

MAIN PANEL:171-1081-504

COBALT TS2 TYPE 2 CONTROLLER WITH:

- CONFIGURATION: 3000(3604)
- SOFTWARE: EOS 03.02.91
- ETHERNET MODULE

□ OVERLAPS

A =
B =
C =
D =
E =
F =
G =
H =

- TELEMETRY MODULE
- INTERNAL RS-232 TELEMETRY
- TEST INPUT A =
- TEST INPUT B =

LEGEND	
BIU	BUS INTERFACE UNIT
BU()	C/C, BIU ()
CB()	CIRCUIT BREAKER ()
C/C	CONNECTING CABLE
CCA	CONTROLLER CABLE "A"
CDP	C/C, DR POWER
CMA	MMU/CMU CABLE "A"
CMB	MMU/CMU CABLE "B"
CPO	C/C PRE-EMPT OUTPUTS
CPP	C/C PRE-EMPT POWER
DR	DETECTOR RACK
DS()	DOOR SWITCH ()
FL()	FLASHER ()
FR()	FLASH XFER. RELAY
LS()	LOAD SWITCH
MC	MERCURY CONTACTOR
MP	MAIN PANEL
PAP	POWER-AUX PANEL
PSP	CAB. PWR. SUPPLY
SA	SURGE ARRESTOR
TB-()	TERM. BLOCK ()

FLASHER	
PIN	FUNCTION
7	CIRCUIT #1
8	CIRCUIT #2
9	CHASSIS GND
10	AC COMMON
11	115 VAC
12	-----

LOAD SWITCH	
PIN	FUNCTION
1	115 VAC
2	CHASSIS GND
3	RED/DW OUTPUT
4	-----
5	YEL OUTPUT
6	RED/DW INPUT
7	GRN/W OUTPUT
8	YEL INPUT
9	+24 VDC
10	GRN/W INPUT
11	AC COMMON
12	-----

① 2.2K 10W

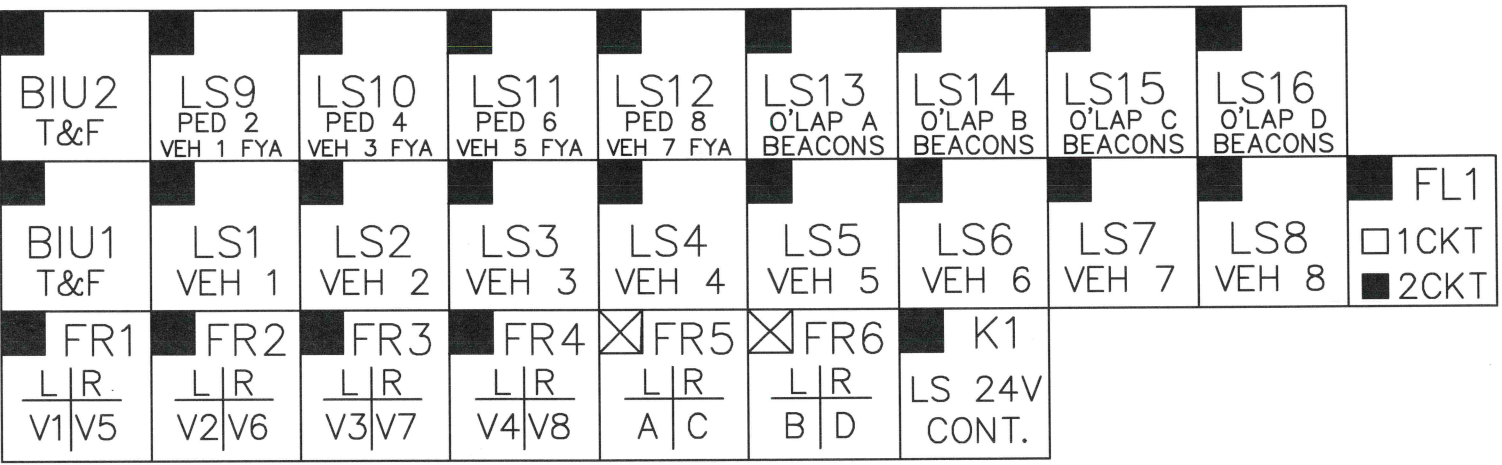
3 USE ONLY COPPER CONDUCTORS FOR FIELD AND SERVICE CONNECTIONS.

2 CONNECT A.C. SERVICE TO TERMINAL BLOCK 501 (LINE), 502 (NEUTRAL) AND GB2 (EARTH) ON RIGHT SIDEWALL OF CABINET.

① INSTALL 2.2K, 10 WATT LOAD RESISTORS BETWEEN PINS 7 AND 11 ON LOAD SWITCHES 9, 10, 11 & 12.

NOTES: UNLESS SPECIFIED OTHERWISE

MAIN PANEL PLUG-IN REQUIREMENTS



■ DENOTES TYPE OF OPERATION AND/OR WHERE PLUG-IN IS REQUIRED. L = LEFT, R = RIGHT.

⊗ DENOTES WHERE "UNUSED RED" JUMPER PART NUMBER 32448G1 IS REQUIRED. INSTALL BETWEEN PINS 1 & 3 FOR LOAD SWITCH OR PINS 6 & 8 AND 5 & 7 FOR FLASH TRANSFER RELAY.

FLASH:

□ ø2&6 YELLOW, ALL OTHERS RED.

■ ALL RED.

■ RELAYS DE-ENERGIZED FOR FLASH.

□ RELAYS ENERGIZED FOR FLASH.

