

DWG ISS	CD ISS	DATE ISSD	DRN	APP
1	1	9-16-98		
2M	1	2-16-99		
3M	1	8-09-00		

CONTENTS	SHEET NO.	SHEET ISSUE NO.
SHEET INDEX OPTION INDEX SUPPORTING INFORMATION	A1	3A
FS 1	B1	1
	B2	1
	B3	1
	B4	1
	B5	1
	B6	1
APP. FIG. 1-6	C1	2
CIRCUIT NOTES EQUIPMENT NOTES INFORMATION NOTES	D1	3A
	D2	3A
	D3	3A
	D4	3A
CADS	G1	1
	G2	3A
	G3	1
	G4	1
	G5	1
	G6	1
	G7	1
	G8	1
	G9	1
BD 1 OVERALL SYSTEM	H1	2

NOTES:

THE TRCU3 DESIGN IS A MODIFIED VERSION OF THE DIGITAL DATA MULTIPLEXER (DDM2000). THE 2601A, BNP1 AND BNP2 CIRCUIT PACKS ARE 5ESS DESIGNS USED IN THE DDM2000 AS A 5ESS TRCU3 AND ARE MANUFACTURED AT THE MERRIMACK VALLEY WORKS.

THIS SD DRAWING (SD5D555-01) IS A HIGH LEVEL OVERVIEW OF THE 5ESS TRCU3. THE MAJORITY OF THE TRCU3/DDM2000 CIRCUIT INFORMATION CAN BE FOUND IN THE FOLLOWING DDM2000 DOCUMENTS:

SD-7C510-01, COMMON SYSTEMS DIGITAL TRANSMISSION FACILITIES OC3.  
SDM-7C511-03, TRCU3/DDM2000 BACKPLANE INTERCONNECT CIRCUIT.  
363-206-285, DDM-2000 OC-3 MULTIPLEXER USER/SERVICE MANUAL-VOLUME 1 & 2.  
J5D003EF-1, 5ESS TRCU3 EQUIPMENT J-DRAWING.

363-206-200 DDM2000 MULTIPLEXER APPLICATION, PLANNING AND ORDERING GUIDE.

363-206-285 DDM2000 OC-3 MULTIPLEXER USER/SERVICE MANUAL.

OPTION INDEX

APP OR WRG	RATED ON ISSUE	REF NOTES	LOCATION
Z	1	202	APP FIG. 3
Y	1	102 202	APP FIG. 4
X	1	202 205	APP FIG. 5
W	1	202 206 207	APP FIG. 6

SYSTEM USED ON	DESIGN CONTROL	SUPPORTING INFORMATION	
		CATEGORY	NO.

COPYRIGHT 2000 LUCENT TECHNOLOGIES  
ALL RIGHTS RESERVED

BT13

5ESS SWITCHING SYSTEMS  
TRANSMISSION RATE CONVERTER UNIT  
MODEL 3 (TRCU3)  
CIRCUIT

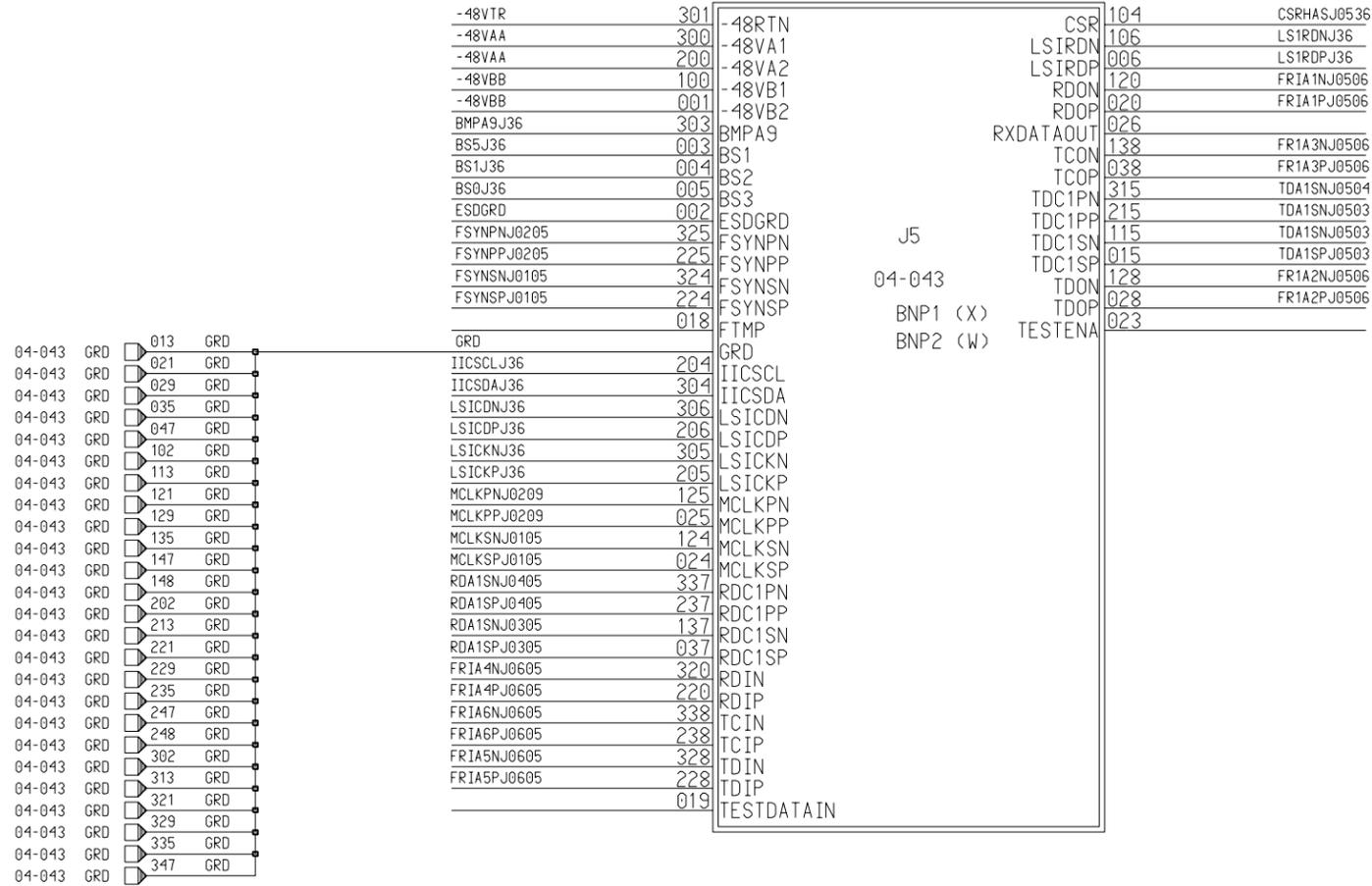
DWG SIZE C2	ISSUE 3A
----------------	-------------

LUCENT TECHNOLOGIES      SD-5D555-01      SHEET A1  
OF 22 SHEETS

PART OF FS 1

NOTES:

1. PINS 018, 019, 023, 026 ARE RESERVED PINS FOR THE BNP1, BNP2-TRCU3 UNIT AND ARE USED FOR FUNCTIONAL TEST.

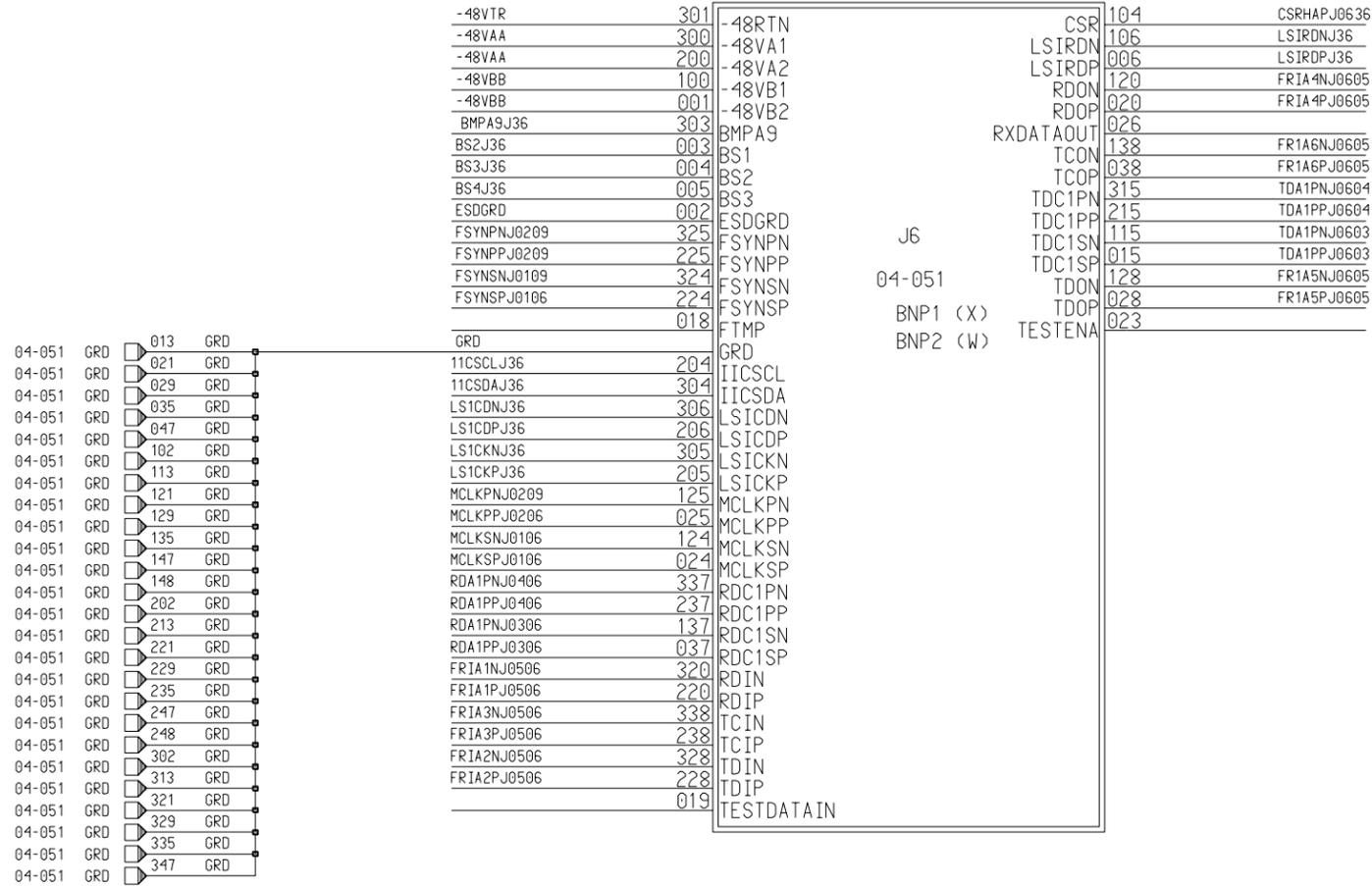


COPYRIGHT 1998 LUCENT TECHNOLOGIES ALL RIGHTS RESERVED		
TRANSMISSION RATE CONVERTER UNIT MODEL 3 (TRCU3)	DWG SIZE C2	ISSUE 1
LUCENT TECHNOLOGIES	SD-5D555-01	SHEET B1

PART OF FS 1

NOTES:

1. PINS 018, 019, 023, 026 ARE RESERVED PINS FOR THE BNP1, BNP2-TRCU3 UNIT AND ARE USED FOR FUNCTIONAL TEST.

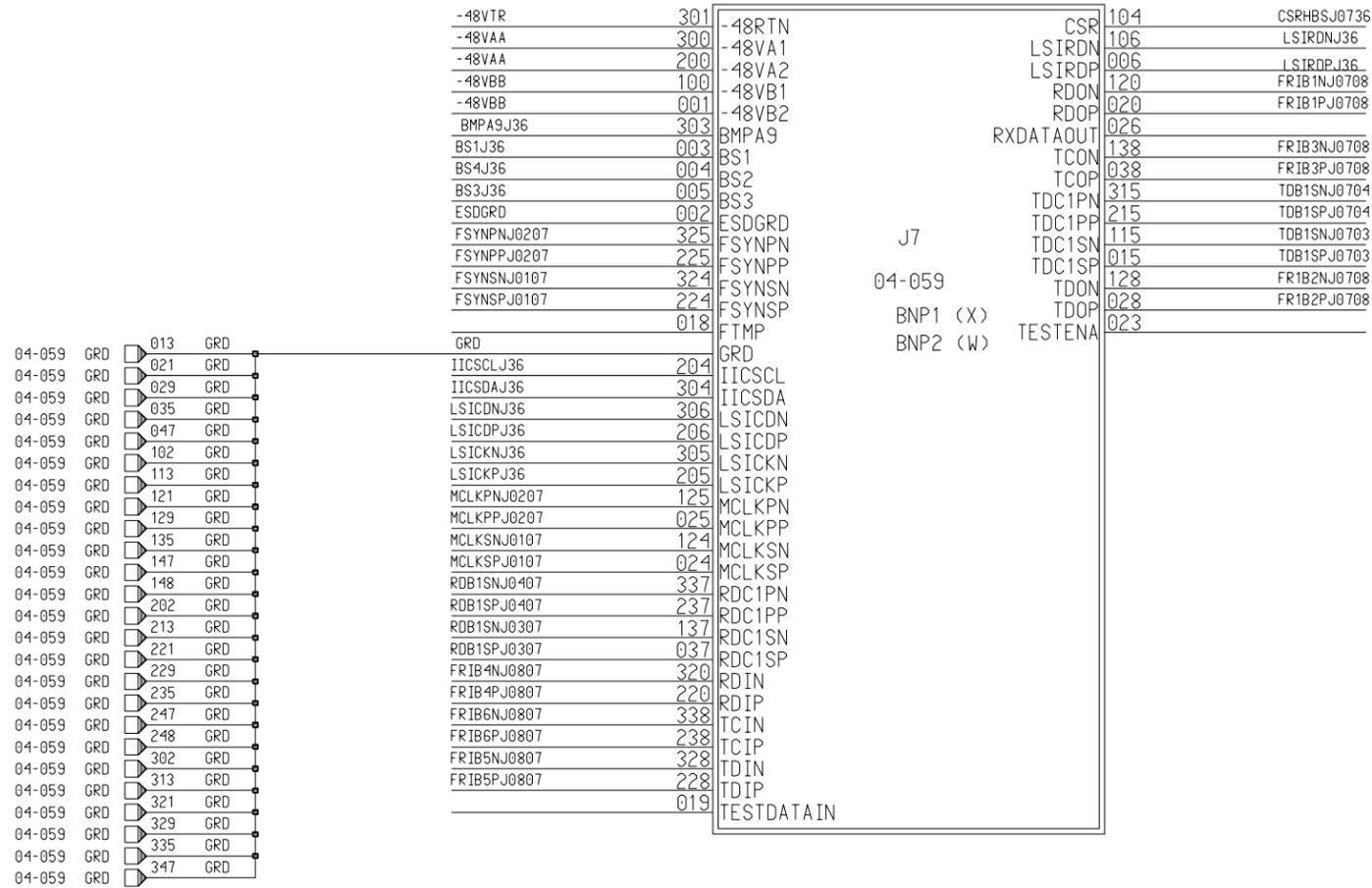


COPYRIGHT 1998 LUCENT TECHNOLOGIES ALL RIGHTS RESERVED		
TRANSMISSION RATE CONVERTER UNIT MODEL 3 (TRCU3)	DWG SIZE C2	ISSUE 1
LUCENT TECHNOLOGIES	SD-5D555-01	SHEET B2

