CONSTRUCTION LEADERS

LETTER OF TRANSMITTAL			
DATE:	**March 10, 2015**	PCL JOB NO:	**5515002**
ATTN:	**Chris Barker**	TRANSMITTAL NO:	**035**

To: **State of Vermont Agency of Transportation**
One National Life Drive
Montpelier, VT 05633-5001
(802) 828-0053

Re: Hartford Lateral Slide
Project No.: IM 091-2(79)
Contract ID.: 12A132 County: Windsor PCL FILE NO: 5515002-22

WE ARE SENDING **X** Attached ____ Under separate cover via **Email & SP** the following:
____ Shop drawings ____ Prints ____ Plans ____ Samples ____ Specifications
____ Copy of Letter ____ Change Order **X** Other

COPIES	SPEC.	REVISION	DESCRIPTION
1	**900.645**		**GPS Time Clock Operating Manual**

TRANSMITTED for as checked below:

X For approval ____ Approved as submitted ____ Resubmit **1** Copies for approval
____ For your use ____ Approved as noted ____ Submit ____ Copies for distribution
____ As requested ____ Returned for corrections ____ Return ____ Corrected prints
____ For review and comment

Remarks:

Please return an email of this approved submittal to Erich Heymann (ewheymann@pcl.com) and Jeremy Mackling (jmackling@pcl.com).

We request the review and return of this submittal within 7 days. Please advise if this request cannot be met so we can plan accordingly.

By: **Erich Heymann,** Project Engineer

COPY TO: Project Files

CONSTRUCTION LEADERS

SUBMITTAL NO. : 022
GPS Time Clock Operating Manual

Item No.	Specification	Description
1	900.645	GPS Time Clock Operating Manual

PROJECT:
HARTFORD LATERAL SLIDE
PROJECT NO.: IM 091-2(79)
CONTRACT ID.: 12A132

OWNER:
STATE OF VERMONT AGENCY OF TRANSPORTATION

ENGINEER OF RECORD:
STATE OF VERMONT AGENCY OF TRANSPORTATION

CONTRACTOR:
PCL CIVIL CONSTRUCTORS, INC.

MARCH 10, 2015

3810 Northdale Blvd., Suite 200; Tampa, FL • (813) 264-9500 • (813) 264-6689 (fax)

East Coast Signals

^Traffic Signals ^Highway, Site & Ornamental Lighting

LETTER OF TRANSMITTAL

TO: PCL Civil Constructors	DATE: 3/10/15 ECS JOB NO. 1505	ATTENTION: Jeremy Mackling RE: Hartford Project

WE ARE SENDING YOU X Attached ☐ Under separate cover via _____ the following items:

X Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐ Certificates of Compliance ☐ Contract Documents

Submittal Progress

	Original	Submitted	DESCRIPTION
	1	3/10/15	GPS Installation / Troubleshooting Instructions

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit_____copies for approval
☐ For your use ☐ Approved as noted ☐ Submit _____copies for distribution
X As requested ☐ Returned for corrections ☐ Return_____corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____200___

REMARKS:

COPY TO: _____FILE_____ SIGNED: _____

Matthew S. Fisher
Vice President

If enclosures are not as noted, kindly notify us at once.

69 North Road, Deerfield, NH 03037
Phone: 603.463.5450 Fax: 603. 463. 5451
www.eastcoastsignals.com

TimeSync1-GPS
Installation & Programming Instructions

INSTALLATION

MOUNTING

- **TimeSync1-GPS** Unit
  1) Select location within cabinet and mount 4” length of DIN Rail with provided machine screws.
  2) Clip unit onto DIN Rail. (Mounting clip fits standard 35mm DIN Rail)
- **ANTENNA**
  1) Using the provided drill template, select an area on top of the signal controller cabinet that does not interfere with other devices. NOTE: be sure mounting plate surface is flush so water cannot seep between the plate and cabinet. Mark locations for the mounting bolts and GPS cable.
  2) Drill three 17/64” holes for mounting bolts; one 5/8” hole for GPS cable.
  3) Align GPS mounting plate with drilled holes. Feed cable into cabinet.
  4) Secure plate with provided stainless steel bolts and nuts. (Requires 7/16” wrench)