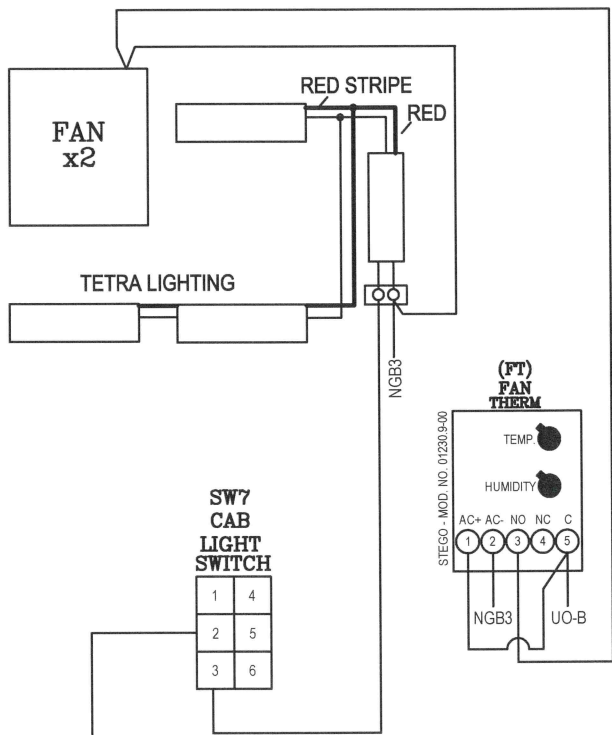
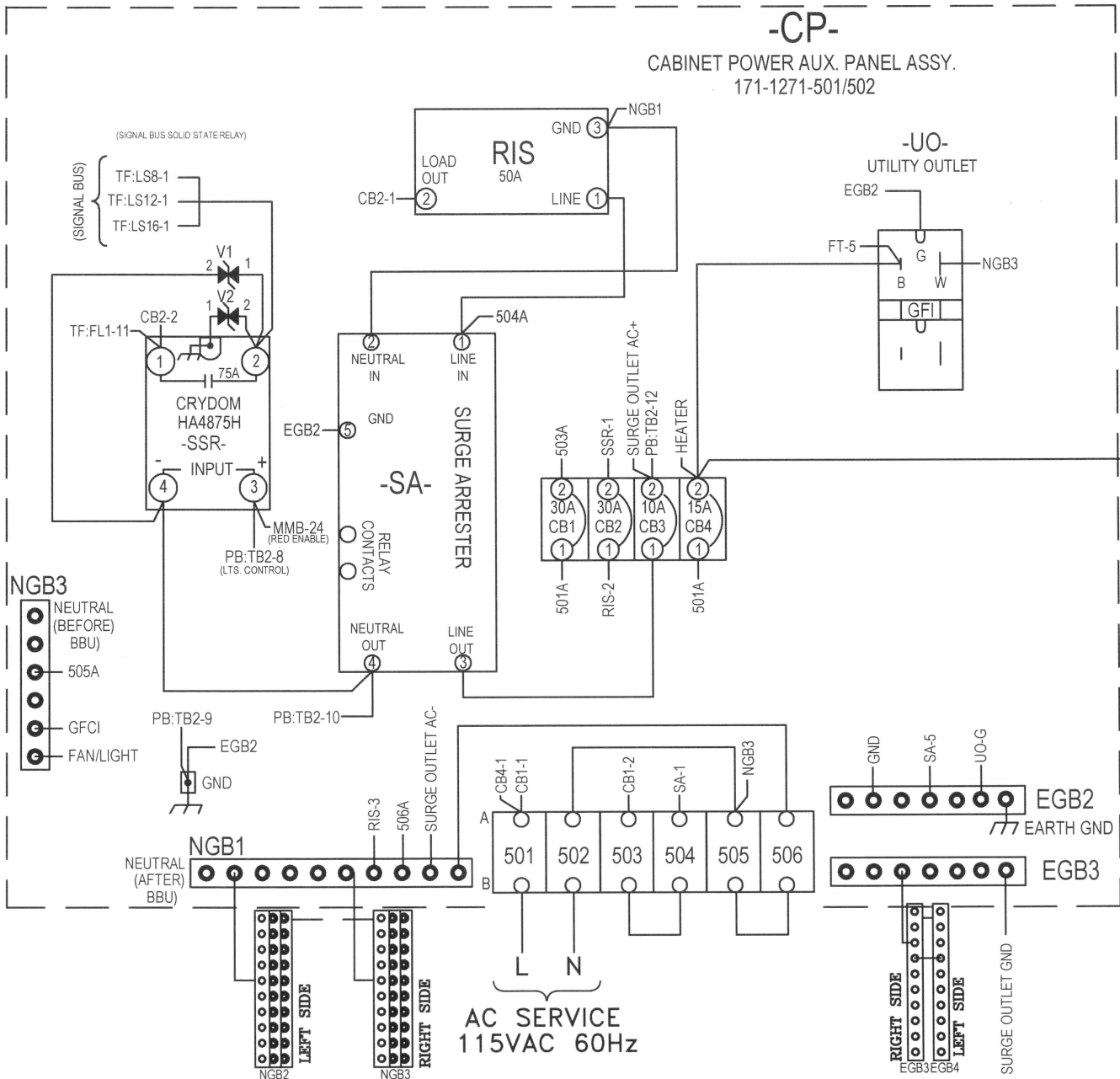
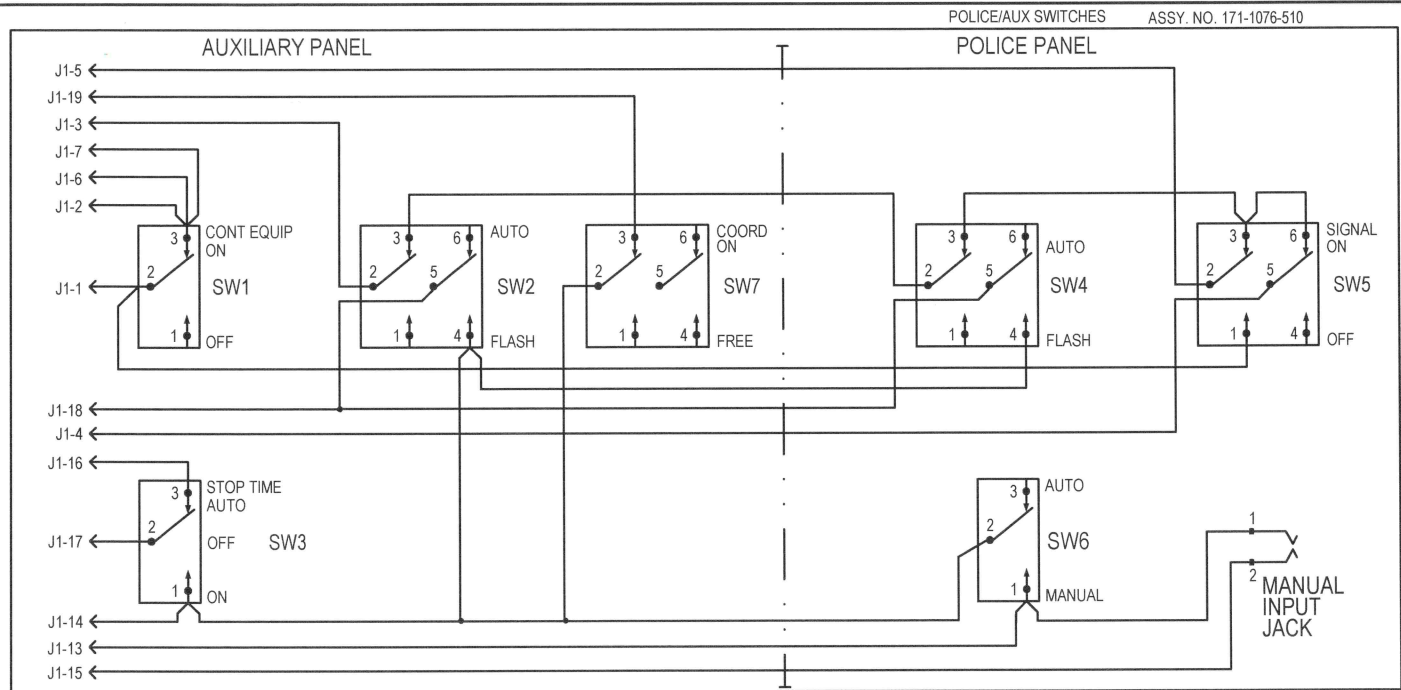
120V+	950	TB2-12 (BLK)
120V-	951	TB2-10 (WHT)
120V-	952	
2W	953	-9G-A (RED-9C)
2DW	954	-9R-A (BLK-9C)
4W	955	-10G-A (BLU-9C)
4DW	956	-10R-A (BRN-9C)
6W	957	-11G-A (ORG-9C)
6DW	958	-11R-A (YEL-9C)
8W	959	-12G-A (PUR-9C)
8DW	960	-12R-A (WHT-9C)
SPARE	961	
SPARE	962	
GRND	963	TB2-9 (GRN)
GRND	964	
PC-2	965	-PC2-A (RED-4C)
PC-4	966	-PC4-A (BLK-4C)
PC-6	967	-PC6-A (GRN-4C)
PC-8	968	-PC8-A (WHT-4C)
SPARE	969	

PEDESTRIAN PUSHBUTTON/SIGNAL INTERFACE

SHEET 1 OF 7

DRAWN CM TCC	3/3/2026
CABINET SIZE	77"
INSPECTED	
APPROVED	
CUSTOMER P.O.	

 ECONOLITE CONTROL PRODUCTS INC.		 TRAFFIC CONTROL CORPORATION		10435 ARGONNE WOODS DR. WOODRIDGE, IL 60517
CABINET SPECIFICATION: TS2TYPE1 ANOKA COUNTY SPEC PLUG AND GO			CONTROLLER	
CUSTOMER: ANOKA COUNTY			FLASHER	
INTERSECTION: CSAH#17 AT CSAH#32			SW.PACKS	
LOCATION:				
INSTALLED BY ANOKA COUNTY HWY DEPT.		SALES ORDER NO.	SIZE B	DRAWING #



J3-36	1
MMB-1	2
MMA-37	3
K1-10	4
FR6-2	5
MMB-2	6
MMA-20	7
	8
	9
	10
	11
	12
A-39	13
A-35	14
A-40	15
A-31	16
A-30	17
A-32	18
A-38	19
A-33	20
A-34	21
K1-9	22
B-3	23
B-4	24
	25
A-35	26
K1-11	27
	28
J1-31B	29
	30
J1-27B	31
K1-10	32
	33
K1-2	34
MMB-18	35
J3-1	36
(N/U)	37

(MAIN PANEL & C/C REFERENCES ONLY)

TO/FROM POLICE-AUXILIARY SWITCH PANEL	
PIN	FUNCTION
1	FILTER AC LINE (OUT)
2	SWITCHED AC LINE (IN)
3	FLASH CONTROL BUS (OUT)
4	SIGNAL BUS CONTROL (IN)
5	FLASH RELAY CONTROL (IN)
6	START DELAY AC BUS (IN)
7	MMU FLASH CONTROL BUS (IN)
8	SPARE
9	SPARE
10	SPARE
11	SPARE
12	SPARE
13	MANUAL CONT. ENABLE (IN)
14	LOGIC GROUND
15	OPT-INTERVAL ADVANCE (IN)
16	MMU STOP TIME (OUT)
17	CONTROLLER STOP TIME (IN)
18	LOCAL FLASH STATUS (IN)
19	COORD FREE (IN)
20	ALARM 1 (IN)
21	ALARM 2 (IN)
22	LOADSWITCH TEST (IN)
23	MMU 24 VOLT MON. 2 (IN)
24	+24 VDC
25	LOGIC GROUND
26	+24 VDC (IN)
27	---
28	MMU FAULT MONITOR (IN)
29	LINE FREQ. REFERENCE (IN)
30	---
31	12 VAC (IN)
32	SIGNAL BUS CONTROL (IN)
33	---
34	FILTERED AC NEUTRAL (IN)
35	CONT. EQUIP. AC LINE (OUT)
36	FILTERED AC LINE (IN)
37	---

TO: POL/AUX ASSY.

