ASC/2S-2100 CONTROLLER WITH:

- ■ CONFIGURATION EEPROM 32790C1440
- ■ SOFTWARE: V1.72
- ☐ SPECIAL SOFTWARE: SEE BELOW FUNCTION
- ☐ OVERLAPS
  - ☐ IN EEPROM
  - ☐ KEYBOARD ENTERED

  A =
  B =
  C =
  D =
- ☐ ANALOG TELEMETRY MODULE: 32825G1
- ☐ F/O TELEMETRY MODULE: 33525G1
- ☐ 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 ()

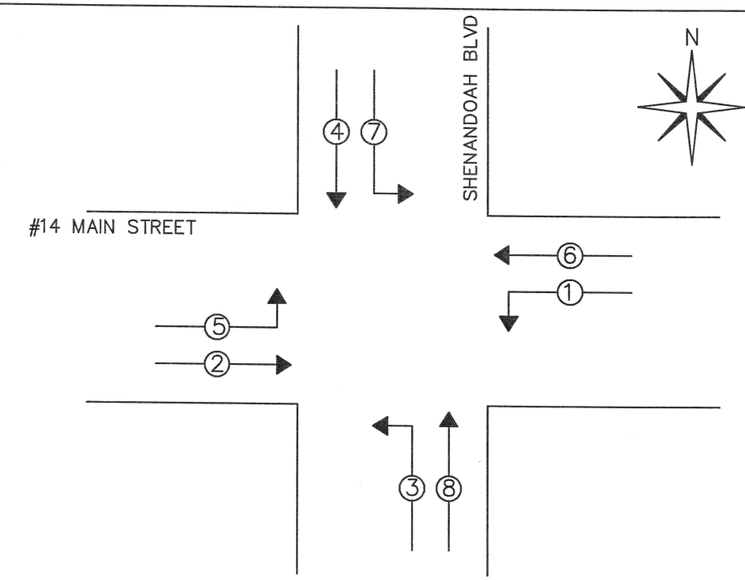
MAIN PANEL PLUG-IN REQUIREMENTS

■ BIU2 T&F	☐ BIU3 T&F	■ LS9 PED 2 BEACONS	■ LS10 PED 4 BEACONS	■ LS11 PED 6 BEACONS	■ LS12 PED 8 BEACONS	■ LS13 OL"A"	■ LS14 OL"B"	■ LS15 OL"C"	■ LS16 OL"D"
■ BIU1 T&F	■ LS1 VEH 1	■ LS2 VEH 2	■ LS3 VEH 3	■ LS4 VEH 4	■ LS5 VEH 5	■ LS6 VEH 6	■ LS7 VEH 7	■ LS8 VEH 8	■ FL1 ☐ 1CKT ■ 2CKT
■ FR1 L|R V1|V5	■ FR2 L|R V2|V6	■ FR3 L|R V3|V7	■ FR4 L|R V4|V8	☒ FR5 L|R A|C	☒ FR6 L|R B|D	■ K1 LS 24V CONT.			

■ 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.



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.

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

NOTES: UNLESS SPECIFIED OTHERWISE

SHEET 1 OF 11

DESIGNER G.V. T.C.C.	DATE 02/03/97
DRAWN MA TCC	6/9/04
CABINET SIZE	
INSPECTED	
APPROVED	
CUSTOMER P.O.	

ECONOLITE CONTROL PRODUCTS INC.

TRAFFIC CONTROL CORPORATION 5653 MEMORIAL AVE. OAK PARK HTS, MN 55082

CABINET SPECIFICATION: TS2TYPE1 2004 ANOKA COUNTY

CUSTOMER: ANOKA COUNTY HIGHWAY DEPARTMENT

INTERSECTION: #14 AT SHENANDOAH

LOCATION:

SYSTEM:

CONTROLLER

FLASHER

SW.PACKS

INSTALLED BY	SALES ORDER NO.	SIZE	DRAWING #TS20216PG INTERC
		B	

AUXILLARY SWITCH PANEL

SW1
CONTROL EQ.
ON
P1-1 — 2 — SW5-1
P1-2
P1-6
P1-7 — 3
OFF

SW2
TECH FLASH
AUTO
P1-3 — 2 — SW4-5
P1-18
SW4-2 — 3 — 6
SW4-4
SW3-1 — 1 — 4
5
FLASH

SW3
STOP TIMING
AUTO
P1-14 — 1 — SW2-4
OFF
P1-17 — 2
P1-16 — 3
ON

POLICE SWITCH PANEL

SW4
POLICE FLASH
AUTO
SW2-4 — 1 — 4
SW2-3 — 2 — 5 — SW2-5
SW5-3 — 3 — 6
FLASH

SW5
SIGNALS
ON
SW1-2 — 1 — 4
P1-5 — 2 — 5 — P1-4
SW4-3 — 3 — 6
OFF

UNDERSHELF LIGHT — TB2-12(120VAC+)
TB2-10(120VAC-)

FAN
FAN
CAB LIGHT (−) (+) GB1
FAN THERM

CAB LIGHT SWITCH
1 4
2 5
3 6
FUSE 15A
IN POWER PANEL
501
GFI
U G B
U
IN POWER PANEL

POWER/AUX PANEL (PAP)
34830G5

LS3-1 — 1 — 2 — CB2-2
SSR
SA1TB2-4 (120VAC-) — 4 — 3 — J2-4 (CONTROL)