PART OF FS 1

NOTES:

1. PINS 018, 019, 023, 026 ARE RESERVED PINS FOR THE BNP1, BNP2-TRCU3 UNIT AND ARE USED FOR FUNCTIONAL TEST.

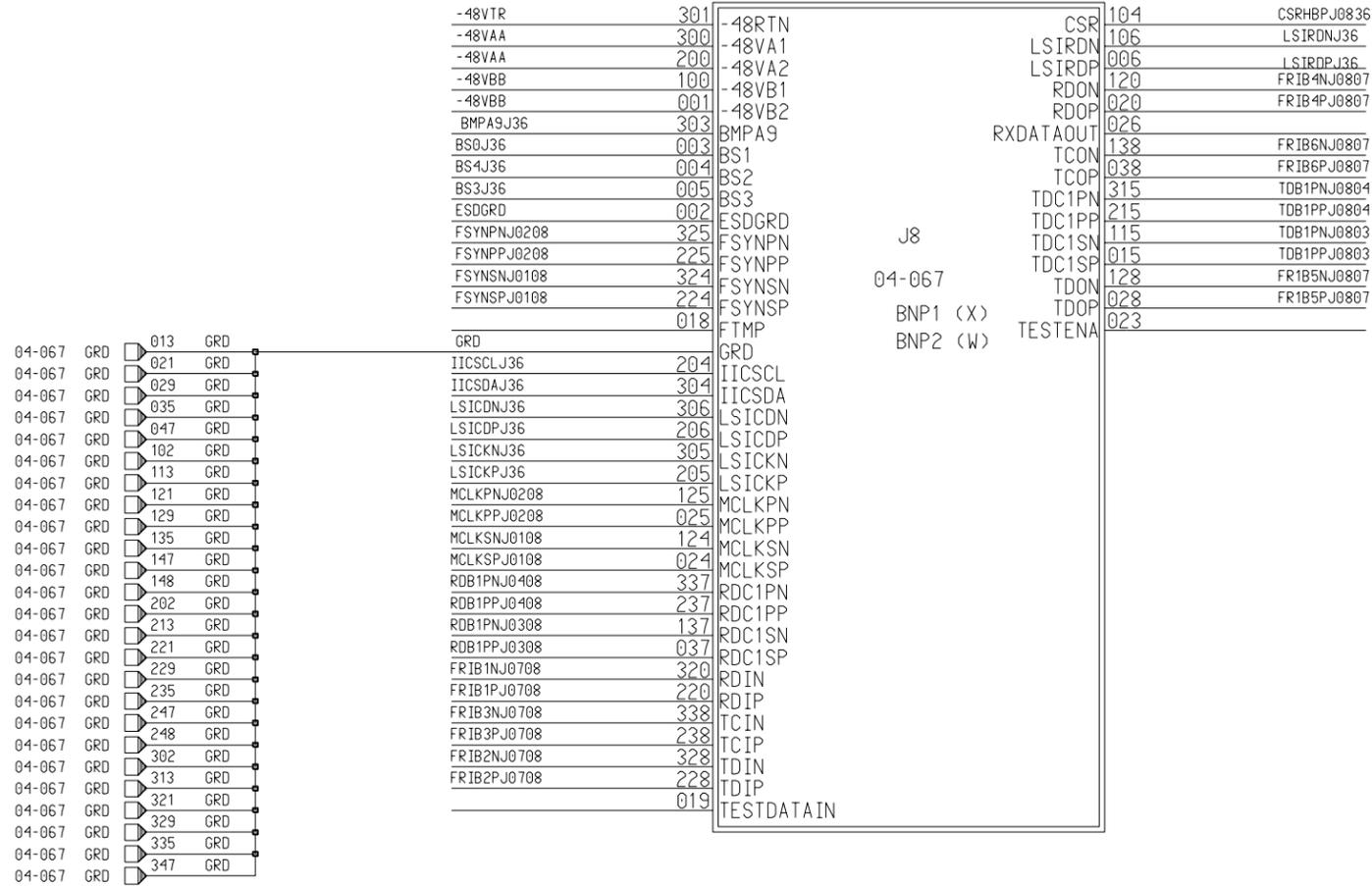


COPYRIGHT 1998 LUCENT TECHNOLOGIES ALL RIGHTS RESERVED		
TRANSMISSION RATE CONVERTER UNIT MODEL 3 (TRCU3)	DWG SIZE C2	ISSUE 1
LUCENT TECHNOLOGIES	SD-5D555-01	SHEET B3

PART OF FS 1

NOTES:

1 .PINS 018, 019, 023, 026 ARE RESERVED PINS FOR THE BNP1, BNP2-TRCU3 UNIT AND ARE USED FOR FUNCTIONAL TEST.

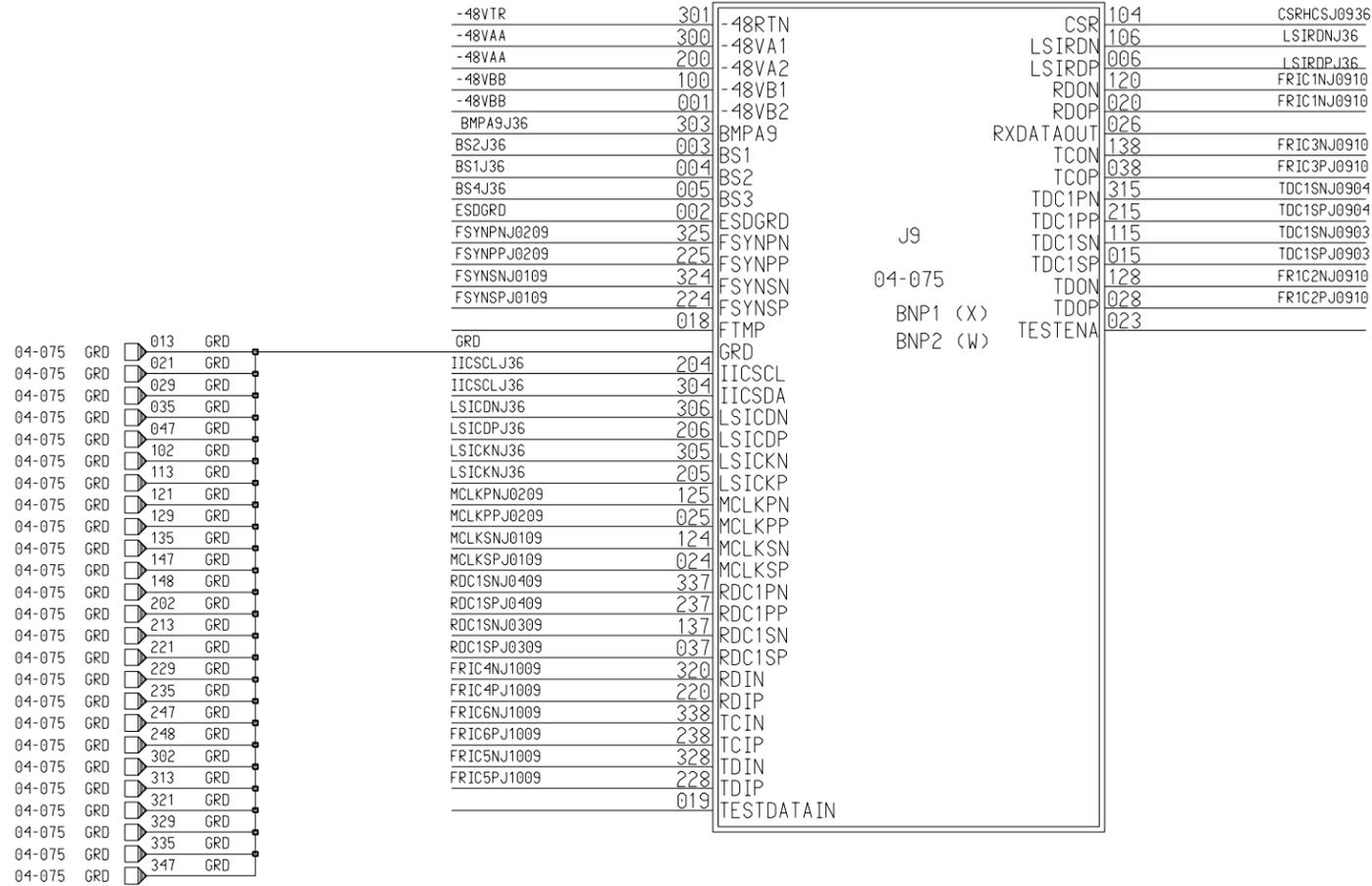


COPYRIGHT 1998 LUCENT TECHNOLOGIES ALL RIGHTS RESERVED		
TRANSMISSION RATE CONVERTER UNIT MODEL 3 (TRCU3)	DWG SIZE C2	ISSUE 1
LUCENT TECHNOLOGIES	SD-5D555-01	SHEET B4

PART OF FS 1

NOTES:

1. PINS 018, 019, 023, 026 ARE RESERVED PINS FOR THE BNP1, BNP2-TRCU3 UNIT AND ARE USED FOR FUNCTIONAL TEST.

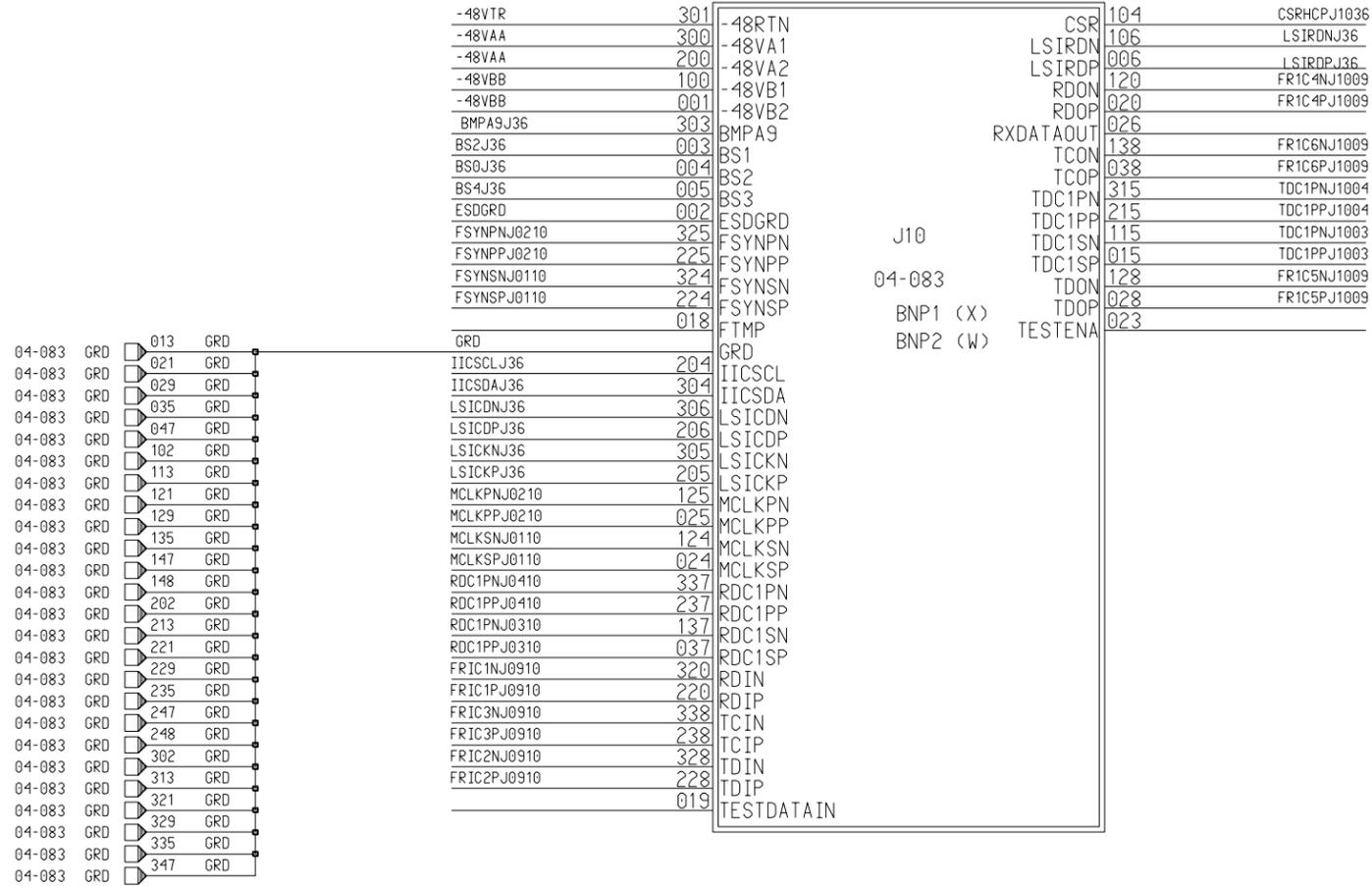


COPYRIGHT 1998 LUCENT TECHNOLOGIES ALL RIGHTS RESERVED		
TRANSMISSION RATE CONVERTER UNIT MODEL 3 (TRCU3)	DWG SIZE C2	ISSUE 1
LUCENT TECHNOLOGIES	SD-5D555-01	SHEET B5