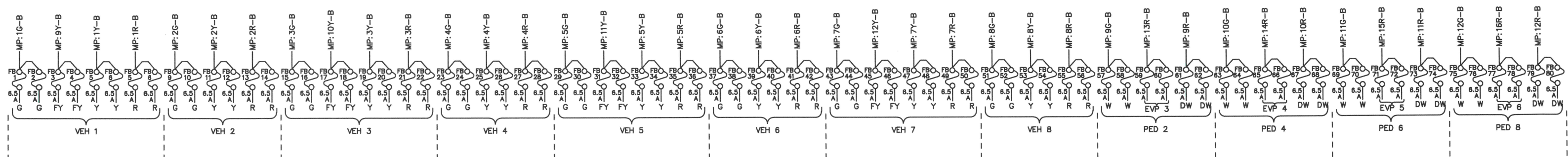
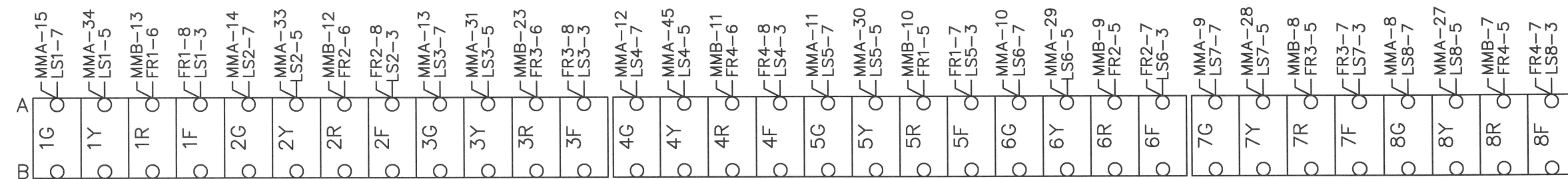
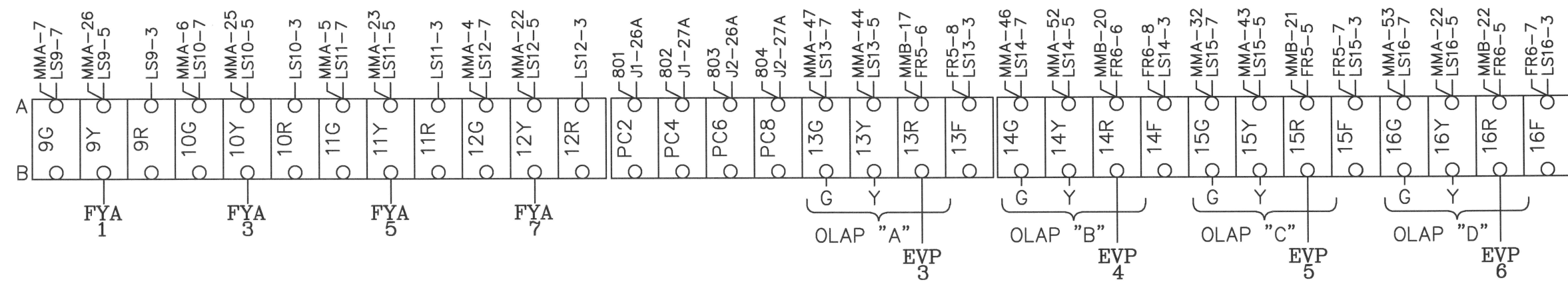
TO: PBA

MP P3	MAIN PANEL/CONTROLLER PWR. C/C 171-1676-504	TO POL/AUX P1
PIN	FUNCTION	PIN
1	FILTER AC LINE (OUT)	1
2	SWITCHED AC LINE (IN)	2
3	FLASH CONTROL BUS (OUT)	3
4	SIGNAL BUS CONTROL (IN)	4
5	FLASH RELAY CONTROL (IN)	5
6	START DELAY AC BUS (IN)	6
7	MMU FLASH CONTROL BUS (IN)	7
8	SPARE	8
9	SPARE	9
10	SPARE	10
11	SPARE	11
12	SPARE	12
13	OPT-MANUAL CONT. ENABLE (IN)	13
14	LOGIC GROUND	14
15	OPT-INTERVAL ADVANCE (IN)	15
16	MMU STOP TIME (OUT)	16
17	CONTROLLER STOP TIME (IN)	17
18	LOCAL FLASH STATUS (IN)	18
19	OPT-COORD FREE (IN)	19
20	OPT-ALARM 1 (IN)	20
21	OPT-ALARM 2 (IN)	21
22	OPT-LOADSWITCH TEST (IN)	22
23	MMU 24 VOLT MON. 2 (IN)	23
24	+24 VDC	24
PART OF 171-1076-504		TO PB:(JX)
25	LOGIC GROUND	1
26	+24 VDC (IN)	2
27	(N/U)	3
28	MMU FAULT MONITOR (IN)	4
29	LINE FREQ. REFERENCE (IN)	5
30	(N/U)	6
31	12 VAC (IN)	7
32	SIGNAL BUS CONTROL (IN)	8
33	(N/U)	9
34	FILTERED AC NEUTRAL (IN)	10
35	CONT. EQUIP. AC LINE (OUT)	11
36	FILTERED AC LINE (IN)	12
37	(N/U)	13
		14

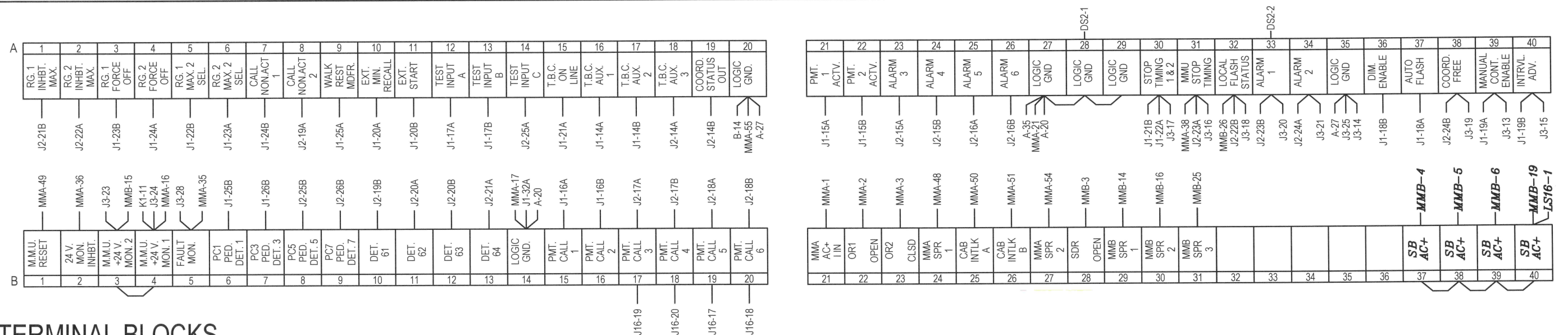
POLICE/AUXILIARY SWITCH PANEL		
J1	PIN	FUNCTION
	1	FILTER AC LINE (IN)
	2	SWITCHED AC LINE (OUT)
	3	FLASH CONTROL BUS (IN)
	4	SIGNAL BUS CONTROL (OUT)
	5	FLASH RELAY CONTROL (OUT)
	6	START DELAY BUS (OUT)
	7	MMU FLASH CONTROL BUS (OUT)
	8	SPARE
	9	SPARE
	10	SPARE
	11	SPARE
	12	SPARE
	13	MANUAL CONT. ENABLE (OUT)
	14	LOGIC GROUND
	15	INTERVAL ADVANCE (OUT)
	16	MMU STOP TIME (IN)
	17	CONTROLLER STOP TIME (OUT)
	18	LOCAL FLASH STATUS (OUT)
	19	COORD FREE (OUT)
	20	ALARM 1 (OUT)
	21	ALARM 2 (OUT)
	22	LOADSWITCH TEST (OUT)
	23	MMU 24 VOLT MON. 2 (OUT)
	24	+24 VDC (IN)
		TO
	1	SW1-2
	2	SW1-3
	3	SW2-2
	4	SW5-5
	5	SW5-2
	6	SW1-3
	7	SW1-3
	8	---
	9	---
	10	---
	11	---
	12	---
	13	SW6-1
	14	SW3-1
	15	MIJ-2
	16	SW3-3
	17	SW3-2
	18	SW2-5
	19	---
	20	---
	21	---
	22	---
	23	---
	24	---

