORB	W-O	3
IORA	IORA	IORA	O-W	4
IOXB	IOXB	IOXB	W-G	5
IOXA 0201	IOXA 0213	IOXA 0225	G-W	6
IORB	IORB	IORB	W-BR	7
IORA SLOT 20/21	IORA SLOT 26/27	IORA SLOT 32/33	BR-W	8
IOXB	IOXB	IOXB	W-S	9
IOXA 0202	IOXA 0214	IOXA 0226	S-W	10
IORB	IORB	IORB	R-BL	11
IORA	IORA	IORA	BL-R	12
IOXB	IOXB	IOXB	R-O	13
IOXA 0203	IOXA 0215	IOXA 0227	O-R	14
IORB	IORB	IORB	R-G	15
IORA	IORA	IORA	G-R	16
IOXB	IOXB		R-BR	17
IOXA 0204	IOXA 0216		BR-R	18
IORB	IORB		R-S	19
IORA	IORA		S-R	20
IOXB	IOXB		BK-BL	21
IOXA 0205	IOXA 0217		BL-BK	22
IORB	IORB		BK-O	23
IORA SLOT 22/23	IORA SLOT 28/29		O-BK	24
IOXB	IOXB		BK-G	25
IOXA 0206	IOXA 0218		G-BK	26
IORB	IORB		BK-BR	27
IORA	IORA		BR-BK	28
IOXB	IOXB		BK-S	29
IOXA 0207	IOXA 0219		S-BK	30
IORB	IORB		Y-BL	31
IORA	IORA		BL-Y	32
IOXB	IOXB		Y-O	33
IOXA 0208	IOXA 0220		O-Y	34
IORB	IORB		Y-G	35
IORA	IORA		G-Y	36
IOXB	IOXB		Y-BR	37
IOXA 0209	IOXA 0221		BR-Y	38
IORB	IORB		Y-S	39
IORA SLOT 24/25	IORA SLOT 30/31		S-Y	40
IOXB	IOXB		V-BL	41
IOXA 0210	IOXA 0222		BL-V	42
IORB	IORB		V-O	43
IORA	IORA		O-V	44
IOXB	IOXB		V-G	45
IOXA 0211	IOXA 0223		G-V	46
IORB	IORB		V-BR	47
IORA	IORA		BR-V	48
			V-S	49
			S-V	50

NOTE: LEADS NOT DESIGNATED ARE CUT DOWN ON CONNECTING BLOCKS, BUT NOT USED FOR CROSS-CONNECTIONS

TABLE E -- Supplementary I/O Carrier Cross-Connections

Arrows indicate new or changed information.

Reason for reissue:
Correction

Manager, Denver PBX PECC