PART OF FS 1

NOTES:

1. PINS 018, 019, 023, 026 ARE RESERVED PINS FOR THE BNP1, BNP2-TRCU3 UNIT AND ARE USED FOR FUNCTIONAL TEST.



COPYRIGHT 1998 LUCENT TECHNOLOGIES ALL RIGHTS RESERVED		
TRANSMISSION RATE CONVERTER UNIT MODEL 3 (TRCU3)	DWG SIZE C2	ISSUE 1
LUCENT TECHNOLOGIES	SD-5D555-01	SHEET B6

1 2 3 4 5 6 7 8 9

A  
B  
C  
D  
E  
F  
G  
H

A  
B  
C  
D  
E  
F  
G  
H

APP FIG 1

ASSEMBLY, WIRING, EQUIPMENT AND CABLING PER  
TRCU3 UNIT (J5D003EF-1, ED8C795-30)

APP FIG 2

OPT	DESIG	EQPT LOC	CODE
	1-BBF2B	02-018	BBF28 (SYNCHRONOUS TIMING GENERATOR)
	2-BBF2B	06-018	
	BBG9	04-163	BBF28 (SYNCHRONOUS TIMING GENERATOR)
	BBG8B	04-169	BBG8B (SYSTEM CONTROLLER)
	BBG8C	04-169	BBG8C (SYSTEM CONTROLLER)
	2601A	02-118	FUSE ALARM MODULE
	2601A	02-152	FUSE ALARM MODULE

APP FIG 3

OPT	DESIG	EQPT LOC	CODE
Z	1-22G3-U	04-27	22G3-U (OC-3 OPTICAL LINE INTERFACE)
Z	2-22G3-U	04-35	22G3-U

APP FIG 4

OPT	DESIG	EQPT LOC	CODE
Y	1-24G-U	04-27	24G-U (OC - 12 OPTICAL LINE INTERFACE)
Y	2-24G-U	04-35	24G-U

APP FIG 5

OPT	DESIG	EQPT LOC	CODE
X	1-BNP1	04-43	BNP1 (NCT)
X	2-BNP1	04-51	BNP1
X	1-BNP1	04-59	BNP1
X	2-BNP1	04-67	BNP1
X	1-BNP1	04-75	BNP1
X	2-BNP1	04-83	BNP1

APP FIG 6

OPT	DESIG	EQPT LOC	CODE
W	1-BNP2	04-43	BNP2 (NCT2)
W	2-BNP2	04-51	BNP2
W	1-BNP2	04-59	BNP2
W	2-BNP2	04-67	BNP2
W	1-BNP2	04-75	BNP2
W	2-BNP2	04-83	BNP2

COPYRIGHT 1999 LUCENT TECHNOLOGIES  
ALL RIGHTS RESERVED

TRANSMISSION RATE CONVERTER UNIT MODEL 3 (TRCU3)	DWG SIZE C2	ISSUE 2M
LUCENT TECHNOLOGIES	SD-5D555-01	SHEET C1

1 2 3 4 5 6 7 8 9

A  
B  
C  
D  
E  
F  
G  
H

A  
B  
C  
D  
E  
F  
G  
H

CIRCUIT NOTES:

DESIG	FUSE AMP	POTENTIAL	ONE PER
-48V	5A	-48V	SIDE 1,BUS A
-48V RTN	5A		
-48V	5A	-48V	SIDE 2,BUS B
-48V RTN	5A		
<u>BATTERY SYMBOL</u>		<u>VOLTAGE RANGE</u>	
-48		-42.75 TO -52.50	

102. SINGLE MODE (SM) TO SM OPTICAL ATTENUATORS (BUILDOUTS) MAY BE REQUIRED WITH THE 24G-U (OC12) OLIU CIRCUIT PACKS. FIBER OPTIC LOOP LENGTH WILL DETERMINE THE CORRECT ATTENUATOR BUILDOUT NEEDED. THIS SHOULD BE DETERMINED AT THE TIME THE OFFICE IS BEING ENGINEERED FOR A TRCU3.  
 THE OPTICAL CONNECTORS ON THE 24G-U CIRCUIT PACK ARE EQUIPPED AT THE FACTORY WITH REMOVABLE ZERO DB OPTICAL ATTENUATORS BUILDOUTS. ZERO, 5, 10, AND 15 DB BUILDOUTS ARE AVAILABLE FOR ST CONNECTOR TYPES. ORDERING INFORMATION FOR BUILDOUTS IS AVAILABLE WITHIN DRAWING J50003EF-1 AND THE DDM2000 MULTIPLEXER APPLICATION, PLANNING, AND ORDERING GUIDE (363-206-200). IF USED, ATTENUATED BUILDOUTS ARE TO BE INSTALLED AS FOLLOWS: WITH SINGLE MODE FIBER - AT "OUT" (TRANSMIT) LABELED BLOCK ON FACEPLATE.

COPYRIGHT 2000 LUCENT TECHNOLOGIES ALL RIGHTS RESERVED		
TRANSMISSION RATE CONVERTER UNIT MODEL 3 (TRCU3)	DWG SIZE C2	ISSUE 3A
LUCENT TECHNOLOGIES	SD-5D555-01	SHEET D1

EQUIPMENT NOTES:

201. TRCU3 SERVICE GROUPS ARE IDENTIFIED AS "SIDE 1" AND "SIDE 2" WHERE AS TYPICAL STANDARD 5ESS SERVICE GROUPS ARE IDENTIFIED AS "SIDE 0" AND "SIDE 1". TRCU3 "SIDE 1" LINKS SHOULD CORRESPOND TO "SIDE 0" OF ASSOCIATED 5ESS EQUIPMENT FOR COMPATIBILITY. TRCU3 "SIDE 2" LINKS SHOULD CORRESPOND TO "SIDE 1" OF ASSOCIATED 5ESS EQUIPMENT FOR COMPATIBILITY.

202. ALL FIBER OPTIC CONNECTIONS AT THE TRCU3 ARE MADE AT THE FRONT OF THE UNIT. ALL FIBER OPTIC CABLES TERMINATING TO THE BNP1 & BNP2 CIRCUIT PACKS ARE MULTIMODE 62.5 MICRON WITH ST-TYPE CONNECTORS. FIBER OPTIC CABLES TERMINATING TO THE 22G3-U & 24G-U OLIU CIRCUIT PACKS ARE SINGLE MODE FIBER WITH ST-TYPE CONNECTORS.

203. THE MAXIMUM DISTANCE FOR AN NCT LINK BETWEEN TRCU3 AND A ORM OR CM IS 1000 FEET.  
THE MAXIMUM DISTANCE FOR AN NCT2 LINK BETWEEN TRCU3 AND A ORM OR CM IS 2000 FEET.

204. THE POWER CABLES FROM THE MFFU TERMINATE TO (2) FUSE CIRCUIT MODULES (2601A) LOCATED ON THE BACK OF THE TRCU3. THE MODULES ARE LABELED "-48V SHELF -48VRTN" WHERE THE POWER CABLES TERMINATE. ONE MODULE IS DESIGNATED FOR "BUS A" AND THE OTHER MODULE IS DESIGNATED FOR "BUS B". THE MODULES ARE ALSO FUSED AND HAS ADDITIONAL PROTECTIVE CIRCUITRY TO PROTECT THE UNIT. IF A 2601A FUSE MODULE FAILS IN ANYWAY, INCLUDING THE FUSE, IT IS A DISPOSABLE AND SHOULD BE REPLACED WITH A NEW ONE.

TRCU3 POWER CABLING

FROM	PWR JUMPER LOC.	TERMINATES	NOTES
TRCU3 PWR JUMPER CABLE	LEVEL/EQL/TERM	TO	
PWR JUMPER (P1) -48/RTN	02-175-014 JUMPER	1 TRCU3 FUSE MODULE (BUS A)	JUMPERS COME
PWR JUMPER (P2) -48/RTN	02-175-016 JUMPER	2 TRCU3 FUSE MODULE (BUS B)	EQUIPPED WITH UNIT FROM MV

NOTE: POWER AND FUSE MODULES ARE LOCATED ON THE BACKPLANE OF TRCU3.

FROM	EQL	TERMINATES
TRCU3 PWR JUMPER CABLE		TO
MOD1, -48/RTN (BUS A),	02-118-116	MFFU 0
MOD2, -48/RTN (BUS B),	02-152-116	MFFU 1

2601A CIRCUIT MODULE ALARM JUMPERS

FROM	TERMINATES
TRCU3/DDM2000 OS ALARM JUMPER CABLE CONNECTION	TO
BACKPLANE LOCATION P62	1 TRCU3 FUSE MODULE A, ALWAYS REQUIRED
ALARM CABLE	2 TRCU3 FUSE MODULE B, ALWAYS REQUIRED

FROM	TERMINATES	NOTES
TRCU3 FUSE MODULE OS ALARM CABLE	TO	
J45 (X.25) RS232 CONNECTION	TRANSMISSION OPERATING SYSTEM (OS)	SPECIAL ISOLATED GROUND CABLE PART# CAB496, CCH# 408446128

EQUIPMENT NOTES: (CON'TD)

205. AN OPTICALLY REMOTED SWITCH MODULE (ORM) CONFIGURATION CONSISTS OF (4) BNP1 CIRCUIT PACKS AT THE HOST AND (4) BNP1 CIRCUIT PACKS AT THE REMOTE OFFICE.

HOST/REMOTE ORM APPLICATION USING NCT'S LINKS (CLASSIC)

HOST TRCU3 (J5D003EF-1) NCT FIBER LINKS, NCT (BNP1) CKT. PACK	SIDE	TO	TERMINATES TO 982TTC, CM2 J5D020A & J5D020B	SIDE	NOTES
EQL 43, TX/RX PORTS	1	→	TX/RX PORTS, ASSIGN	0	MINIMUM FOR 1 HOST/ORM
EQL 51, TX/RX PORTS	2	→	TX/RX PORTS, ASSIGN	1	MINIMUM FOR 1 HOST/ORM
EQL 59, TX/RX PORTS	1	→	TX/RX PORTS, ASSIGN	0	MINIMUM FOR 1 HOST/ORM
EQL 67, TX/RX PORTS	2	→	TX/RX PORTS, ASSIGN	1	MINIMUM FOR 1 HOST/ORM

TRCU3 (J5D003EF-1) HOST APPLICATION OC-3/12 FIBER LINKS, 22G3-U OR 24G-U OLIU	SIDE	TO	REMOTE TRCU3 (ORM) OC-3/12 FIBER LINKS, 22G3-U OR 24G-U OLIU	SIDE	NOTES
EQL 27, TX/RX PORTS	1	→	EQL 35, TX/RX PORTS	2	MINIMUM FOR 1 HOST/ORM
EQL 35, TX/RX PORTS	2	→	EQL 27, TX/RX PORTS	1	MINIMUM FOR 1 HOST/ORM

TRCU3 (J5D003EF-1) REMOTE TRCU3 (ORM) NCT FIBER LINKS, NCT (BNP1) CKT. PACK	SIDE	TO	MCTU3 (J5D003LB-1) 982TRC 982TSC "A" LINK "B" LINK	SIDE	NOTES
EQL 43, TX/RX PORTS	1	→	04-084-332	DLI 0	MINIMUM FOR 1 HOST/ORM
EQL 59, TX/RX PORTS	1	→	04-084-300	DLI 0	MINIMUM FOR 1 HOST/ORM
EQL 51, TX/RX PORTS	2	→	04-176-332	DLI 1	MINIMUM FOR 1 HOST/ORM
EQL 67, TX/RX PORTS	2	→	04-176-300	DLI 1	MINIMUM FOR 1 HOST/ORM

206. A MINIMUM FOR ONE COMPLETE DUPLEX NCT2 LINK CONSIST OF (4) BNP2 CIRCUIT PACKS AT THE HOST AND (4) BNP2 CIRCUIT PACKS AT THE REMOTE OFFICE. EACH TRCU3 CAN SUPPORT 1.5 DUPLEX NCT2 LINK.

ADDING ADDITIONAL DUPLEXED NCT2 LINKS TO AN EXM2000 REQUIRES GROWTH IN MULTIPLES OF (4) BNP2 CIRCUIT PACKS AT THE HOST AND REMOTE OFFICES.