EVP 3 = 1-6
EVP 4 = 2-5
EVP 5 = 3-8
EVP 6 = 4-7

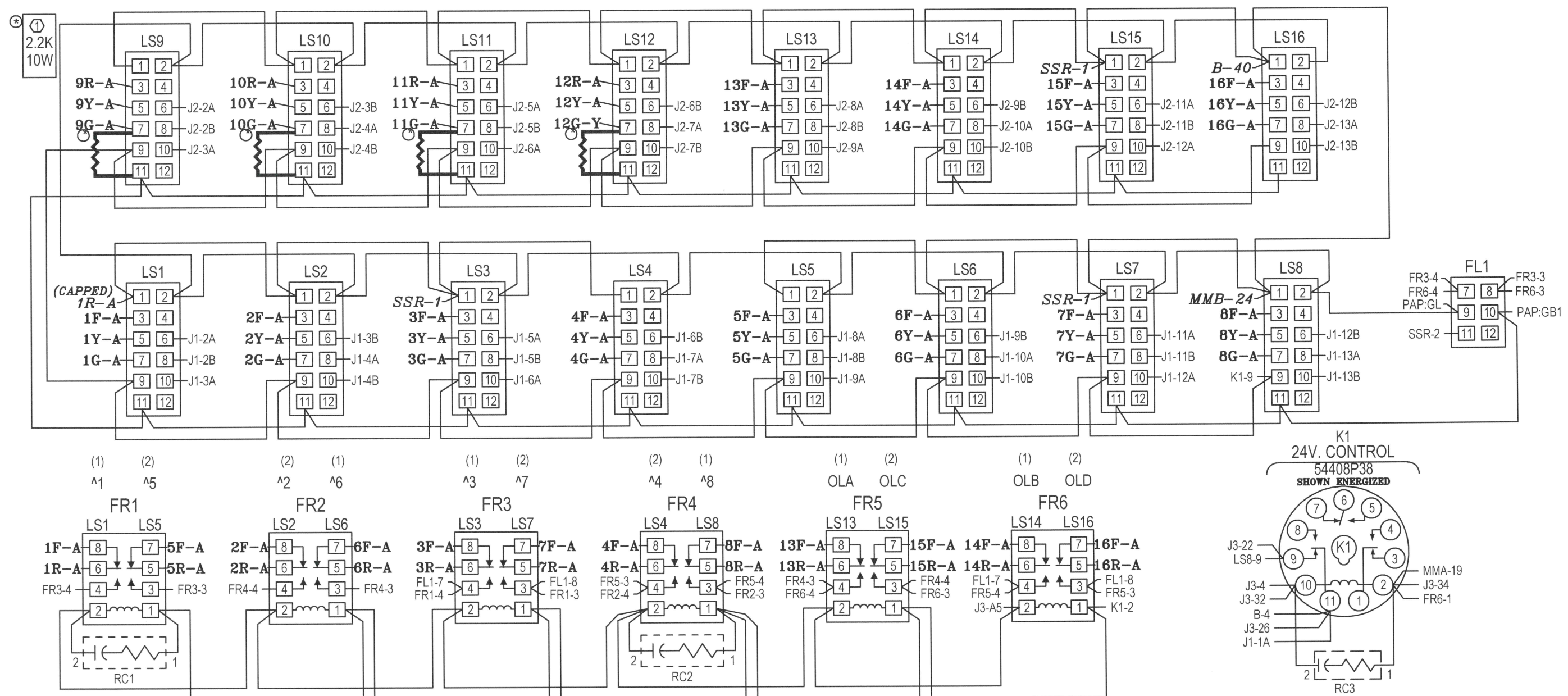
γ_B = MONITOR WIRE TIED BACK



SIGNAL FIELD TERMINALS



INTERFACE TERMINAL BLOCKS



BIU #1		
PIN	FUNCTION	TO
1A	+24 VDC	K1-11
1B	+24 VDC	J2-1B
2A	LS1 RED	LS1-6
2B	LS1 YELLOW	LS1-8
3A	LS1 GREEN	LS1-10
3B	LS2 RED	LS2-6
4A	LS2 YELLOW	LS2-8
4B	LS2 GREEN	LS2-10
5A	LS3 RED	LS3-6
5B	LS3 YELLOW	LS3-8
6A	LS3 GREEN	LS3-10
6B	LS4 RED	LS4-6
7A	LS4 YELLOW	LS4-8
7B	LS4 GREEN	LS4-10
8A	LS5 RED	LS5-6
8B	LS5 YELLOW	LS5-8
9A	LS5 GREEN	LS5-10
9B	LS6 RED	LS6-6
10A	LS6 YELLOW	LS6-8
10B	LS6 GREEN	LS6-10
11A	LS7 RED	LS7-6
11B	LS7 YELLOW	LS7-8
12A	LS7 GREEN	LS7-10
12B	LS8 RED	LS8-6
13A	LS8 YELLOW	LS8-8
13B	LS8 GREEN	LS8-10
14A	TBC AUX 1	A-16
14B	TBC AUX 2	A-17
15A	PMT ACT 1	A-21
15B	PMT ACT 2	A-22
16A	PMT CALL 1	B-15
16B	PMT CALL 2	B-16
17A	TEST A	A-12
17B	TEST B	A-13
18A	AUTO FLASH	A-37
18B	DIM. ENABLE	A-36
19A	MANUAL CONT.	A-39
19B	INT. ADVANCE	A-40
20A	EXT. MIN. RECALL	A-10
20B	EXT. START	A-11
21A	TBC ONLINE	A-15
21B	STOP TIME (1)	A-30
22A	STOP TIME (2)	A-30
22B	MAX. 2 (1)	A-5
23A	MAX. 2 (2)	A-6
23B	FORCE OFF (1)	A-3
24A	FORCE OFF (2)	A-4
24B	CNA 1	A-7
25A	WALK REST MOD.	A-9
25B	PED. ISO. 1	B-6
26A	PED. ISO. 2	PC2-A
26B	PED. ISO. 3	B-7
27A	PED. ISO. 4	PC4-A
27B	PED. ISO. COMN.	J3-D1
28A	ADDR. SEL. 0	----
28B	ADDR. SEL. 1	----
29A	ADDR. SEL. 2	----
29B	ADDR. SEL. 3	----
30A	RESERVED	----
30B	RESERVED	----
31A	EARTH GND.	LS12-2
31B	LINE FREQ. REF.	J3-C9
32A	LOGIC GND.	B-14
32B	LOGIC GND.	J2-32A

BIU #2		
PIN	FUNCTION	TO
1A	+24 VDC	J2-1B
1B	+24 VDC	J1-1B
2A	LS9 RED	LS9-6
2B	LS9 YELLOW	LS9-8
3A	LS9 GREEN	LS9-10
3B	LS10 RED	LS10-6
4A	LS10 YELLOW	LS10-8
4B	LS10 GREEN	LS10-10
5A	LS11 RED	LS11-6
5B	LS11 YELLOW	LS11-8
6A	LS11 GREEN	LS11-10
6B	LS12 RED	LS12-6
7A	LS12 YELLOW	LS12-8
7B	LS12 GREEN	LS12-10
8A	LS13 RED	LS13-6
8B	LS13 YELLOW	LS13-8
9A	LS13 GREEN	LS13-10
9B	LS14 RED	LS14-6
10A	LS14 YELLOW	LS14-8
10B	LS14 GREEN	LS14-10
11A	LS15 RED	LS15-6
11B	LS15 YELLOW	LS15-8
12A	LS15 GREEN	LS15-10
12B	LS16-RED	LS16-6
13A	LS16-YELLOW	LS16-8
13B	LS16-GREEN	LS16-10
14A	TBC AUX 3	A-18
14B	COORD. STATUS	A-19
15A	ALARM 3	A-23
15B	ALARM 4	A-24
16A	ALARM 5	A-25
16B	ALARM 6	A-26
17A	PMT CALL 3	B-17
17B	PMT CALL 4	B-18
18A	PMT CALL 5	B-19
18B	PMT CALL 6	B-20
19A	CNA 2	A-8
19B	SPARE 1	B-10
20A	SPARE 2	B-11
20B	SPARE 3	B-12
21A	SPARE 4	B-13
21B	INHIBIT MAX (1)	A-1
22A	INHIBIT MAX (2)	A-2
22B	LOCAL FLASH	A-32
23A	MMU FLASH	A-31
23B	ALARM 1	A-33
24A	ALARM 2	A-34
24B	COORD FREE IN	A-38
25A	TEST C	A-14
25B	PED. ISO. 5	B-8
26A	PED. ISO. 6	PC6-A
26B	PED. ISO. 7	B-9
27A	PED. ISO. 8	PC8-A
27B	PED. ISO. COMN.	J1-27B
28A	ADDR. SEL. 0	J2-32A
28B	ADDR. SEL. 1	----
29A	ADDR. SEL. 2	----
29B	ADDR. SEL. 3	----
30A	RESERVED	----
30B	RESERVED	----
31A	EARTH GND.	J1-31A
31B	LINE FREQ. REF.	J1-31B
32A	LOGIC GND.	J1-32B
32B	LOGIC GND.	J2-32A

DETECTOR BIU	
PIN	FUNCTION
1A	+24 VDC
1B	+24 VDC
2A	-----
2B	-----
3A	-----
3B	-----
4A	-----
4B	-----
5A	-----
5B	-----
6A	-----
6B	-----
7A	-----
7B	-----
8A	-----
8B	-----
9A	-----
9B	-----
10A	CH. 1 CALL
10B	CH. 2 CALL
11A	CH. 3 CALL
11B	CH. 4 CALL
12A	CH. 5 CALL
12B	CH. 6 CALL
13A	CH. 7 CALL
13B	CH. 8 CALL
14A	CH. 9 CALL
14B	CH. 10 CALL
15A	CH. 11 CALL
15B	CH. 12 CALL
16A	CH. 13 CALL
16B	CH. 14 CALL
17A	CH. 15 CALL
17B	CH. 16 CALL
18A	CH. 1 FAULT STATUS
18B	CH. 2 FAULT STATUS
19A	CH. 3 FAULT STATUS
19B	CH. 4 FAULT STATUS
20A	CH. 5 FAULT STATUS
20B	CH. 6 FAULT STATUS
21A	CH. 7 FAULT STATUS
21B	CH. 8 FAULT STATUS
22A	CH. 9 FAULT STATUS
22B	CH. 10 FAULT STATUS
23A	CH. 11 FAULT STATUS
23B	CH. 12 FAULT STATUS
24A	CH. 13 FAULT STATUS
24B	CH. 14 FAULT STATUS
25A	CH. 15 FAULT STATUS
25B	CH. 16 FAULT STATUS
26A	-----
26B	-----
27A	-----
27B	-----
28A	ADDR. SEL. 0
28B	ADDR. SEL. 1
29A	ADDR. SEL. 2
29B	ADDR. SEL. 3
30A	-----
30B	-----
31A	EARTH GND.
31B	LINE FREQ. REF.
32A	LOGIC GND.
32B	LOGIC GND.