CONNECTIONS

1) Plug GPS RJ45 cable into jack on unit/module.
2) A pre-wired connector is provided for power and control circuits. Make the following connections prior to plugging into the TimeSync1-GPS unit.
   - Connect BLACK wire to DC ground
   - Connect RED wire to +DC supply (Range: +8-40VDC)
   - Connect YELLOW wire to signal controller time reset input
3) Plug (green) connector into TS1 unit. Unit should power up and display current local time.

PROGRAMMING

Default Screen: ELTEC TS1-GPS (top line). The lower line displays current LOCAL TIME (of set time zone), periodically alternating to display the CURRENT DATE and the programmed RESET TIME. “GPS Bad Signal” will initially display. If GPS antenna is not receiving a strong signal or any signal from the satellite, “GPS Bad Signal” will continue to display. The unit will NOT do a time reset at scheduled time(s) if “GPS Bad Signal” is displayed.

TO NAVIGATE: Use the thumb wheel to select and change all menu parameters. You can scroll UP or DOWN through all menu options.

TO SET PARAMETERS: PRESS on the thumb wheel to select/set the menu parameters. For initial programming, scroll DOWN from the default screen.

CONFIGURATION PARAMETERS

Menu options in order of appearance:

RESET TIME.....**00:00**
CHANGE HOUR?.....To enter menu, PRESS. Scroll UP or DOWN to desired hour.
PRESS to set.
SAVE? .....Scroll thumb wheel to **YES** or **NO**. PRESS to confirm.

RESET TIME.....**00:00**
CHANGE MINUTE?.....To change, PRESS. Scroll UP or Down to desired minute. PRESS to set.
SAVE? .....Scroll thumb wheel to **YES** or **NO**. PRESS to confirm.

TIME ZONE?.....To select, PRESS. Scroll to desired time zone.
(Eastern, Central, Mountain, Pacific, Alaska, Hawaii)
PRESS to set.
SAVE? .....Scroll thumb wheel to **YES** or **NO**. PRESS to confirm.

RESET FREQ? .....To set, PRESS. Scroll to desired frequency.
24 HR.....PRESS to set.

RESET EVERY.....Scroll to desired frequency **(24, 12, 6, 3, HOUR)**
PRESS to set.
SAVE? .....Scroll thumb wheel to **YES** or **NO**. PRESS to confirm.

OBSERVE DST?.....To select, PRESS. (Daylight Savings Time*)
Scroll thumb wheel to **YES** or **NO**
SAVE? .....PRESS to set.

TRIGGER ON?.....To set, PRESS. Scroll to highlight RISING or FALLING
PRESS to set.
SAVE? .....Scroll thumb wheel to **YES** or **NO**. PRESS to confirm.

***T**ime**S**ync**1-GPS** automatically observes Daylight Savings Time. If you're in an area that is not affected by DST, this option allows the programmed function to be turned OFF.

TROUBLE SHOOTING

Blank Display: Unplug green connector from unit, check connection of black and red wires to DC power source (8-40VDC) and meter to verify proper voltage and polarity. Reconnect unit.

No Time Displayed: Check RJ45 antenna connector is properly seated. Unplug and re-plug antenna connection.

Display Locked, Menu Not Accessible or Extraneous Characters Displayed: Power unit off by unplugging green connector. Wait ten seconds and reconnect unit.

GPS Bad Signal Displayed: Allow several minutes at initial power up for GPS antenna to acquire signal.