THERE IS AN ADDITIONAL 2 CIRCUIT PACK POSITIONS AT EQL 75, 83 WITHIN THE TRCU3 FOR BNP2 CIRCUIT PACK EQUIPAGE. THESE 2 POSITIONS CAN BE USED AS ALTERNATE NCT2 TX/RX PORTS OR CAN BE USED IN COMBINATION WITH 2 OTHER BNP2 PACKS (NCT2 TX/RX PORTS) FROM ANOTHER TRCU3 FOR 1 COMPLETE DUPLEX NCT2 LINK. COMBINING BNP2'S FROM ONE TRCU3 WITH ANOTHER MUST BE PART OF THE SAME EXM2000. REFER TO FIG 1 EXAMPLE.

EXM2000 APPLICATION USING NCT2 LINKS

HOST TRCU3 (J5D003EF-1) NCT FIBER LINKS, NCT (BNP1) CKT. PACK	SIDE	TO	TERMINATES TO 982TTC, CM2 J5D020A & J5D020B	SIDE	NOTES
EQL 43, TX/RX PORTS	1	→	TX/RX PORTS, ASSIGN	0	MINIMUM FOR 1 EXM2000
EQL 51, TX/RX PORTS	2	→	TX/RX PORTS, ASSIGN	1	MINIMUM FOR 1 EXM2000
EQL 59, TX/RX PORTS	1	→	TX/RX PORTS, ASSIGN	0	MINIMUM FOR 1 EXM2000
EQL 67, TX/RX PORTS	2	→	TX/RX PORTS, ASSIGN	1	MINIMUM FOR 1 EXM2000

TRCU3 (J5D003EF-1) HOST APPLICATION OC-3/12 FIBER LINKS, 22G3-U OR 24G-U OLIU	SIDE	TO	TERMINATES TO REMOTE TRCU3 (J5D003EF-1) EXM2000 OC-3/12 FIBER LINKS, 22G3-U OR 24G-U OLIU	SIDE	NOTES
EQL 27, TX/RX PORTS	1	→	EQL 35, TX/RX PORTS	2	MINIMUM FOR 1 HOST/ORM
EQL 35, TX/RX PORTS	2	→	EQL 27, TX/RX PORTS	1	MINIMUM FOR 1 HOST/ORM

TRCU3 (J5D003EF-1) REMOTE TRCU3 (EXM2000) NCT2 FIBER LINKS, NCT (BNP2) CKT. PACK	SIDE	TO	TERMINATES TO TSU4 (2) J5D003NB-1 OR J5D003NB-2, NCT2 FIBER LINKS, BKD1	NLI PORT	NOTES
EQL 43, TX/RX PORTS	1	→	TX/RX PORTS, ASSIGN	NLI 002	MINIMUM FOR 1 EXM2000
EQL 51, TX/RX PORTS	2	→	TX/RX PORTS, ASSIGN	NLI 102	MINIMUM FOR 1 EXM2000
EQL 59, TX/RX PORTS	1	→	TX/RX PORTS, ASSIGN	NLI 003	MINIMUM FOR 1 EXM2000
EQL 67, TX/RX PORTS	2	→	TX/RX PORTS, ASSIGN	NLI 103	MINIMUM FOR 1 EXM2000

207. A MINIMUM EXM2000 CONFIGURATION FOR 1 COMPLETE DUPLEX NCT2 LINK CONSIST OF (4) BNP2 CIRCUIT PACKS AT THE HOST AND (4) BNP2 CIRCUIT PACKS AT THE REMOTE OFFICE. ADDING ADDITIONAL DUPLEXED NCT2 LINKS TO AN EXM2000 REQUIRES GROWTH IN MULTIPLES OF (4) BNP2 CIRCUIT PACKS AT THE HOST AND (4) BNP2 CIRCUIT PACKS AT THE REMOTE OFFICE. EACH TRCU3 SHELF SUPPORTS 1.5 DUPLEX NCT2 LINKS. A FULLY EQUIPPED EXM2000 WILL PROVIDE 12 DUPLEX NCT2 LINKS. A FULLY EQUIPPED EXM2000 WITH 12 NCT2 LINKS REQUIRES 8 FULLY EQUIPPED TRCU3'S AT EACH END WITH (48) BNP2 CIRCUIT PACKS AT THE HOST OFFICE AND (48) BNP2 CIRCUIT PACKS AT THE REMOTE OFFICE. BNP1 (2) CIRCUIT PACKS SHOULD ALWAYS BE GROWN FROM LEFT TO RIGHT WITHIN THE TRCU3. THE FOLLOWING IS TYPICAL TRCU3 GROWTH WITH BNP2 CIRCUIT PACKS FOR AN EXM2000.

	TRCU3 UNIT #	BNP2 EQUIPAGE HEQLS
1ST DUPLEX NCT2 LINK	1ST TRCU3	43, 51, 59, 67
2ND DUPLEX NCT2 LINK	2ND TRCU3	43, 51, 59, 67
3RD DUPLEX NCT2 LINK	1ST TRCU3 2ND TRCU3	75, 83 75, 83
4TH DUPLEX NCT2 LINK	3RD TRCU3	43, 51, 59, 67
5TH DUPLEX NCT2 LINK	4TH TRCU3	43, 51, 59, 67
6TH DUPLEX NCT2 LINK	3RD TRCU3 4TH TRCU3	75, 83 75, 83
7TH DUPLEX NCT2 LINK	5TH TRCU3	43, 51, 59, 67
8TH DUPLEX NCT2 LINK	6TH TRCU3	43, 51, 59, 67
9TH DUPLEX NCT2 LINK	5TH TRCU3 6TH TRCU3	75, 83 75, 83
10TH DUPLEX NCT2 LINK	7TH TRCU3	43, 51, 59, 67
11TH DUPLEX NCT2 LINK	8TH TRCU3	43, 51, 59, 67
12TH DUPLEX NCT2 LINK	7TH TRCU3 8TH TRCU3	75, 83 75, 83

208. TRCU3'S ARE EQUIPPED IN A 5ESS ISOLATED SINGLE POINT GROUND PLANE AND SHOULD NOT HAVE DIRECT CONNECTIONS TO BUILDING'S INTEGRATED GROUNDING SYSTEM EXCEPT AT A SINGLE POINT LOCATION OR GROUND WINDOW. AS AN OPTIONAL FEATURE, TRCU3'S CAN PROVIDE A CABLE INTERFACE TO A TRANSMISSION OPERATING SYSTEM (OS) FOR REPORTING ALARM MAINTENANCE INFORMATION TO AN OS. A TRANSMISSION OS IS LOCATED OUTSIDE THE 5ESS SINGLE POINT GROUND WINDOW. ED50518-11, G34 PROVIDES A SPECIAL CABLE ASSEMBLY WITH THE NECESSARY GROUND ISOLATION BETWEEN THE TRCU3 AND A TRANSMISSION OS. THE GROUND ISOLATION IS REQUIRED SINCE THE TRANSMISSION OS IS LOCATED OUTSIDE THE 5ESS SINGLE POINT GROUND WINDOW. THE CABLE TERMINATES TO CONNECTOR J45 ON THE TRCU3 BACKPLANE AND THEN DIRECTLY TO THE TRANSMISSION OS. IN SOME INSTANCES A CONNECTOR GENDER ADAPTER MAY BE NEEDED AT THE OS END. THE CABLE CAN BE ORDERED OUT UP TO LENGTHS TO 1000 FEET AND IS JOB ENGINEERED (X-DIMENSIONED). THE VENDOR IS APPLIED INNOVATIONS, VENDOR PART# CAB496, CCH# 408446128. ORDER FROM CABLE DRAWING ED50518-11.

COPYRIGHT 2000 LUCENT TECHNOLOGIES  
ALL RIGHTS RESERVED

TRANSMISSION RATE CONVERTER UNIT	DWG SIZE	ISSUE
MODEL 3 (TRCU3)	C2	3A
LUCENT TECHNOLOGIES	SD-5D555-01	SHEET D2

INFORMATION NOTES

INFORMATION NOTES:

301. UNLESS OTHERWISE SPECIFIED:  
RESISTANCE VALUES ARE IN OHMS,  
CAPACITANCE VALUES ARE IN MICROFARADS,  
VALUES PRECEDED BY THE SYMBOL + (PLUS)  
OR - (MINUS) ARE IN VOLTS.

302.

FEATURE OR OPTION	PROVIDE		
	APP FIG	APP OR WRG	QUANTITY
ASSEMBLY, WIRING, EQUIPMENT	1		1 PER CKT
BASIC CIRCUIT PACK EQUIPPAGE	2		1 PER CKT
OC-3 OPTICAL LINE INTERFACE UNIT (22G3-U)	3	Z	2 PER CKT
OC-12 OPTICAL LINE INTERFACE UNIT (24G-U)	4	Y	2 PER CKT
NCT CIRCUIT PACK (BNP1)	5	X	4 PER CKT
NCT2 CIRCUIT PACK (BNP2)	6	W	4 PER CKT

303.

RECORD OF FIGURES, WIRING AND APPARATUS CHANGES					
CHANGED ON ISS	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN	SEE NOTE	USE IN CIRCUIT	
				AVAIL	DA

304.

24G-U OLIU LINK BUDGETS		
PARAMETER	NOTE	24G-U
MINIMUM WAVELENGTH (TMIN)	b	1280 nm
MAXIMUM WAVELENGTH (TMAX)	b	1335 nm
SPECTRAL WIDTH (S 20)	b	1.0 nm
MAXIMUM TRANSMITTER POWER (PTMAX)	a	+1.9 dBm
MINIMUM TRANSMITTER POWER (PTMIN)		-3.0 dBm
MAXIMUM RECEIVED POWER (PRMAX)		-8.0 dBm
MINIMUM RECEIVED POWER (PRMIN)		-30.0 dBm
MINIMUM SYSTEM GAIN (S-R)		27.0 dB
OPTICAL PATH PENALTY (PO)	c	1.0 dB
CONNECTOR LOSS	d	1.5 dB
UNALLOCATED MARGIN	e	1.5 dB
MINIMUM LOSS BUDGET **	f	8.0dB
MAXIMUM LOSS BUDGET		23.0 DB
MAXIMUM SPAN LENGTH		51 km

NOTES:

- ALL TERMINOLOGY IS CONSISTENT WITH TR-253, ISS. 2. ALL VALUES ARE WORST-CASE END OF LIFE.
- ALL SPECIFICATIONS FOR THE 24G-U MEET OR EXCEED LONG REACH (LR) VALUES DESCRIBED IN TR-253, ISS. 2.
- (a) TRANSMIT AND RECEIVE POWERS ARE REFERENCED TO POINTS S AND R AS SHOWN IN FIGURE 11-1.
- (b) THE MINIMUM SYSTEM GAIN FOR THE DDM-2000 ALREADY TAKES INTO ACCOUNT AGING, TEMPERATURE, AND MANUFACTURING TOLERANCES AS THESE FIGURES ARE BUILT INTO THE MINIMUM TRANSMITTER POWER. THE DDM-2000 SYSTEM GAIN CAN, THUS, NOT BE DIRECTLY COMPARED WITH THE DDM-1000 SYSTEM GAIN BECAUSE THE DDM-1000 SYSTEM GAIN DOES NOT INCLUDE ALL OF THESE EFFECTS. A SIMILAR PENALTY, CALLED EYE MARGIN, IS SUBTRACTED FROM THE DDM-1000 LOSS BUDGET AFTER THE VALUE OF SYSTEM GAIN IS DETERMINED.
- (c) OPTICAL PATH PENALTY INCLUDES EFFECTS OF DISPERSION, REFLECTION AND JITTER THAT OCCUR ON THE OPTICAL PATH. THE 24G-U HAS 4.0 dB OF TOTAL MARGIN. OPTICAL PATH PENALTY IS NORMALLY 1.0 dB.
- (d) ONE CONNECTOR (0.75 dB) ON EACH END IS ASSUMED TO CONNECT STATION CABLE TO OUTSIDE PLANT.
- (e) UNALLOCATED MARGIN, OR SAFETY MARGIN, IS TYPICALLY SPECIFIED FROM 0 dB to 3 dB.
- (f) THE 24G-U REQUIRES AN EXTERNAL LIGHTGUIDE BUILDOUT AS PART OF THE CONNECTOR ASSEMBLY FOR LOOPBACKS AND FOR LOSS BUDGETS LESS THAN 10 dB.