MAIN PANEL CONTROL POWER C/C 171-1676-504	
PIN	FUNCTION
1	LOGIC GROUND
2	+24 VDC (IN)
3	----
4	MMU FAULT MONITOR (IN)
5	LINE FREQ. REFERENCE (IN)
6	----
7	+12 VAC (IN)
8	SIGNAL BUS CONTROL (IN)
9	----
10	FILTERED AC NEUTRAL (IN)
11	CONT. EQUIP. AC LINE (OUT)
12	FILTERED AC LINE (IN)
13	----
14	----

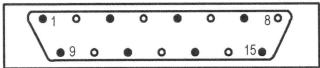
CONTROLLER POWER (CCA2) C/C 171-1676-503			
WIRE	PIN	SIGNAL	TO
1	A	FAULT MONITOR	PB-4
2	U	AC NEUTRAL	PB-10
3	V	EARTH GROUND	PB-9
4	W	LOGIC GROUND	PB-1
5	p	AC LINE	PB-11
6	SHL	EARTH GROUND	CCA2-V

TYPE 1 CONTROLLER POWER C/C 171-1676-502		
PIN	FUNCTION	TO
A	AC NEUTRAL	PB-10
B	----	----
C	AC LINE	PB-11
D	----	----
E	----	----
F	FAULT MON.	PB-4
G	LOGIC GND.	PB-1
H	EARTH GND.	PB-9
I	----	----
J	----	----
SHL	EARTH GND.	PB-6

CABINET POWER SUPPLY C/C 171-1676-511		
PIN	FUNCTION	TO
A	AC NEUTRAL	PB-10
B	LINE FREQUENCY REF.	PB-5
C	AC LINE	PB-11
D	+12 VDC	PB-3
E	+24 VDC	PB-2
F	RESERVED	----
G	LOGIC GND.	PB-1
H	EARTH GND.	PB-9
I	+12 VAC	PB-7
J	RESERVED	----
SHL	EARTH GND.	PIN H

CONTROLLER PORT 1 CONNECTOR			
PIN	SIGNAL	TO	FUNCTION
1	TWISTED PAIR 1+	SDLC-1	CONT TXD+
2	LOGIC GND.	----	----
3	TWISTED PAIR 2+	SDLC-4	CONT TXC+
4	LOGIC GND.	----	----
5	TWISTED PAIR 3+	SDLC-7	CONT RXD+
6	LOGIC GND.	----	----
7	TWISTED PAIR 4+	SDLC-10	CONT RXC+
8	LOGIC GND.	----	----
9	TWISTED PAIR 1-	SDLC-2	CONT TXD-
10	PORT 1 DISABLE	----	----
11	TWISTED PAIR 2-	SDLC-5	CONT TXC-
12	EARTH GND.	SHIELD WIRE	CONT RXD-
13	TWISTED PAIR 3-	SDLC-8	CONT RXD-
14	RESERVED	----	----
15	TWISTED PAIR 4-	SDLC-11	CONT RXC-

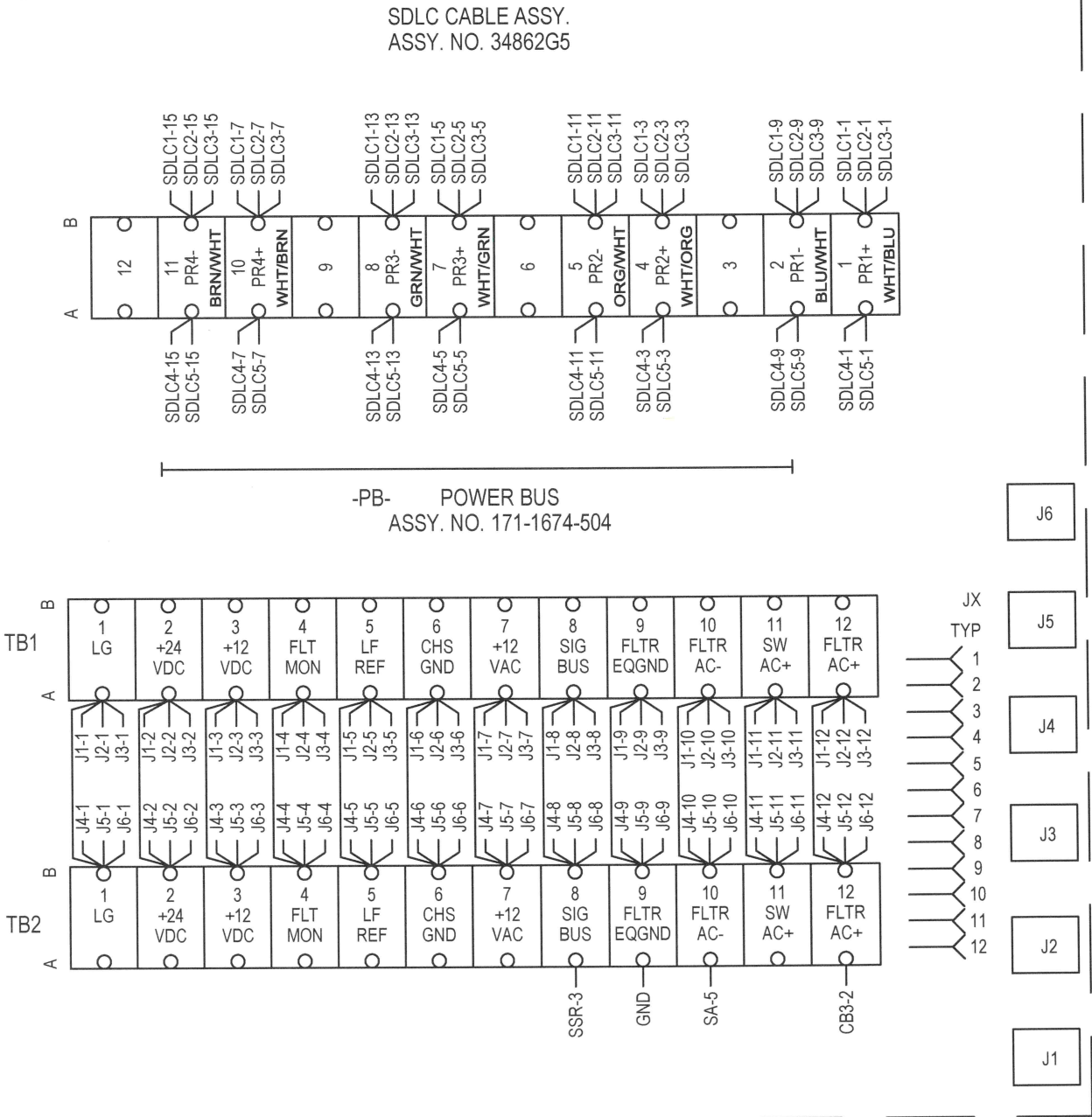
MMU & BIU PORT 1 CONNECTOR			
PIN	SIGNAL	TO	FUNCTION
1	TWISTED PAIR 1+	SDLC-1	BIU RXD+
2	LOGIC GND.	----	----
3	TWISTED PAIR 2+	SDLC-4	BIU RXC+
4	LOGIC GND.	----	----
5	TWISTED PAIR 3+	SDLC-7	BIU TXD+
6	LOGIC GND.	----	----
7	TWISTED PAIR 4+	SDLC-10	BIU TXC+
8	LOGIC GND.	----	----
9	TWISTED PAIR 1-	SDLC-2	BIU RXD-
10	PORT 1 DISABLE	----	----
11	TWISTED PAIR 2-	SDLC-5	BIU RXC-
12	EARTH GND.	SHIELD WIRE	BIU TXD-
13	TWISTED PAIR 3-	SDLC-8	BIU TXD-
14	RESERVED	----	----
15	TWISTED PAIR 4-	SDLC-11	BIU TXC-