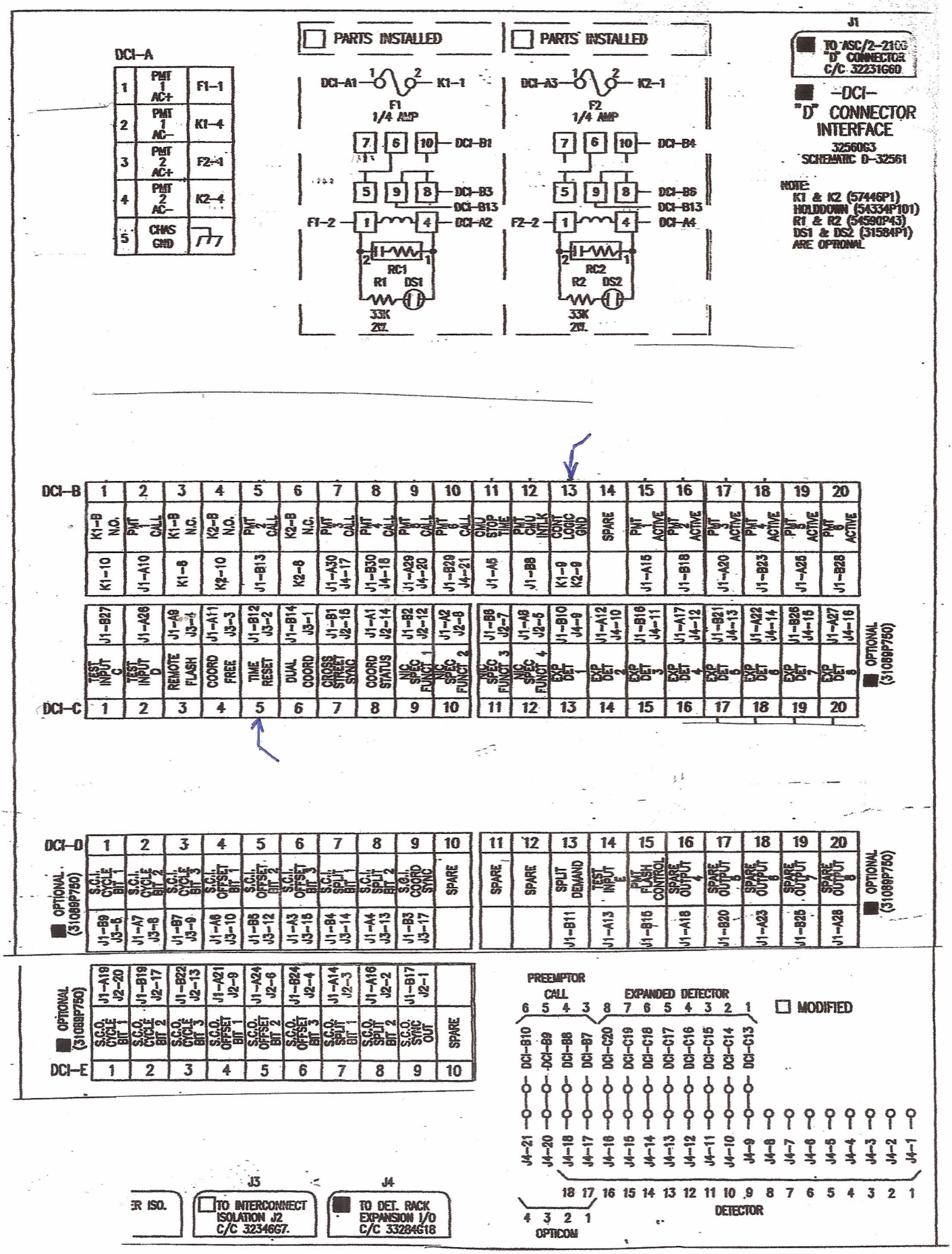
ELECTROTECHNICS CORPORATION
1310 Commerce Street
Marshall, TX 75672