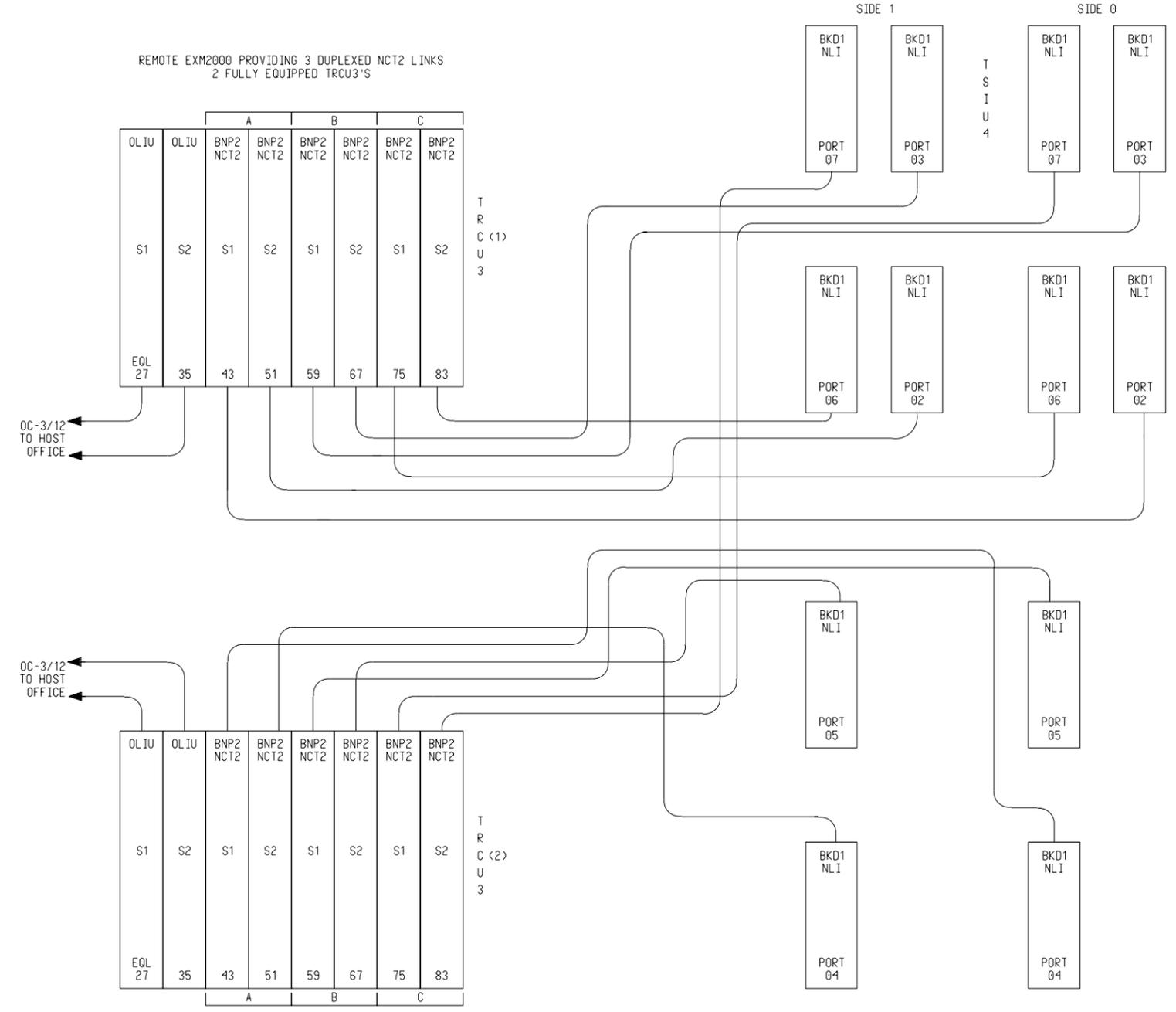
305.

UNIVERSAL BUILDOUT ATTENUATORS			
DESCRIPTION	CONNECTION	LOSS (dB)	COMCODE
A3070 ST 0 dB buildout	SM-SM & MM-MM	0	106795354
A3070B1 ST 5 dB buildout	SM-SM	5	107406183
A3070D1 ST 10 dB buildout	SM-SM	10	107406191
A3070F1 ST 15 dB buildout	SM-SM	15	107406209

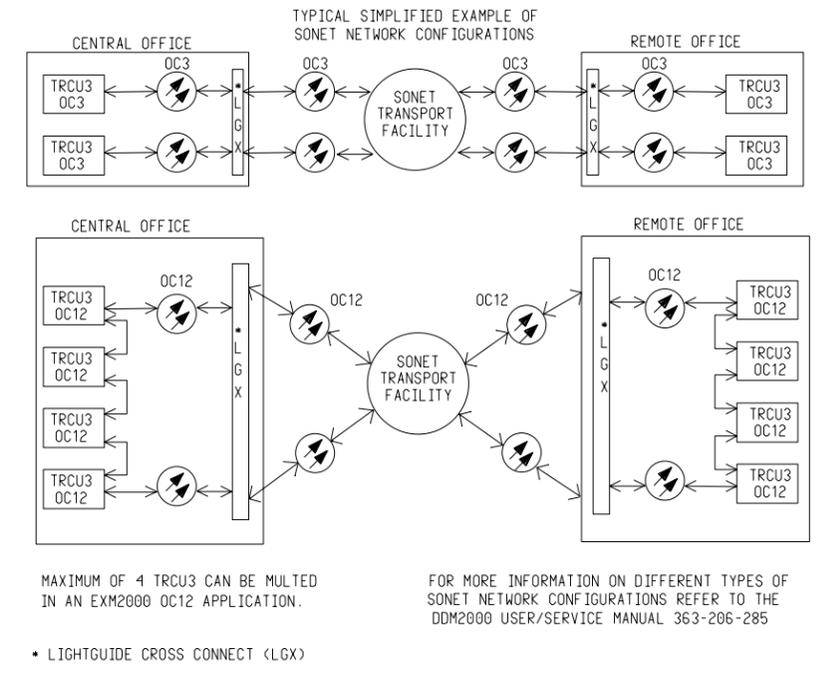
COPYRIGHT 2000 LUCENT TECHNOLOGIES ALL RIGHTS RESERVED		
TRANSMISSION RATE CONVERTER UNIT MODEL 3 (TRCU3)	DWG SIZE C2	ISSUE 3A
LUCENT TECHNOLOGIES	SD-5D555-01	SHEET D3

INFORMATION NOTES

306. INFORMATION NOTES (CONT)



307. INFORMATION NOTES (CONT)



COPYRIGHT 2000 LUCENT TECHNOLOGIES ALL RIGHTS RESERVED		
TRANSMISSION RATE CONVERTER UNIT MODEL 3 (TRCU3)	DWG SIZE C2	ISSUE 3A
LUCENT TECHNOLOGIES	SD-5D555-01	SHEET D4

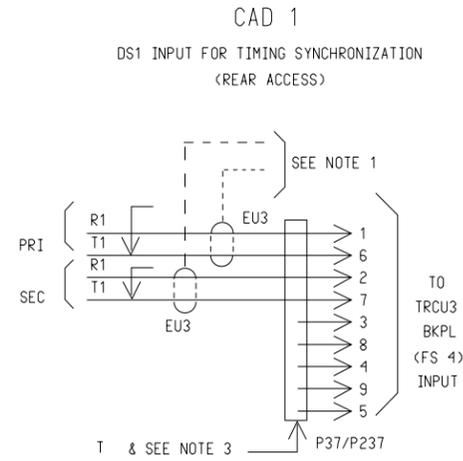
CAD 1, 3

THE CAD SHOWN IN THIS SD DRAWING REFLECT THE SAME SAME CADS IN THE DDM2000 SD7C510-01 DRAWING AND ARE AND ARE NUMBERED THE SAME. CADS THAT ARE NOT USED FOR THE TRCU3 ARE NOT SHOWN IN THIS SD DRAWING. FOR MORE DETAILED INFORMATION ABOUT THE DDM2000 INTERCONNECTION REFERENCE DRAWINGS SD7C510-01 AND SD7C513-01.

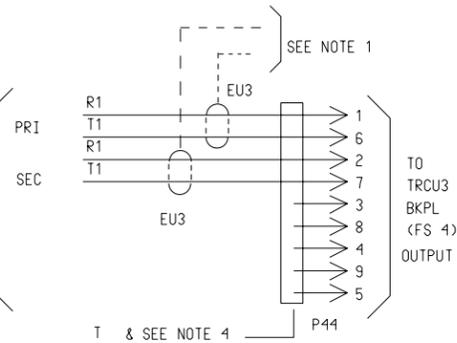
NOTES:

1. CONNECT SHIELD TO BODY OF CONNECTOR.
2. CONNECT SHIELD TO EMC COVER.
3. FERRITE BEAD TO BE LOCATED 4 INCHES FROM CONNECTOR BODY.
4. FERRITE BEAD TO BE LOCATED 18 INCHES FROM CONNECTOR BODY.
5. BUILDING INTEGRATED TIMING SUPPLY (BITS) MAY BE THE SAME AS THE DS1 TIMING SUPPLY.

TO DS1  
TIMING  
REFERENCE  
SOURCE  
SD-99503-01  
OR  
TO PRECEDING  
TRCU3/DDM2000  
SHELF ASSEMBLY  
OR TO  
TRCU3/DDM2000 OC-12  
SD-7C513-01  
VIA CAD 1  
(REAR ACCESS)  
OR  
VIA CAD 25  
(FRONT ACCESS)  
OR TO BITS  
SYNC INPUT  
TIMING CABLE  
CAD 48  
(SEE NOTE 5)

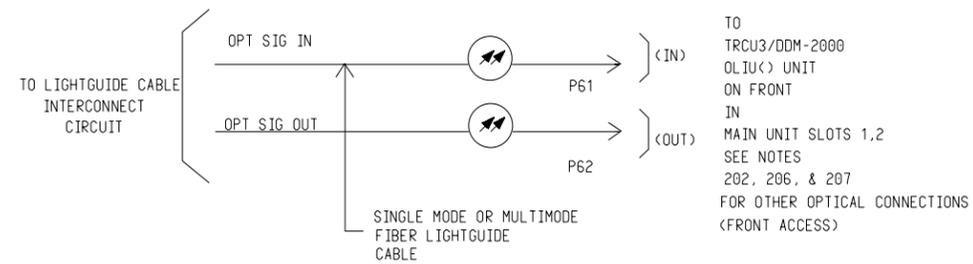


TO  
SUCCEEDING  
TRCU3/DDM-2000  
SHELF ASSEMBLY  
OR TO  
TRCU3/ DDM2000 OC-12  
SD-7C513-01  
VIA CAD 1  
(REAR ACCESS)  
OR  
VIA CAD 25  
(FRONT ACCESS)  
OR TO BITS  
TIMING  
REFERENCE  
SOURCE  
(SEE NOTE 5)



CAD 3

OC-3 LIGHTGUIDE INTERFACE  
FRONT ACCESS



COPYRIGHT 1998 LUCENT TECHNOLOGIES  
ALL RIGHTS RESERVED

TRANSMISSION RATE CONVERTER UNIT MODEL 3 (TRCU3)	DWG SIZE C2	ISSUE 1
LUCENT TECHNOLOGIES	SD-5D555-01	SHEET G1

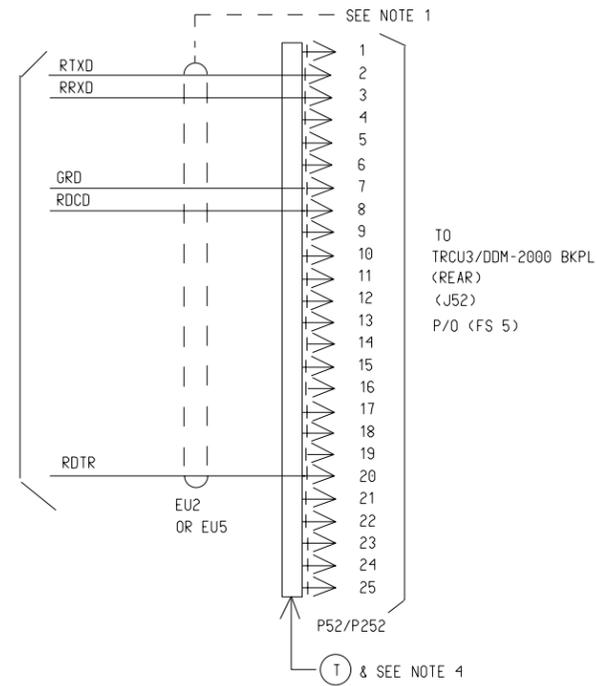
CAD 6, 8, 11

NOTES:

1. CONNECT SHIELD TO BODY OF P( ) CONNECTOR.
2. THE SHIELD SHALL BE TERMINATED USING A SPADE LUG YAD18-LFM (403122849) AT THE NEAREST AVAILABLE MOUNTING SCREW OF THE EMC CHAMBER ON THE UNIT.
3. FERRITE BEAD TO BE LOCATED 15 INCHES FROM CONNECTOR BODY.
4. FERRITE BEAD TO BE LOCATED 4 INCHES FROM CONNECTOR BODY.
5. NOTES THATS ARE NOT REFERENCED BY CADS FOR TRCU3 SHOULD BE ELIMINATED.
6. FERRITE BEADS TO BE LOCATED 1 INCH AND 7 INCHES RESPECTIVELY FROM CONNECTOR BODY.