FRONT VIEW OF BU1 - BU5



FRONT VIEW OF J1-J6



SDLC CABLE ASSY.
ASSY. NO. 34862G5

-PB- POWER BUS
ASSY. NO. 171-1674-504

BIU AND CONNECTING CABLES

WIRE LIST FOR NEMA MALFUNCTION MANAGEMENT UNIT																																																									
CONNECTOR "A" (MMA)					CONNECTOR "B" (MMB)																																																				
PIN	WIRE	MON. FUNCTION	TO	SIG. FUNCTION	PIN	WIRE	MON. FUNCTION	TO	SIG. FUNCTION																																																
A	A-1	AC+ I INPUT	B21		A	B-1	AC+ II INPUT	J3-A2	MMU POWER																																																
B	A-2	OUT RLY 1 OPEN	B22		B	B-2	S. DLY RLY COMM.	J3-A6	MMU POWER																																																
C	A-3	OUT RLY 2 CLSD	B23		C	B-3	S. DLY RLY OPEN	B28																																																	
D	A-4	CH. 12 GREEN	12G-A	^8 WLK	D	B-4	CH. 12 RED	B40																																																	
E	A-5	CH. 11 GREEN	11G-A	^6 WLK	E	B-5	CH. 11 RED	B39																																																	
F	A-6	CH. 10 GREEN	10G-A	^4 WLK	F	B-6	CH. 9 RED	B37																																																	
G	A-7	CH. 9 GREEN	9G-A	^2 WLK	G	B-7	CH. 8 RED	8R-A	^8 RED																																																
H	A-8	CH. 8 GREEN	8G-A	^8 GRN	H	B-8	CH. 7 RED	7R-A	^7 RED																																																
J	A-9	CH. 7 GREEN	7G-A	^7 GRN	J	B-9	CH. 6 RED	6R-A	^6 RED																																																
K	A-10	CH. 6 GREEN	6G-A	^6 GRN	K	B-10	CH. 5 RED	5R-A	^5 RED																																																
L	A-11	CH. 5 GREEN	5G-A	^5 GRN	L	B-11	CH. 4 RED	4R-A	^4 RED																																																
M	A-12	CH. 4 GREEN	4G-A	^4 GRN	M	B-12	CH. 2 RED	2R-A	^2 RED																																																
N	A-13	CH. 3 GREEN	3G-A	^3 GRN	N	B-13	CH. 1 RED	1R-A	^1 RED																																																
P	A-14	CH. 2 GREEN	2G-A	^2 GRN	P	B-14	(SPARE 1)	B29																																																	
R	A-15	CH. 1 GREEN	1G-A	^1 GRN	R	B-15	+24V MONITOR II	B-3	+24V MON. II																																																
S	A-16	+24V MON. I	B-4	LS +24V MON.	S	B-16	(SPARE 2)	B30																																																	
T	A-17	LOGIC GND	B-14	LOGIC GND	T	B-17	CH. 13 RED	13R-A	OLA RED																																																
U	A-18	CHASSIS GND	LS7-2	EARTH GND.	U	B-18	S. DLY RLY CLSD	J3-D5	CONT. POWER																																																
V	A-19	AC- (COMMON)	K1-2	AC NEUTRAL	V	B-19	CH. 10 RED	B38																																																	
W	A-20	OUT RLY 1 COM.	J3-A7	SIG BUS CONT	W	B-20	CH. 14 RED	14R-A	OLB RED																																																
X	A-21	OUT RLY 2 COM.	A-27	LOGIC GND	X	B-21	CH. 15 RED	15R-A	OLC RED																																																
Y	A-22	CH. 12 YELLOW	-T-		Y	B-22	CH. 16 RED	16R-A	OLD RED																																																
Z	A-23	CH. 11 YELLOW	-T-		Z	B-23	CH. 3 RED	3R-A	^3 RED																																																
a	A-24	CH. 10 WALK	----		a	B-24	RED ENABLE	LS8-1	SIG BUS CON.																																																
b	A-25	CH. 10 YELLOW	-T-		b	B-25	(SPARE 3)	B31																																																	
c	A-26	CH. 9 YELLOW	-T-		c	B-26	LOCAL FLASH IN	-T-	POL/AX FLSH																																																
d	A-27	CH. 8 YELLOW	8Y-A	^8 YEL		B-27	SHELL GROUND	LS6-2	EARTH GND.																																																
e	A-28	CH. 7 YELLOW	7Y-A	^7 YEL	NOTES FOR 16 CHANNEL M.M.U. (1) RELAY CONTACT POSITIONS SPECIFIED ARE FOR NON-CONFLICT MODE. (2) TO PROGRAM MMU, SOLDER JUMPERS IN PROGRAMMING CARD FOR ALL PERMISSABLE PHASE MOVEMENTS, MINIMUM CHANGE DIS-ABLE FOR ALL PEDESTRIAN CHANNELS, AND MIN. FLASH, VOLTAGE MON., AND 24V. MON. LATCH OPTIONS AS DESIRED. M.M.U. CHANNEL ASSIGNMENTS <table><tr><td>CH. 1 =</td><td>L/S 1 =</td><td>^1 VEH.</td></tr><tr><td>CH. 2 =</td><td>L/S 2 =</td><td>^2 VEH.</td></tr><tr><td>CH. 3 =</td><td>L/S 3 =</td><td>^3 VEH.</td></tr><tr><td>CH. 4 =</td><td>L/S 4 =</td><td>^4 VEH.</td></tr><tr><td>CH. 5 =</td><td>L/S 5 =</td><td>^5 VEH.</td></tr><tr><td>CH. 6 =</td><td>L/S 6 =</td><td>^6 VEH.</td></tr><tr><td>CH. 7 =</td><td>L/S 7 =</td><td>^7 VEH.</td></tr><tr><td>CH. 8 =</td><td>L/S 8 =</td><td>^8 VEH.</td></tr><tr><td>CH. 9 =</td><td>L/S 9 =</td><td>^2 PED.</td></tr><tr><td>CH. 10 =</td><td>L/S 10 =</td><td>^4 PED.</td></tr><tr><td>CH. 11 =</td><td>L/S 11 =</td><td>^6 PED.</td></tr><tr><td>CH. 12 =</td><td>L/S 12 =</td><td>^8 PED.</td></tr><tr><td>CH. 13 =</td><td>L/S 13 =</td><td>O'LAP A VEH.</td></tr><tr><td>CH. 14 =</td><td>L/S 14 =</td><td>O'LAP B VEH.</td></tr><tr><td>CH. 15 =</td><td>L/S 15 =</td><td>O'LAP C VEH.</td></tr><tr><td>CH. 16 =</td><td>L/S 16 =</td><td>O'LAP D VEH.</td></tr></table>					CH. 1 =	L/S 1 =	^1 VEH.	CH. 2 =	L/S 2 =	^2 VEH.	CH. 3 =	L/S 3 =	^3 VEH.	CH. 4 =	L/S 4 =	^4 VEH.	CH. 5 =	L/S 5 =	^5 VEH.	CH. 6 =	L/S 6 =	^6 VEH.	CH. 7 =	L/S 7 =	^7 VEH.	CH. 8 =	L/S 8 =	^8 VEH.	CH. 9 =	L/S 9 =	^2 PED.	CH. 10 =	L/S 10 =	^4 PED.	CH. 11 =	L/S 11 =	^6 PED.	CH. 12 =	L/S 12 =	^8 PED.	CH. 13 =	L/S 13 =	O'LAP A VEH.	CH. 14 =	L/S 14 =	O'LAP B VEH.	CH. 15 =	L/S 15 =	O'LAP C VEH.	CH. 16 =	L/S 16 =	O'LAP D VEH.
CH. 1 =	L/S 1 =	^1 VEH.																																																							
CH. 2 =	L/S 2 =	^2 VEH.																																																							
CH. 3 =	L/S 3 =	^3 VEH.																																																							
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CH. 11 =	L/S 11 =	^6 PED.																																																							
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CH. 13 =	L/S 13 =	O'LAP A VEH.																																																							
CH. 14 =	L/S 14 =	O'LAP B VEH.																																																							
CH. 15 =	L/S 15 =	O'LAP C VEH.																																																							
CH. 16 =	L/S 16 =	O'LAP D VEH.																																																							
f	A-29	CH. 6 YELLOW	6Y-A	^6 YEL																																																					
g	A-30	CH. 5 YELLOW	5Y-A	^5 YEL																																																					
h	A-31	CH. 3 YELLOW	3Y-A	^3 YEL																																																					
i	A-32	CH. 15 GREEN	15G-A	OLC GRN																																																					
j	A-33	CH. 2 YELLOW	2Y-A	^2 YEL																																																					
k	A-34	CH. 1 YELLOW	1Y-A	^1 YEL																																																					
m	A-35	CONT. VOLT. MON.	B-5	VOLT. MON.																																																					
n	A-36	+24V MON. INH.	B-2																																																						
p	A-37	OUT RLY 1 CLSD	J3-A3																																																						
q	A-38	OUT RLY 2 OPEN	A-31	STOP TIME																																																					
r	A-39	CH. 12 WALK	----																																																						
s	A-40	CH. 11 WALK	----																																																						
t	A-41	CH. 9 WALK	----																																																						
u	A-42	CH. 16 YELLOW	16Y-A	OLD YEL																																																					
v	A-43	CH. 15 YELLOW	15Y-A	OLC YEL																																																					
w	A-44	CH. 13 YELLOW	13Y-A	OLA YEL																																																					
x	A-45	CH. 4 YELLOW	4Y-A	^4 YEL																																																					
y	A-46	CH. 14 GREEN	14G-A	OLB GRN																																																					
z	A-47	CH. 13 GREEN	13G-A	OLA GRN																																																					
AA	A-48	(SPARE 1)	B24																																																						
BB	A-49	RESET	B-1																																																						
CC	A-50	CAB. INTLK A	B25																																																						
DD	A-51	CAB. INTLK B	B26																																																						
EE	A-52	CH. 14 YELLOW	14Y-A	OLB YRL																																																					
FF	A-53	CH. 16 GREEN	16G-A	OLD GRN																																																					
GG	A-54	(SPARE 2)	B27																																																						
HH	A-55	TYPE SELECT	A-20	MMU/CMU SEL.																																																					
	A-56	SHELL GND	LS15-2	EARTH GND.																																																					

MMU PROGRAM CARD

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

3 4 5 6 7 8 9 10 11 12 13 14 15 16

4 5 6 7 8 9 10 11 12 13 14 15 16

5 6 7 8 9 10 11 12 13 14 15 16

6 7 8 9 10 11 12 13 14 15 16

7 8 9 10 11 12 13 14 15 16

8 9 10 11 12 13 14 15 16

9 10 11 12 13 14 15 16

10 11 12 13 14 15 16

11 12 13 14 15 16

12 13 14 15 16

13 14 15 16

14 15 16

15 16

RENO A&E

MIN YELLOW CHANGE DISABLE

1 2 3 4 5 6 7 8

9 10 11 12 13 14 15 16

MIN. FLASH TIME

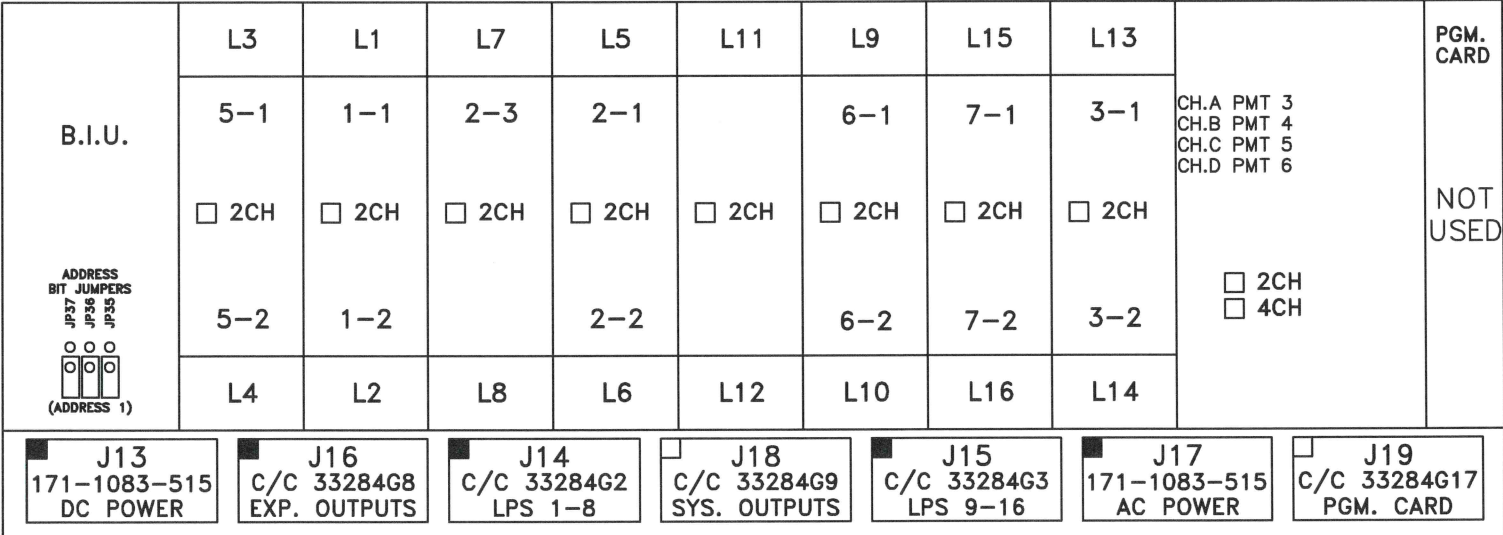
8 4 2 1

24V LATCH ENA.