800-227-1734 903-938-1901 Fax 903-938-1977

Technical Support: Company@elteccorp.com
sales@elteccorp.com

Rev. 010610

J1/P1	"D" CONNECTOR INTERFACE PCB	ASC CONTROLLER CABLE "D" ■ C/C 32231G60			
		PIN	FUNCTION	IN	OUT
A1	DCI-C8/J2-14	27	COORD STATUS		DC
A2	DCI-C10/J2-8	8	NIC SPECIAL FUNCTION 2		DC
A3	DCI-D6/J3-15	36	SYSTEM COMMAND INPUT OFFSET BIT 3	DC	
A4	DCI-D8/J3-13	9	SYSTEM COMMAND INPUT SPLIT BIT 2	DC	
A5	DCI-B11	58	CMU STOP TIME	DC	
A6	DCI-D4/J3-10	12	SYSTEM COMMAND INPUT OFFSET BIT 1	DC	
A7	DCI-D2/J3-8	35	SYSTEM COMMAND INPUT CYCLE BIT 2	DC	
A8	DCI-C12/J2-5	11	NIC SPECIAL FUNCTION 4		DC
A9	DCI-C3/J3-4	60	REMOTE FLASH	DC	
A10	DCI-B2	57	PREEMPTOR CALL 1	DC	
A11	DCI-C4/J3-3	26	COORD FREE	DC	
A12	DCI-C14/J4-10	47	EXPANDED DETECTOR 2	DC	
A13	DCI-D14	19	TEST INPUT E	DC	
A14	DCI-E7/J2-3	21	SYSTEM COMMAND OUTPUT SPLIT BIT 1		DC
A15	DCI-B15	23	PREEMPTOR 1 ACTIVE		DC
A16	DCI-E8/J2-2	46	SYSTEM COMMAND OUTPUT SPLIT BIT 2		DC
A17	DCI-C16/J4-12	18	EXPANDED DETECTOR 4	DC	
A18	DCI-D16	41	SPARE OUTPUT 4		DC
A19	DCI-E1/J2-20	43	SYSTEM COMMAND OUTPUT CYCLE BIT 1		DC
A20	DCI-B17	22	PREEMPTOR 3 ACTIVE		DC
A21	DCI-E4/J2-9	33	SYSTEM COMMAND OUTPUT OFFSET BIT 1		DC
A22	DCI-C18/J4-14	39	EXPANDED DETECTOR 6	DC	
A23	DCI-D18	51	SPARE OUTPUT 6		DC
A24	DCI-E5/J2-6	42	SYSTEM COMMAND OUTPUT OFFSET BIT 2		DC
A25	DCI-B19	1	PREEMPTOR 5 ACTIVE		DC
A26	DCI-C2	37	TEST INPUT D	DC	
A27	DCI-C20/J4-16	13	EXPANDED DETECTOR 8	DC	
A28	DCI-D20	54	SPARE OUTPUT 8		DC
A29	DCI-B9/J4-20	56	PREEMPTOR CALL 5	DC	
A30	DCI-B7/J4-17	50	PREEMPTOR CALL 3	DC	
B1	DCI-C7/J2-15	5	CROSS STREET SYNC		DC
B2	DCI-C9/J2-12	28	NIC SPECIAL FUNCTION 1		DC
B3	DCI-D9/J3-17	4	SYSTEM COMMAND INPUT COORD SYNC	DC	
B4	DCI-D7/J3-14	16	SYSTEM COMMAND INPUT SPLIT BIT 1	DC	
B5	DCI-D5/J3-12	10	SYSTEM COMMAND INPUT OFFSET BIT 2	DC	
B6	DCI-C11/J2-7	24	NIC SPECIAL FUNCTION 3		DC
B7	DCI-D3/J3-9	6	SYSTEM COMMAND INPUT CYCLE BIT 3	DC	
B8	DCI-B12	59	PREEMPTOR / CMU INTERLOCK		DC
B9	DCI-D1/J3-5	25	SYSTEM COMMAND INPUT CYCLE BIT 1	DC	
B10	DCI-C13/J4-9	17	EXPANDED DETECTOR 1	DC	
B11	DCI-D13	3	SPLIT DEMAND	DC	
B12	DCI-C5/J3-2	14	TIME RESET	DC	
B13	DCI-B5	49	PREEMPTOR CALL 2	DC	
B14	DCI-C6/J3-1	38	DUAL COORD	DC	
B15	DCI-D15	15	PREEMPTOR FLASH CONTROL		DC
B16	DCI-C15/J4-11	31	EXPANDED DETECTOR 3	DC	
B17	DCI-E9/J2-1	53	SYSTEM COMMAND SYNC OUTPUT		DC
B18	DCI-B16	32	PREEMPTOR 2 ACTIVE		DC
B19	DCI-E2/J2-17	44	SYSTEM COMMAND OUTPUT CYCLE BIT 2		DC
B20	DCI-D17	45	SPARE OUTPUT 5		DC
B21	DCI-C17/J4-13	30	EXPANDED DETECTOR 5	DC	
B22	DCI-E3/J2-13	29	SYSTEM COMMAND OUTPUT CYCLE BIT 3		DC
B23	DCI-B18	34	PREEMPTOR 4 ACTIVE		DC
B24	DCI-E6/J2-4	2	SYSTEM COMMAND OUTPUT OFFSET BIT 3		DC
B25	DCI-D19	52	SPARE OUTPUT 7		DC
B26	DCI-C19/J4-15	40	EXPANDED DETECTOR 7	DC	
B27	DCI-C1	20	TEST INPUT C	DC	
B28	DCI-B20	48	PREEMPTOR 6 ACTIVE		DC
B29	DCI-B10/J4-21	61	PREEMPTOR CALL 6	DC	
B30	DCI-B8/J4-18	55	PREEMPTOR CALL 4	DC	