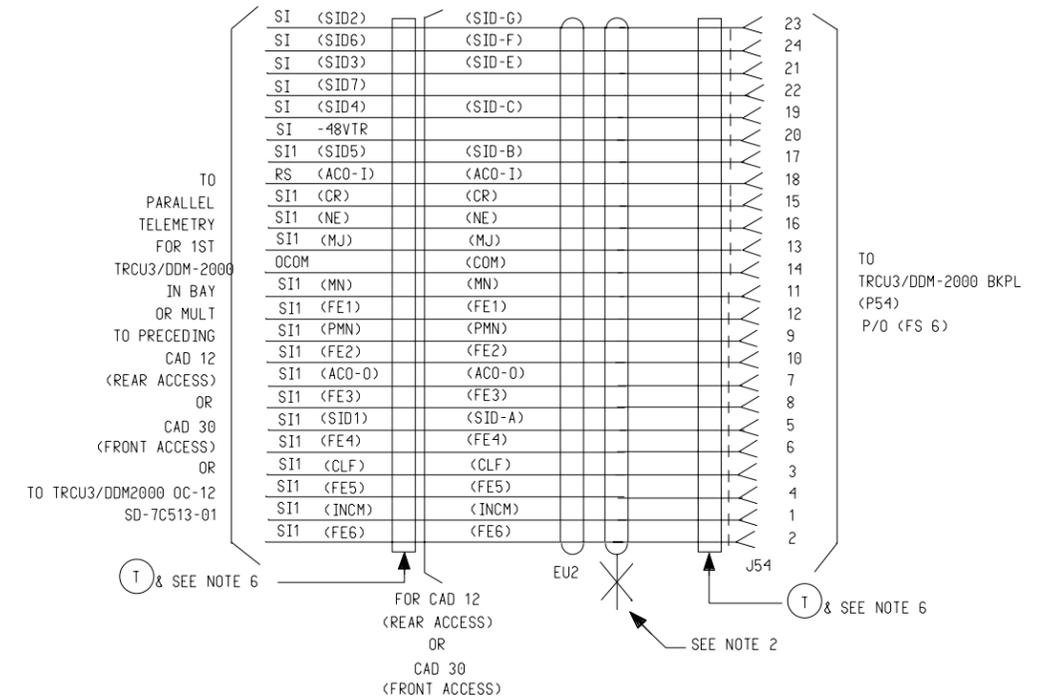
CAD 8

REMOTE MODEM INTERFACE WITH DDM-2000  
REAR ACCESS  
FRONT ACCESS



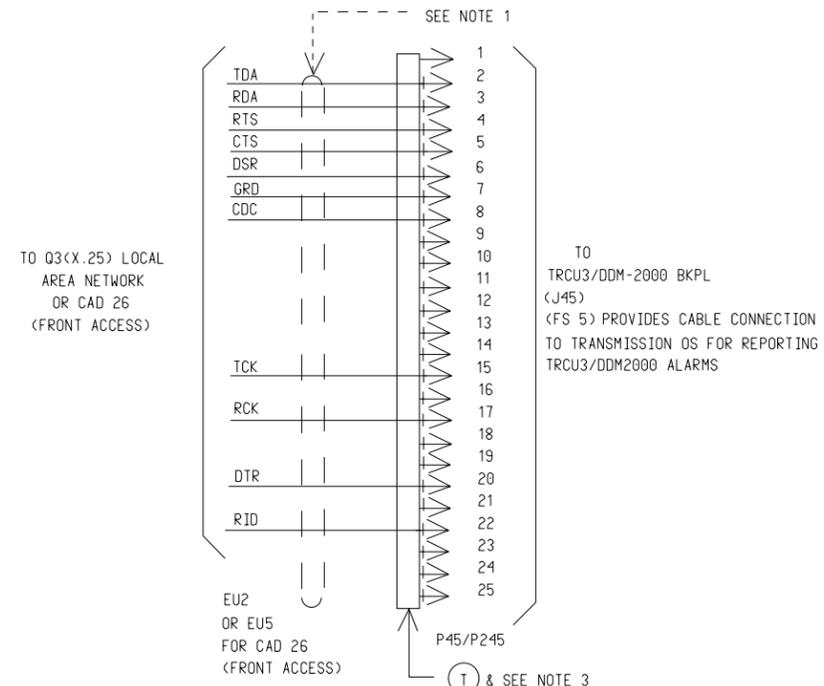
CAD 11

PARALLEL TELEMETRY



CAD 6

Q3(X.25) INTERFACE  
REAR ACCESS  
FRONT ACCESS

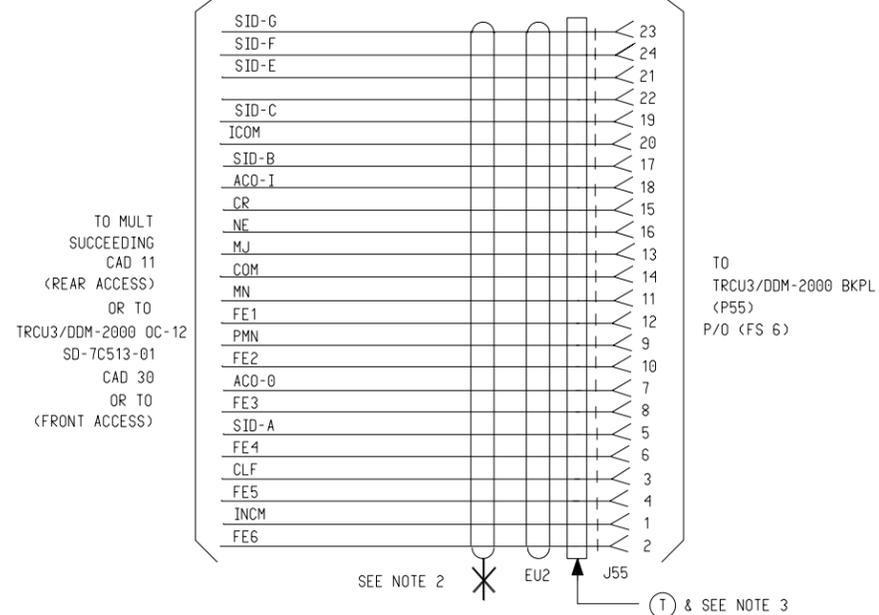


COPYRIGHT 2000 LUCENT TECHNOLOGIES  
ALL RIGHTS RESERVED

TRANSMISSION RATE CONVERTER UNIT MODEL 3 (TRCU3)	DWG SIZE C2	ISSUE 3A
LUCENT TECHNOLOGIES	SD-5D555-01	SHEET G2

CAD 12

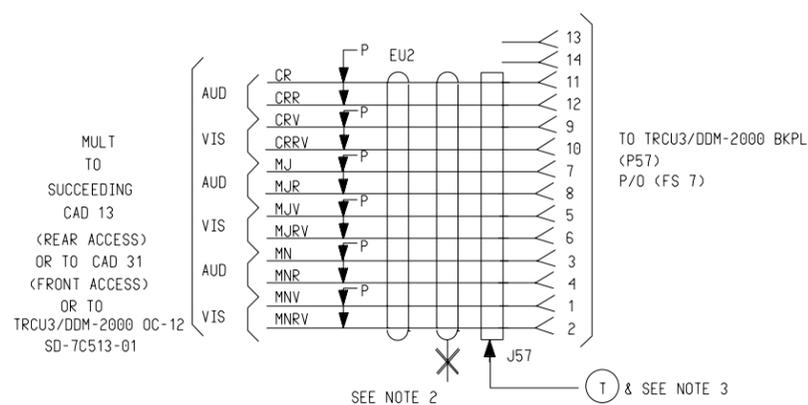
PARALLEL TELEMETRY  
INTRA BAY MULT  
REAR ACCESS  
FRONT ACCESS



CAD 12, 13, 14, 17, 18

CAD 14

OFFICE ALARMS MULT  
REAR ACCESS  
FRONT ACCESS

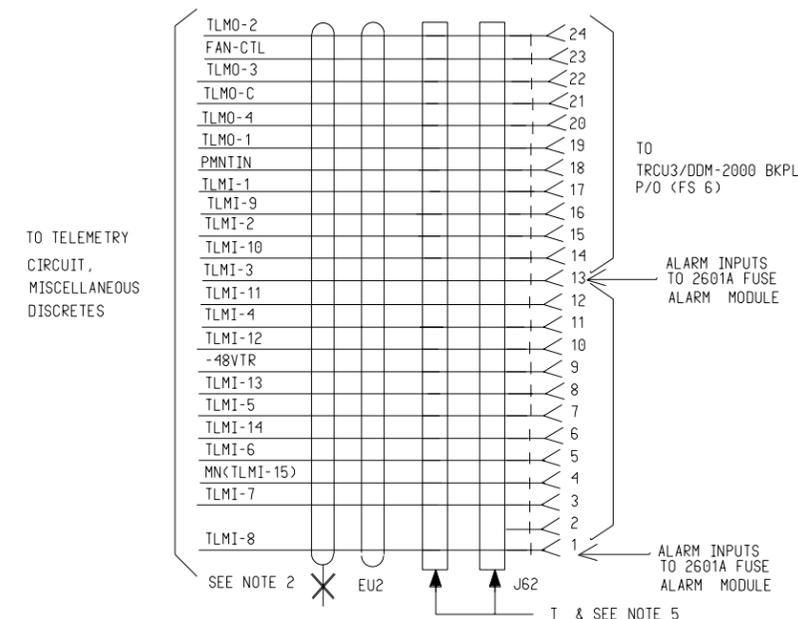


NOTES:

1. CONNECT SHIELD TO BODY OF P( ) CONNECTOR.
2. THE SHIELD SHALL BE TERMINATED USING A SPADE LUG YAD18-LFM (403122849) AT THE NEAREST AVAILABLE MOUNTING SCREW OF THE EMC CHAMBER ON THE UNIT.
3. FERRITE BEAD TO BE LOCATED 1 INCH FROM CONNECTOR HOUSING.
4. FERRITE BEAD TO BE LOCATED 2 INCHES FROM CONNECTOR HOUSING.
5. FERRITE BEADS TO BE LOCATED 1 INCH AND 9 INCHES RESPECTIVELY FROM CONNECTOR HOUSING.
6. FERRITE BEADS TO BE LOCATED 1 INCH AND 12 INCHES RESPECTIVELY FROM CONNECTOR HOUSING.

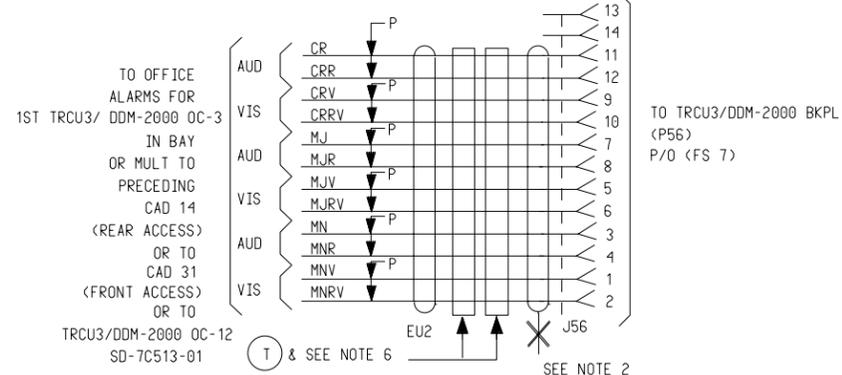
CAD 18

TELEMETRY,  
MISCELLANEOUS  
DISCRETES,  
R.T. APPLICATIONS



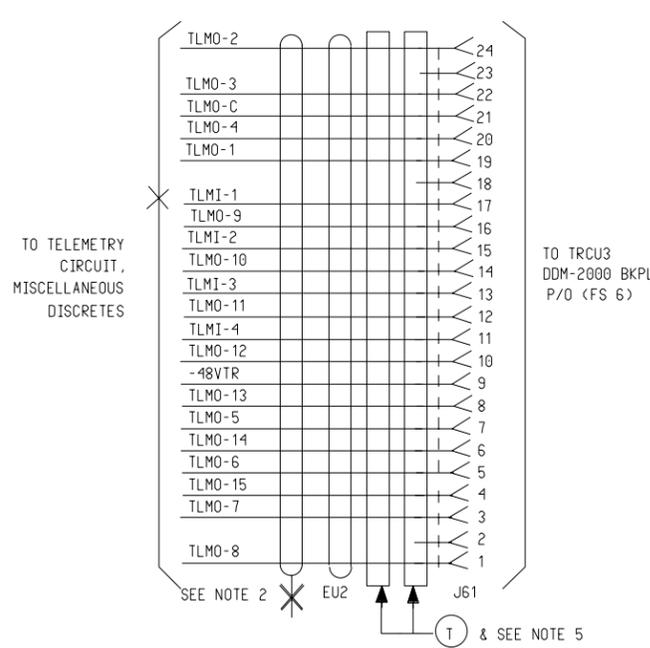
CAD 13

OFFICE ALARMS INTERFACE  
REAR ACCESS  
FRONT ACCESS



CAD 17

TELEMETRY MISCELLANEOUS DISCRETES  
C.O. APPLICATIONS



COPYRIGHT 1998 LUCENT TECHNOLOGIES  
ALL RIGHTS RESERVED

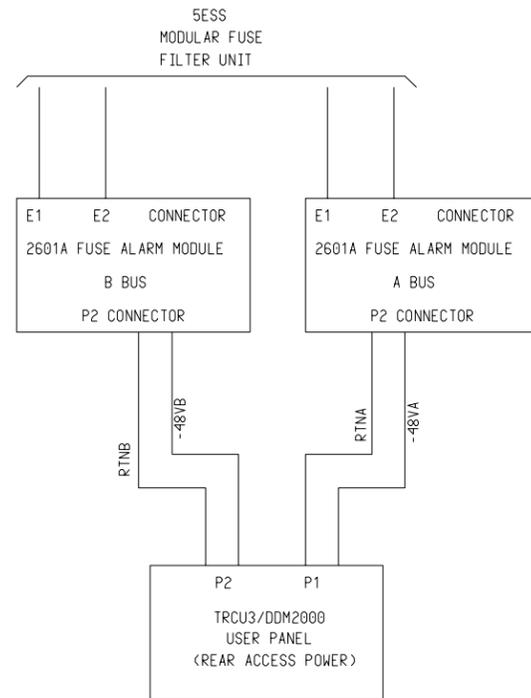
TRANSMISSION RATE CONVERTER UNIT MODEL 3 (TRCU3)	DWG SIZE C2	ISSUE 1
LUCENT TECHNOLOGIES	SD-5D555-01	SHEET G3

CAD 19, 21

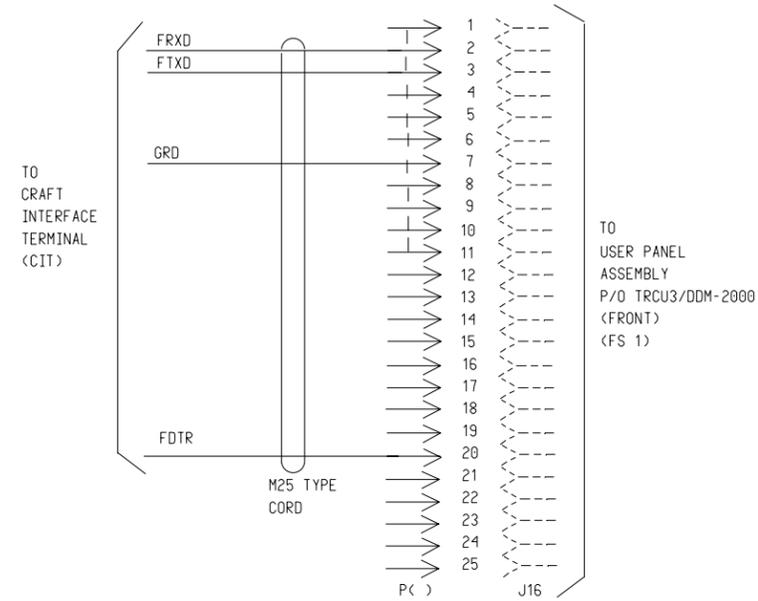
NOTES:

1. CONNECT SHIELD TO BODY OF P( ) CONNECTOR.
2. CAD FIG 19 IN THIS DRAWING DOES NOT REPRESENT CAD FIG 19 OF SD-7C510-01 FOR THE DDM2000.