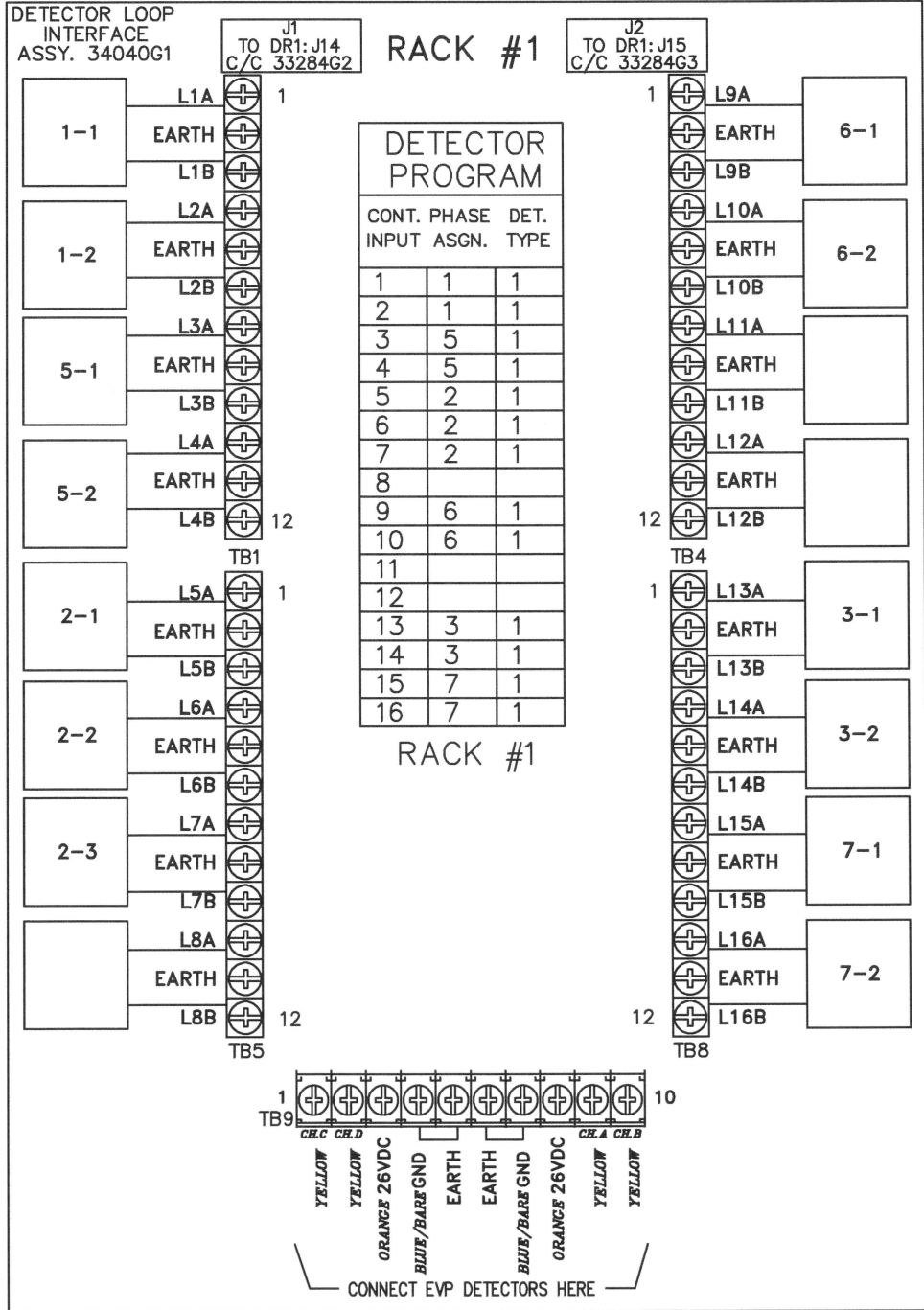
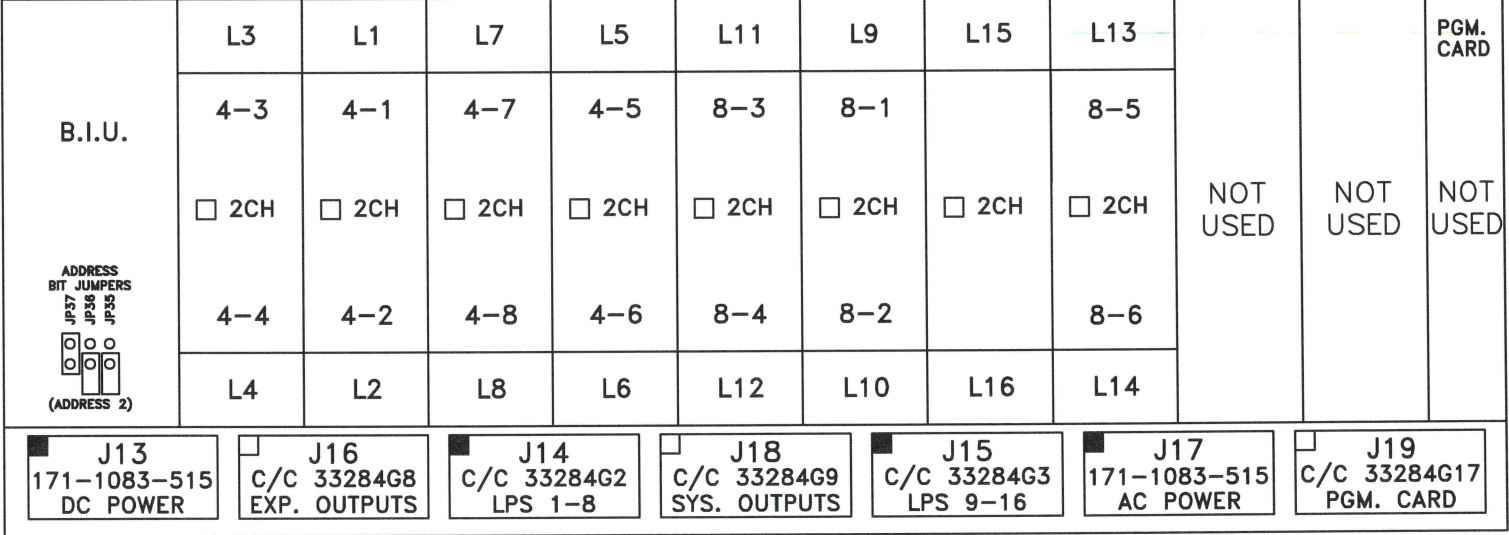
CVM LATCH ENA.