DCI-A
1 PMT 1 AC+ F1-1
2 PMT 1 AC- K1-4
3 PMT 2 AC+ F2-1
4 PMT 2 AC- K2-4
5 CHAS GND
PARTS INSTALLED
DCI-A1 K1-1
F1 1/4 AMP
DCI-B1
DCI-B3
DCI-B13
F1-2 DCI-A2
RC1
R1 DS1
33K 2W
PARTS INSTALLED
DCI-A3 K2-1
F2 1/4 AMP
DCI-B4
DCI-B6
DCI-B13
F2-2 DCI-A4
RC2
R2 DS2
33K 2W
J1
TO ASC/2-2100 "D" CONNECTOR C/C 32231G60
-DCI-
"D" CONNECTOR INTERFACE
32560G3
SCHEMATIC D-32561
NOTE:
K1 & K2 (57446P1)
HOLDDOWN (54334P101)
R1 & R2 (54590P43)
DS1 & DS2 (31584P1)
ARE OPTIONAL
DCI-B
1 K1-B N.O. K1-10
2 PMT 1 CALL J1-A10
3 K1-B N.C. K1-8
4 K2-B N.O. K2-10
5 PMT 2 CALL J1-B13
6 K2-B N.C. K2-8
7 PMT 3 CALL J1-A30 J4-17
8 PMT 4 CALL J1-B30 J4-18
9 PMT 5 CALL J1-A29 J4-20
10 PMT 6 CALL J1-B29 J4-21
11 CHU STOP TIME J1-A5
12 PMT CHU INT-K J1-B8
13 CONT LOGIC GND K1-9 K2-9
14 SPARE
15 PMT 1 ACTIVE J1-A15
16 PMT 2 ACTIVE J1-B18
17 PMT 3 ACTIVE J1-A20
18 PMT 4 ACTIVE J1-B23
19 PMT 5 ACTIVE J1-A26
20 PMT 6 ACTIVE J1-B28
DCI-C
1 TEST INPUT C J1-B27
2 TEST INPUT D J1-A26
3 REMOTE FLASH J1-A9 J3-4
4 COORD FREE J1-A11 J3-3
5 TIME RESET J1-B12 J3-2
6 DUAL COORD J1-B14 J3-1
7 CROSS STREET SYNC J1-B1 J2-16
8 COORD STATUS J1-A1 J2-14
9 NIC SPEC FUNCT 1 J1-B2 J2-12
10 NIC SPEC FUNCT 2 J1-A2 J2-8
11 NIC SPEC FUNCT 3 J1-B8 J2-7
12 NIC SPEC FUNCT 4 J1-A8 J2-5
13 EXP DET 1 J1-B10 J4-9
14 EXP DET 2 J1-A12 J4-10
15 EXP DET 3 J1-B16 J4-11
16 EXP DET 4 J1-A17 J4-12
17 EXP DET 5 J1-B21 J4-13
18 EXP DET 6 J1-A22 J4-14
19 EXP DET 7 J1-B26 J4-15