CAD 19  
TRCU3 POWER SUPPLY INPUT  
(REAR ACCESS) SEE NOTE 2 & NOTE 205



CAD 21  
CIT INTERFACE WITH DDM-2000



COPYRIGHT 1998 LUCENT TECHNOLOGIES ALL RIGHTS RESERVED		
TRANSMISSION RATE CONVERTER UNIT MODEL 3 (TRCU3)	DWG SIZE C2	ISSUE 1
LUCENT TECHNOLOGIES	SD-5D555-01	SHEET G4

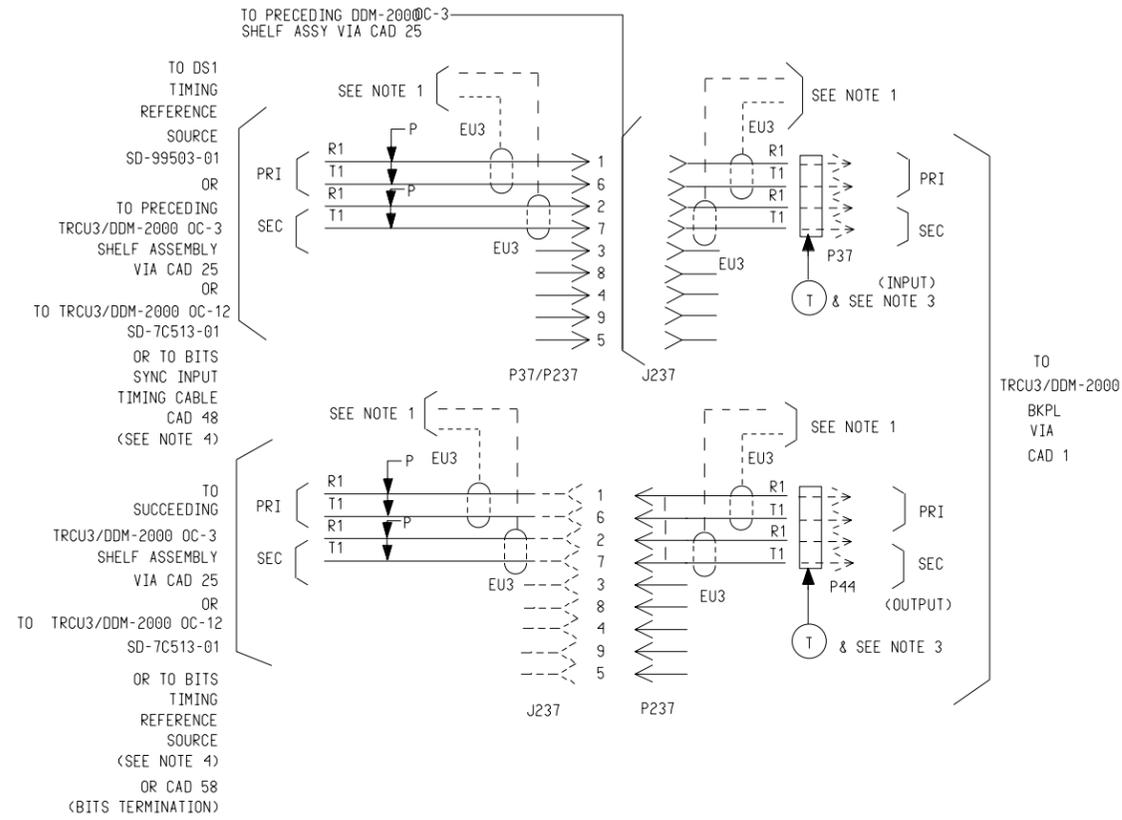
CAD 25

CAD 25

DS1 INPUT FOR TIMING SYNCHRONIZATION  
(FRONT ACCESS)

NOTE:

1. CONNECT SHIELD TO BODY OF CONNECTOR.
2. FERRITE BEAD TO BE LOCATED 15 INCHES FROM THE CONNECTOR HOUSING.
3. FERRITE BEAD TO BE LOCATED 4 INCHES FROM THE CONNECTOR HOUSING.
4. BUILDING INTEGRATED TIMING SUPPLY (BITS) MAY BE THE SAME AS THE DS1 TIMING SUPPLY.



COPYRIGHT 1998 LUCENT TECHNOLOGIES  
ALL RIGHTS RESERVED

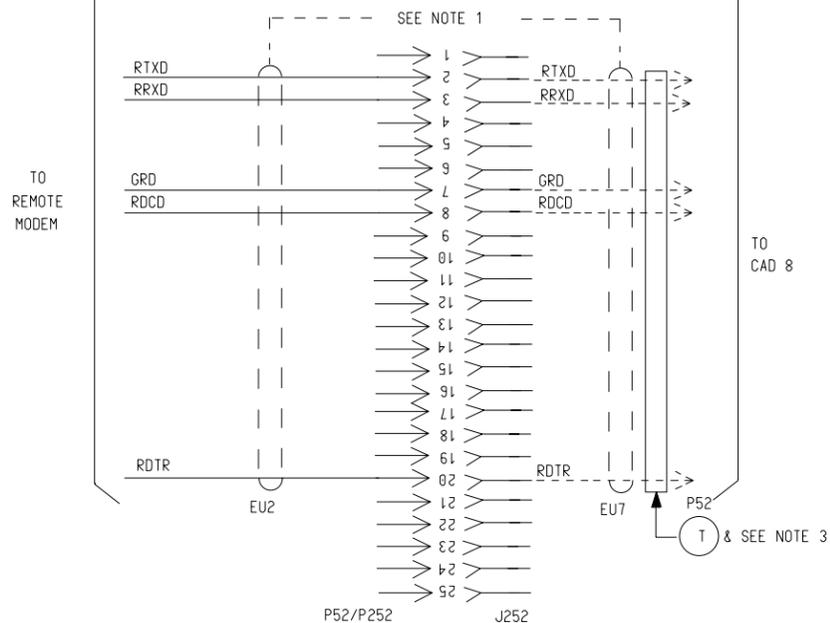
TRANSMISSION RATE CONVERTER UNIT MODEL 3 (TRCU3)	DWG SIZE C2	ISSUE 1
LUCENT TECHNOLOGIES	SD-5D555-01	SHEET G5

NOTE:

1. CONNECT SHIELD TO BODY OF CONNECTOR.
2. THE SHIELD SHALL BE TERMINATED USING A SPADE LUG YAD18-LFM (401122849) AT THE NEAREST AVAILABLE MOUNTING SCREW OF THE EMC CHAMBER ON THE UNIT.
3. FERRITE BEAD TO BE LOCATED 4 INCHES FROM CONNECTOR HOUSING.
4. FERRITE BEADS TO BE LOCATED 1 INCH AND 12 INCHES FROM CONNECTOR HOUSING.
5. FERRITE BEADS TO BE LOCATED 1 INCH AND 7 INCHES FROM CONNECTOR HOUSING.

CAD 28

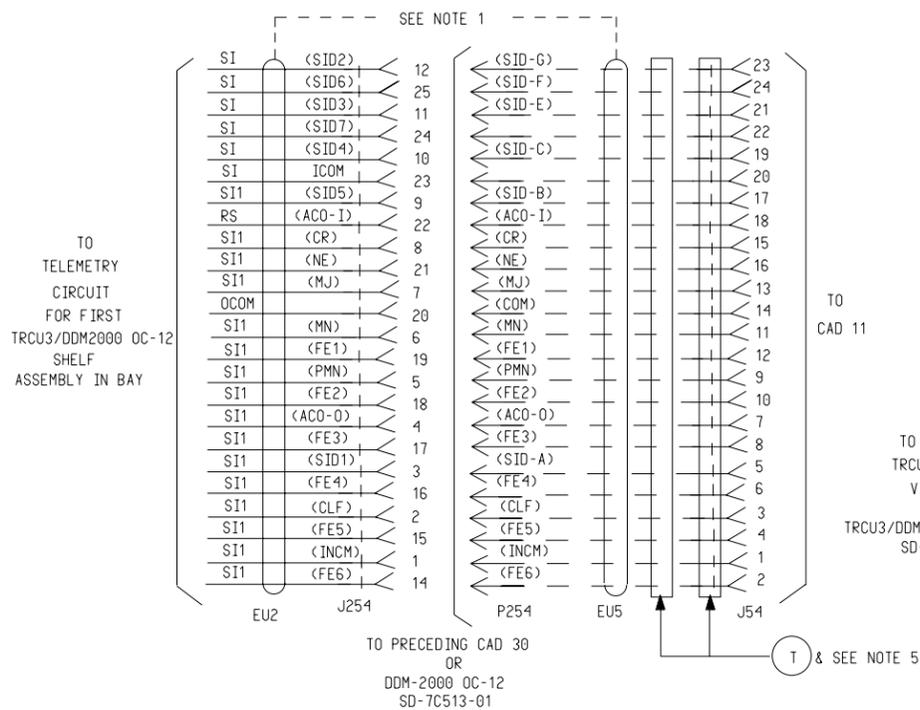
REMOTE MODEM INTERFACE WITH DDM-2000  
(FRONT ACCESS)



CAD 30

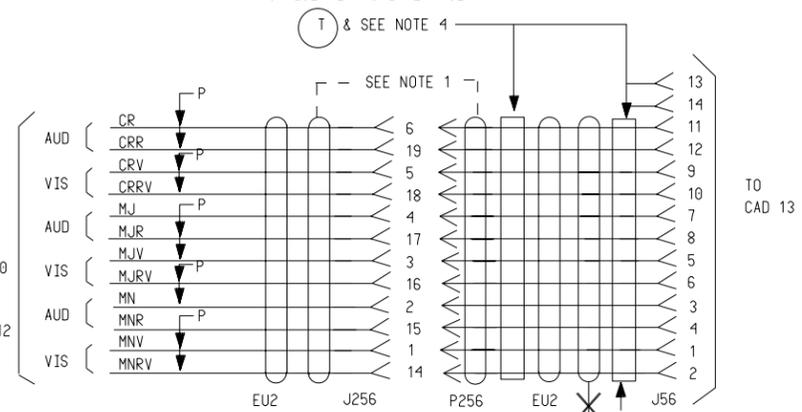
PARALLEL TELEMETRY

SEE NOTE 207, 1202, 1203, 1207, 1210, 1306, 1313 & 1317

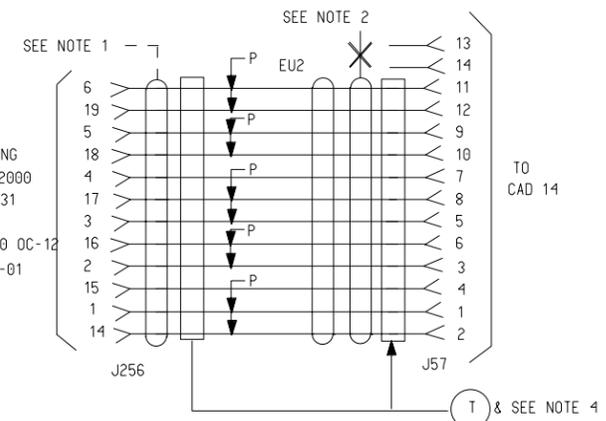
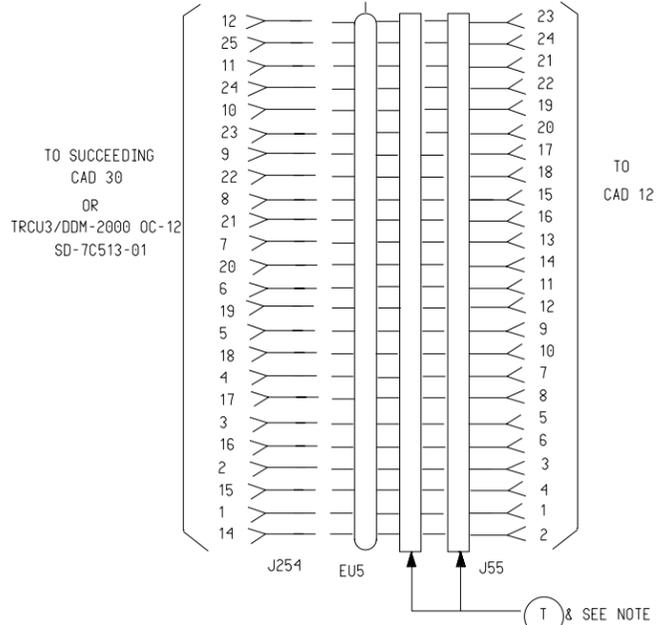