M.M.U. C/C'S AND PROGRAM CARD

DETECTOR RACK 34030G1 #1



DETECTOR RACK 34030G1 #2



RACK 1 AND 2

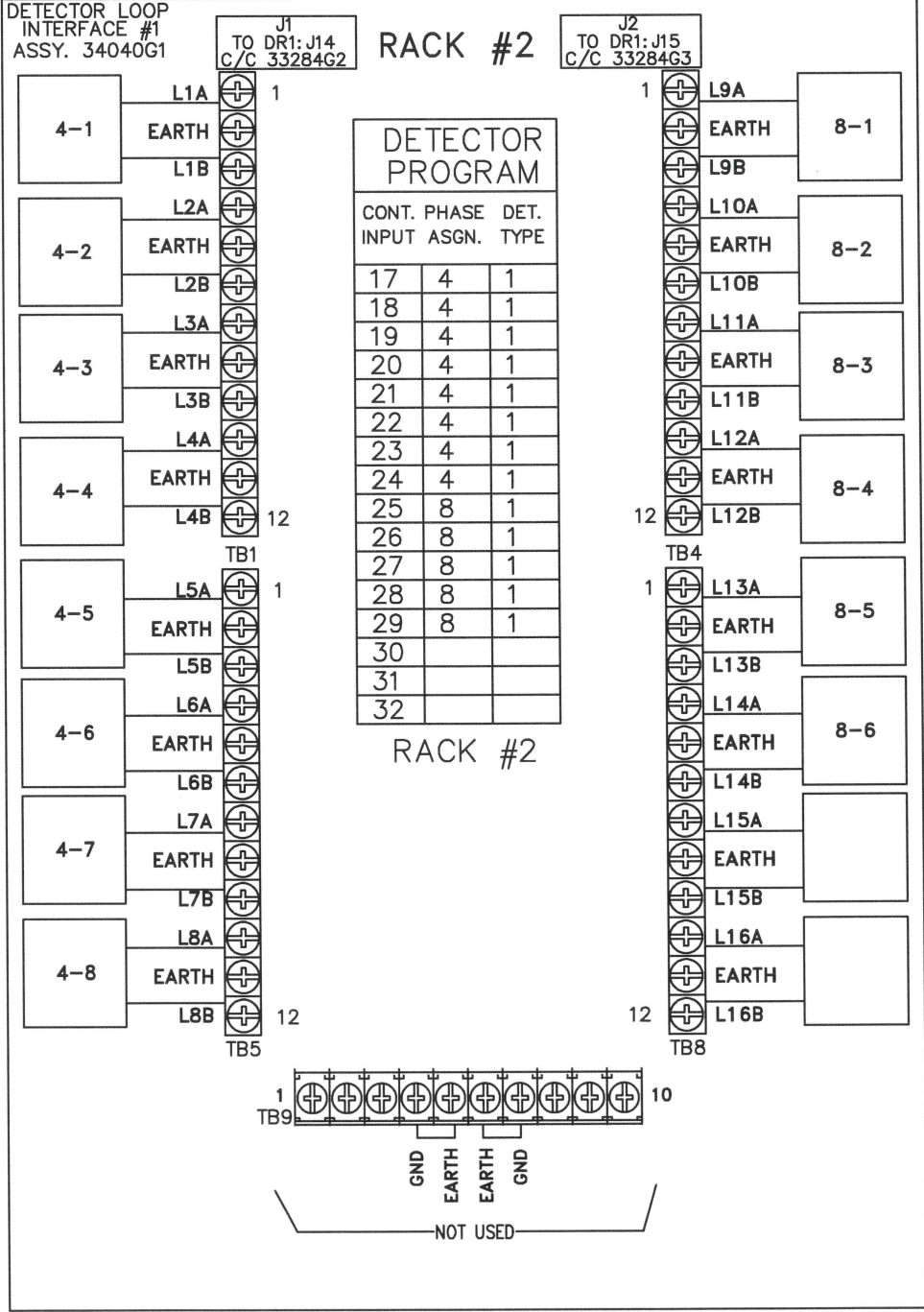
DET. LOOPS 1-8 (J14) C/C 33284G2		
PIN	SIGNAL	TO
1	LOOP 1+	LP1: TB1-1
2	LOOP 1-	LP1: TB1-3
3	LOOP 2+	LP1: TB1-4
4	LOOP 2-	LP1: TB1-6
5	LOOP 3+	LP1: TB1-7
6	LOOP 3-	LP1: TB1-9
7	LOOP 4+	LP1: TB1-10
8	LOOP 4-	LP1: TB1-12
9	LOOP 5+	LP1: TB5-1
10	LOOP 5-	LP1: TB5-3
11	LOOP 6+	LP1: TB5-4
12	LOOP 6-	LP1: TB5-6
13	LOOP 7+	LP1: TB5-7
14	LOOP 7-	LP1: TB5-9
15	LOOP 8+	LP1: TB5-10
16	LOOP 8-	LP1: TB5-12
17	PMT. DET. CH. C	LP1: TB9-1
18	PMT. DET. CH. D	LP1: TB9-2
19	KEY PIN	
20	PMT. CH. C/D +26VDC	LP1: TB9-3
21	PMT. DC GROUND	LP1: TB9-4,7
22	PMT. CH. A/B +26VDC	LP1: TB9-8
23	PMT. DET. CH. A	LP1: TB9-9
24	PMT. DET. CH. B	LP1: TB9-10
25	----	
26	----	

RACK 1 AND 2

DET. LOOPS 9-16 (J15) C/C 33284G3		
PIN	SIGNAL	TO
1	LOOP 9+	LP2: TB4-1
2	LOOP 9-	LP2: TB4-3
3	LOOP 10+	LP2: TB4-4
4	LOOP 10-	LP2: TB4-6
5	LOOP 11+	LP2: TB4-7
6	LOOP 11-	LP2: TB4-9
7	LOOP 12+	LP2: TB4-10
8	LOOP 12-	LP2: TB4-12
9	LOOP 13+	LP2: TB8-1
10	LOOP 13-	LP2: TB8-3
11	LOOP 14+	LP2: TB8-4
12	LOOP 14-	LP2: TB8-6
13	LOOP 15+	LP2: TB8-7
14	LOOP 15-	LP2: TB8-9
15	LOOP 16+	LP2: TB8-10
16	LOOP 16-	LP2: TB8-12
17	----	
18	----	
19	----	
20	----	

RACK 1 ONLY

EXPANSION OUTPUTS C/C 33284G84		
J16	FUNCTION	TO
17	EVP 5 CALL	MP: B19
18	EVP 6 CALL	MP: B20
19	EVP 3 CALL	MP: B17
20	EVP 4 CALL	MP: B18



RACK 1 AND 2

DET. RACK POWER 171-1083-515			
P1/DR: J13	P2/DR: J17	FUNCTION	TO
1		+12 VDC (DET. POWER)	PB-3
2		+24 VDC (BIU POWER)	PB-2
3		LOGIC GROUND	PB-1
4		EARTH GROUND	PB-9
5		"KEY PIN"	
6	1	LINE FREQUENCY REF.	PB-5
	2	EARTH GROUND	-----
	3	AC LINE	PB-12
	4	AC NEUTRAL	PB-10
		LOGIC GROUND	-----

CSAH#17 AT CSAH#32

B.I.U	DET	PH	F	DET	DLY	EXT	DET	PH	F	DET	DLY	EXT	DET	PH	F	DET	DLY	EXT	DET	PH	F	DET	DLY	EXT	EVP	PH	POLE #	CONT CH #	
	CH 1	1	1	1-1			CH 5	2	1	2-1			CH 9	6	1	6-1			CH 13	3	1	3-1			CH 1	1-6	1	3	
	CH 2	1	1	1-2			CH 6	2	1	2-2			CH 10	6	1	6-2			CH 14	3	1	3-2			CH 2	2-5	6	4	
	CH 3	5	1	5-1			CH 7	2	1	2-3			CH 11						CH 15	7	1	7-1			CH 3	3-8	4	5	
	CH 4	5	1	5-2			CH 8						CH 12						CH 16	7	1	7-2			CH 4	4-7	9	6	

B.I.U	DET	PH	F	DET	DLY	EXT	DET	PH	F	DET	DLY	EXT	DET	PH	F	DET	DLY	EXT	DET	PH	F	DET	DLY	EXT				
	CH 17	4	3/8	4-1		3.0	CH 21	4	1	4-5			CH 25	8	3/8	8-1		4.0	CH 29	8	1	8-5	5					
	CH 18	4	3/8	4-2		3.0	CH 22	4	1	4-6	10		CH 26	8	3/8	8-2		4.0	CH 30	8	1	8-6						
	CH 19	4	1	4-3	10		CH 23	4	1	4-7			CH 27	8	1	8-3	5		CH 31									
	CH 20	4	1	4-4			CH 24	4	1	4-8			CH 28	8	1	8-4			CH 32									

EVP SENSORS						
CABLE	DISCR.	PHASES	POLE#	TERMINAL TB9		
	CHAN.			SIGNAL	DC(+)	GND
17	1	1-6	1	A	26+	GND
38	2	2-5	6	B	26+	GND
39,68	3	3-8	4	C	26+	GND
28,60	4	4-7	9	D	26+	GND

EVP VERIFY LIGHTS				
CABLE	CONTR	PHASES	POLE#	TERM.
	CHAN.			
16	3	1-6	1	59
37	4	2-5	6	65
67	5	3-8	4	71
27	6	4-7	9	77

CABLE	SIGNAL	TERMINAL						
		G	FLA	Y	R	G	Y	R
10	1-1	1	3	5	7			
18	1-2	2	4	6	8			
35	2-1					9	11	13
34	2-2					10	12	14
61	3-1	15	17	19	21			
11	3-2	16	18	20	22			
19,25	4-1,4-3					23	25	27
26	4-2					24	26	28
31	5-1	29	31	33	35			
69	5-2	30	32	34	36			
14	6-1					37	39	41
13	6-2					38	40	42
23	7-1	43	45	47	49			
32	7-2	44	46	48	50			
65,63	8-1,8-3					51	53	55
64	8-2					52	54	56

BLANK OUT SIGNS	
CABLE	TERMINAL
22	13 GREEN
30	16 GREEN

VEH DETECTORS					
CABLE	DET	SLOT	FUNC	RACK	TERMINAL
85	1-1	1	1	1	L1
86	1-2	2	1	1	L2
50	2-1	5	1	1	L5
48	2-2	6	1	1	L6
49	2-3	7	1	1	L7
51	3-1	13	1	1	L13
52	3-2	14	1	1	L14
81	4-1	17	3/8	2	L1
82	4-2	18	3/8	2	L2
75	4-3	19	1	2	L3
76	4-4	20	1	2	L4
77	4-5	21	1	2	L5
78	4-6	22	1	2	L6
79	4-7	23	1	2	L7
80	4-8	24	1	2	L8
46	5-1	3	1	1	L3
47	5-2	4	1	1	L4
88	6-1	9	1	1	L9
87	6-2	10	1	1	L10
83	7-1	15	1	1	L15
84	7-2	16	1	1	L16
57	8-1	25	3/8	2	L9
58	8-2	26	3/8	2	L10
53	8-3	27	1	2	L11
54	8-4	28	1	2	L12
55	8-5	29	1	2	L13
56	8-6	30	1	2	L14

PED PUSHBUTTONS			
CABLE	PPB	TERMINAL	RETURN
43	2-1	801	GB1
44	2-2	801	GB1
41	4-1	802	GB1
42	4-2	802	GB1
73	6-1	803	GB1
72	6-2	803	GB1
45	8-1	804	GB1
74	8-2	804	GB1

CABLE	SIGNAL	TERMINAL	
		WK	DW
21	2-1	57	61
29	2-2	58	62
15	4-1	63	67
20	4-2	64	68
70	6-1	69	73
59	6-2	70	74
36	8-1	75	79
66	8-2	76	80