20 EXP DET 8 J1-A27 J4-16
OPTIONAL (31089P750)
DCI-D
OPTIONAL (31089P750)
1 S.C.I. CYCLE BIT 1 J1-B9 J3-6
2 S.C.I. CYCLE BIT 2 J1-A7 J3-8
3 S.C.I. CYCLE BIT 3 J1-B7 J3-9
4 S.C.I. OFFSET BIT 1 J1-A6 J3-10
5 S.C.I. OFFSET BIT 2 J1-B6 J3-12
6 S.C.I. OFFSET BIT 3 J1-A3 J3-15
7 S.C.I. SPLIT BIT 1 J1-B4 J3-14
8 S.C.I. SPLIT BIT 2 J1-A4 J3-13
9 S.C.I. COORD SYNC J1-B3 J3-17
10 SPARE
11 SPARE
12 SPARE
13 SPLIT DEMAND J1-B11
14 TEST INPUT E J1-A13
15 PMT FLASH CONTROL J1-B15
16 SPARE OUTPUT 4 J1-A18
17 SPARE OUTPUT 5 J1-B20
18 SPARE OUTPUT 6 J1-A23
19 SPARE OUTPUT 7 J1-B25
20 SPARE OUTPUT 8 J1-A28
OPTIONAL (31089P750)
DCI-E
OPTIONAL (31089P750)
1 S.C.O. CYCLE BIT 1 J1-A19 J2-20
2 S.C.O. CYCLE BIT 2 J1-B19 J2-17
3 S.C.O. CYCLE BIT 3 J1-B22 J2-13
4 S.C.O. OFFSET BIT 1 J1-A21 J2-9
5 S.C.O. OFFSET BIT 2 J1-A24 J2-6
6 S.C.O. OFFSET BIT 3 J1-B24 J2-4
7 S.C.O. SPLIT BIT 1 J1-A14 J2-3
8 S.C.O. SPLIT BIT 2 J1-A16 J2-2
9 S.C.O. SYNC OUT J1-B17 J2-1
10 SPARE
PREEMPTOR CALL
EXPANDED DETECTOR
6 5 4 3 8 7 6 5 4 3 2 1
DCI-B10 DCI-B9 DCI-B8 DCI-B7 DCI-C20 DCI-C19 DCI-C18 DCI-C17 DCI-C16 DCI-C15 DCI-C14 DCI-C13
J4-21 J4-20 J4-18 J4-17 J4-16 J4-15 J4-14 J4-13 J4-12 J4-11 J4-10 J4-9 J4-8 J4-7 J4-6 J4-5 J4-4 J4-3 J4-2 J4-1
18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
DETECTOR
4 3 2 1
OPTICOM
MODIFIED
ER ISO.
J3
TO INTERCONNECT ISOLATION J2 C/C 32346G7.
J4
TO DET. RACK EXPANSION I/O C/C 33284G18