CAD 31

OFFICE ALARMS INTERFACE



SEE NOTE 1



COPYRIGHT 1998 LUCENT TECHNOLOGIES  
ALL RIGHTS RESERVED

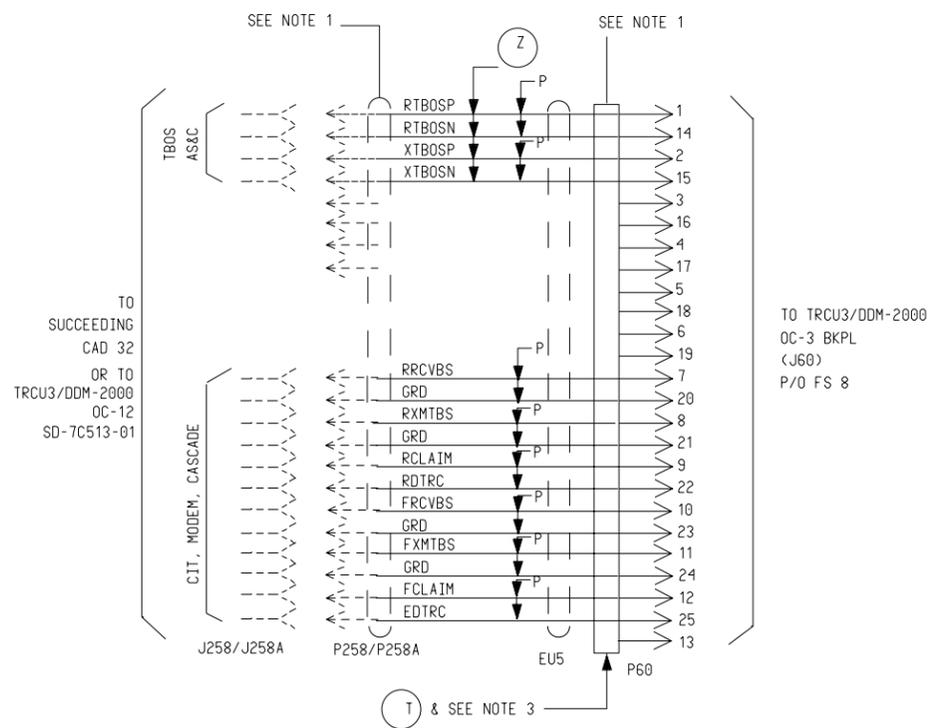
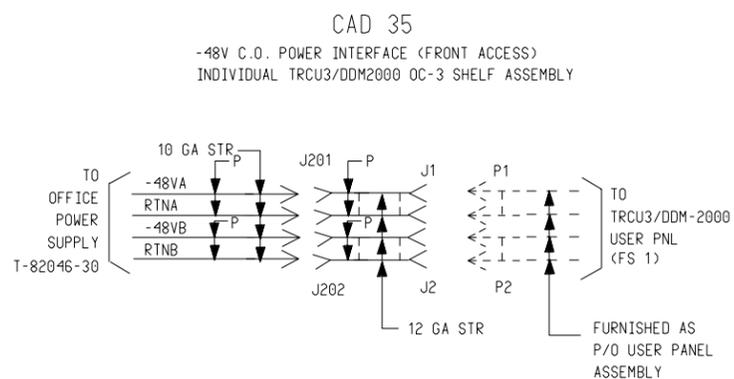
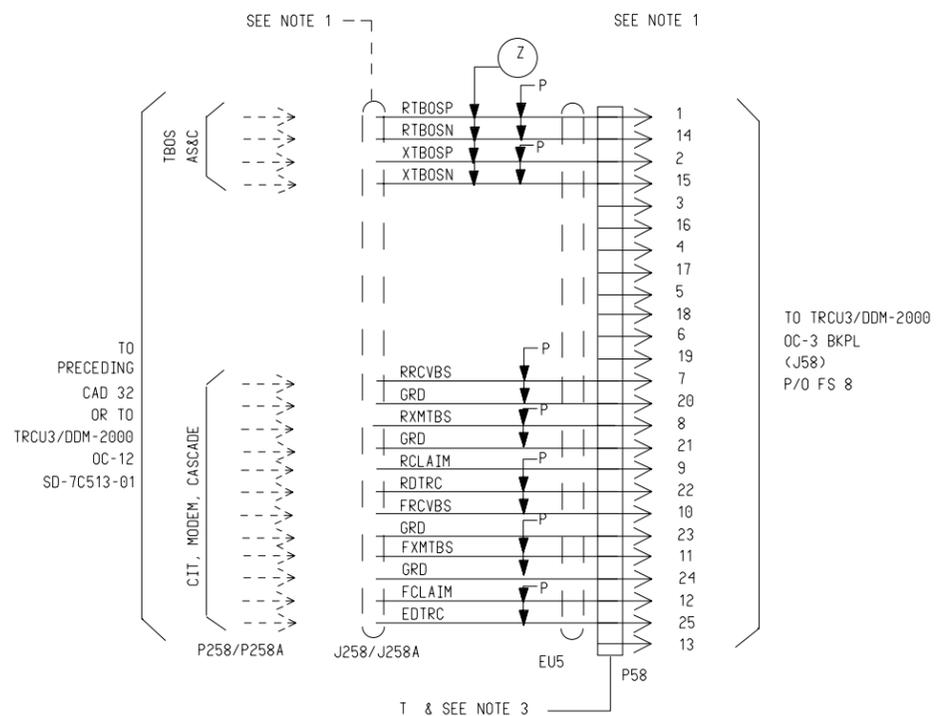
TRANSMISSION RATE CONVERTER UNIT MODEL 3 (TRCU3)	DWG SIZE C2	ISSUE 1
LUCENT TECHNOLOGIES	SD-5D555-01	SHEET G6

CAD 32

INTRA-BAY MULT OF SHELVES  
FOR TBOS, AS&C AND MODEM (FRONT ACCESS)

CAD 32, 35

1. CONNECT SHIELD TO BODY OF CONNECTOR.
2. FERRITE BEAD TO BE LOCATED 10 INCHES FROM CONNECTOR HOUSING.
3. FERRITE BEADS TO BE LOCATED 1 INCH AND 9 INCHES FROM CONNECTOR HOUSING.



NOTE

COPYRIGHT 1998 LUCENT TECHNOLOGIES ALL RIGHTS RESERVED		
TRANSMISSION RATE CONVERTER UNIT MODEL 3 (TRCU3)	DWG SIZE C2	ISSUE 1
LUCENT TECHNOLOGIES	SD-5D555-01	SHEET G7

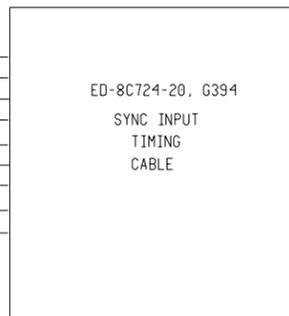
1 2 3 4 5 6 7 8 9

CAD 48

CAD 48  
BITS INPUT FOR TIMING SYNCHRONIZATION  
REAR ACCESS  
FRONT ACCESS

TO BITS  
TIMING  
REFERENCE  
SOURCE  
VIA CAD 1  
(REAR ACCESS)  
OR  
CAD 25  
(FRONT ACCESS)

1  
6  
2  
7  
3  
8  
4  
9  
5  
J237



1  
6  
2  
7  
3  
8  
4  
9  
5  
P37

TO  
TRCU3/DDM-2000  
BKPL  
(FS 4)  
(REAR ACCESS)  
OR  
TO CAD 25  
(FRONT ACCESS)

A  
B  
C  
D  
E  
F  
G  
H

A  
B  
C  
D  
E  
F  
G  
H

COPYRIGHT 1998 LUCENT TECHNOLOGIES ALL RIGHTS RESERVED			
TRANSMISSION RATE MODEL 3 (TRCU3)	CONVERTER UNIT	DWG SIZE C2	ISSUE 1
LUCENT TECHNOLOGIES	SD-5D555-01		SHEET G8

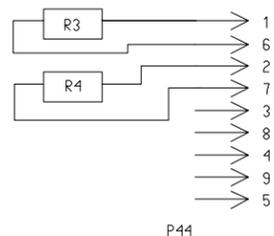
1 2 3 4 5 6 7 8 9

5

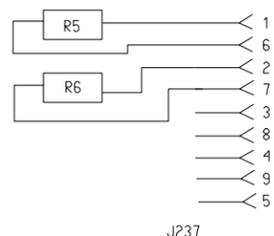
NOTE:

1. SHIELD SHALL BE TERMINATED TO CONNECTOR BODY.
2. FERRITE BEAD TO BE LOCATED 10 INCHES FROM CONNECTOR HOUSING.
3. FERRITE BEAD TO BE LOCATED 4 INCHES FROM CONNECTOR HOUSING.
4. RESISTORS R3 AND R4 SHALL BE KS20616, L1A 100 OHMS. (405095787)
5. RESISTORS R5 AND R6 SHALL BE KS20616, L1A 100 OHMS (405095787).
6. BUILDING INTEGRATED TIMING SUPPLY (BITS) MAY BE THE SAME AS THE DS1 TIMING SUPPLY.

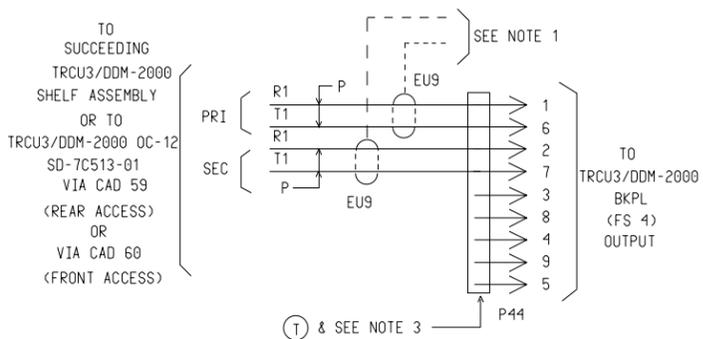
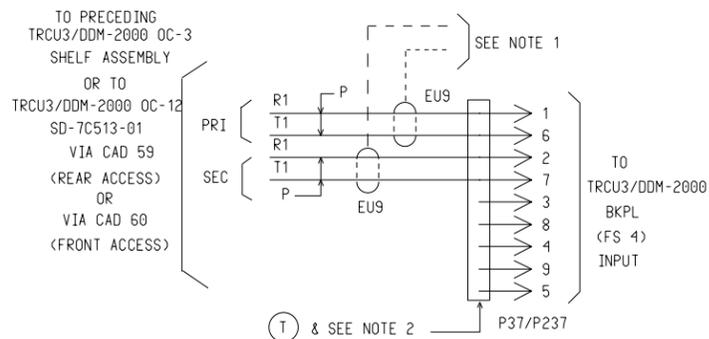
**CAD 55**  
BITS OUTPUT TERMINATION  
(SEE NOTE 4)



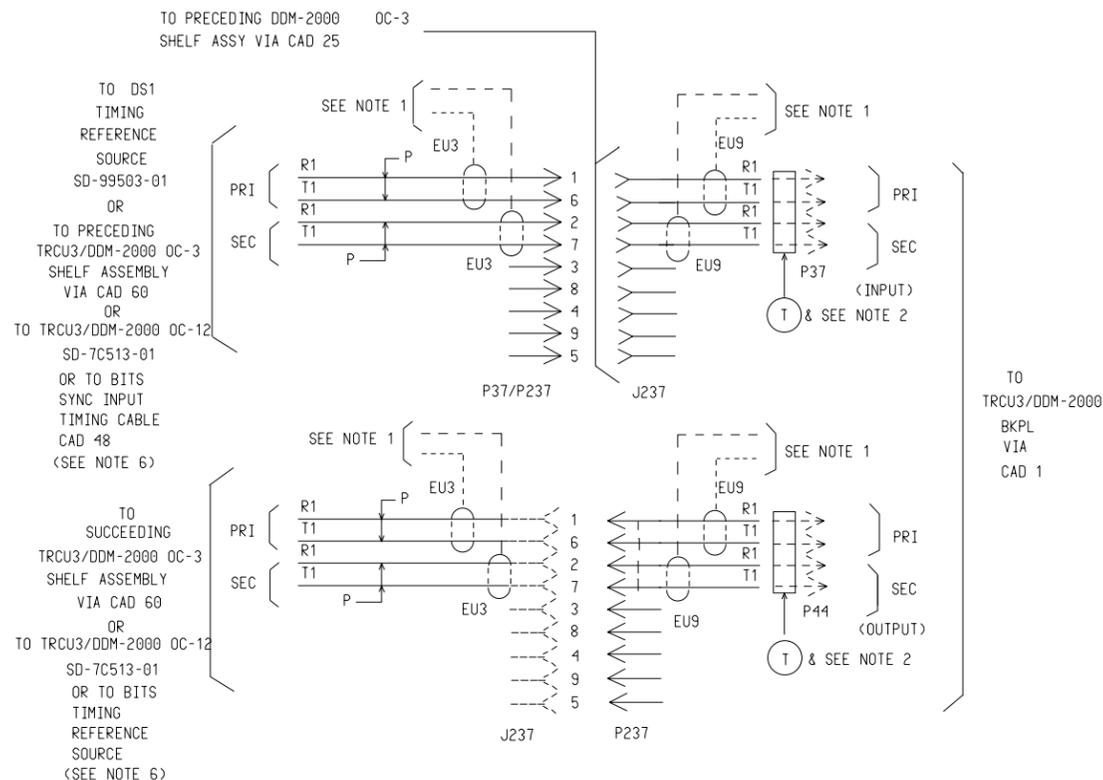
**CAD 58**  
BITS OUTPUT TERMINATION  
(SEE NOTE 5)



**CAD 59**  
DS1 INPUT FOR TIMING SYNCHRONIZATION  
(REAR ACCESS)



**CAD 60**  
DS1 INPUT FOR TIMING SYNCHRONIZATION  
(FRONT ACCESS)



COPYRIGHT 1998 LUCENT TECHNOLOGIES ALL RIGHTS RESERVED		
TRANSMISSION RATE CONVERTER UNIT MODEL 3 (TRCU3)	DWG SIZE C2	ISSUE 1
LUCENT TECHNOLOGIES	SD-5D555-01	SHEET G9