FL1-11 — 2 LOAD OUT — LINE IN 1 — RIS2 50A — GND. 3
SSR-2 — CB3-1 — 2 LOAD OUT — LINE IN 1 — RIS1 50A — GND. 3

J2-1
J2-2
J2-3
CB3-2
SSR-4

TB2: 1 AC+ IN | 2 AC+ OUT | 3 EG OUT | 4 AC- OUT
TB1: 1 NO | 2 C | 3 NC RELAY
SHA-1210-IRS
LED: ON-NORMAL, OFF-MAINT REQ'D
MAIN LINE: AC+ GND AC-
-SA-
CB1-2 GB1
GB2

SA-AC+
CB1 40A
CB2 40A
CB3 10A
TB2-1
RIS1-2

P2	J2	
(SIG BUS CONT)PB-8	4	SSR-3
(EARTH GND)PB-9	2	SA1TB2-3
(FLT AC LINE)PB-12	3	SA1TB2-2
(AC NUETRAL)PB-10	1	SA1TB2-4

GB2 — SA- AC- — MP1FL1-10 — GB1
(MAIN NEUT)
GL — GB2 — (MAIN GND)
-SA-GND
GFI-G

GB3 GB4 GB5 GB6
RIGHT SIDE
LEFT SIDE
RIGHT SIDE
LEFT SIDE

501 502 503 504
LINE NEUT SIGNAL
LINE FLASHER
ERTH
115 V., 60 HZ.
AC SERVICE

DS2
MP1A27 — 1 — 2 — MP1A33
DOOR OPEN

FRONT VIEW OF J3 HARNESS
(MAIN PANEL)

FRONT VIEW OF J3 JACK
(MAIN PANEL)

FRONT VIEW OF J1 HARNESS
(SWITCH PANEL)

FRONT VIEW OF J1 JACK
(SWITCH PANEL)

FRONT VIEW OF J1-J6 HARNESSES
(POWER BUS PANEL)

FRONT VIEW OF J1-J6 JACKS
(POWER BUS PANEL)

TO POL/AUX P1

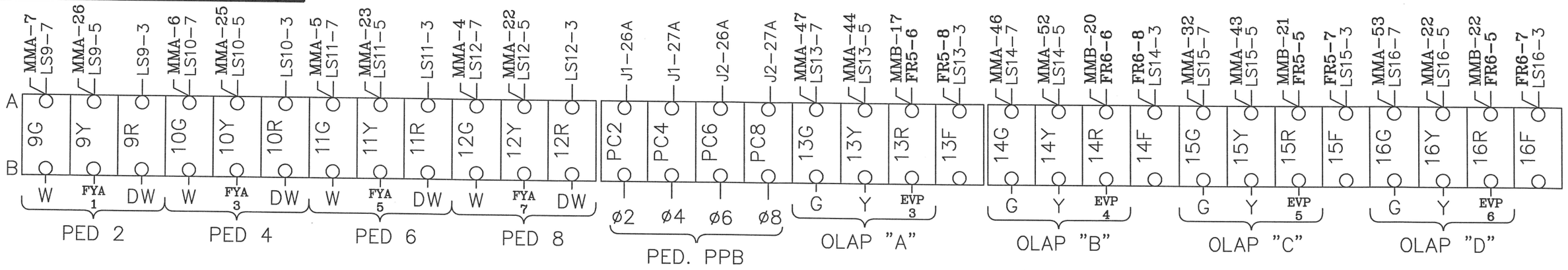
J3			P1	
J3-36	1	FILTER AC LINE (OUT)	P1-1	SW1-2
MMB-1	2	SWITCHED AC LINE (IN)	P1-2	SW1-3
MMA-37	3	FLASH CONTROL BUS (OUT)	P1-3	SW2-3
K1-10	4	SIGNAL BUS CONTROL (IN)	P1-4	SW5-5
FR6-2	5	FLASH RELAY CONTROL (IN)	P1-5	SW5-2
MMB-2	6	START DELAY AC BUS (IN)	P1-6	SW1-3
MMA-20	7	MMU FLASH CONTROL BUS (IN)	P1-7	SW1-3
	8	SPARE	P1-8	----
	9	SPARE	P1-9	----
	10	SPARE	P1-10	----
	11	SPARE	P1-11	----
	12	SPARE	P1-12	----
A-39	13	OPT-MANUAL CONT. ENABLE (IN)	P1-13	----
A-35	14	LOGIC GROUND	P1-14	SW3-1
A-40	15	OPT-INTERVAL ADVANCE (IN)	P1-15	----
A-31	16	MMU STOP TIME (OUT)	P1-16	SW3-3
A-30	17	CONTROLLER STOP TIME (IN)	P1-17	SW3-2
A-32	18	LOCAL FLASH STATUS (IN)	P1-18	SW2-5
A-38	19	OPT-COORD FREE (IN)	P1-19	----
A-33	20	OPT-ALARM 1 (IN)	P1-20	----
A-34	21	OPT-ALARM 2 (IN)	P1-21	----
K1-9	22	OPT-LOADSWITCH TEST (IN)	P1-22	----
B-3	23	MMU 24V MON. 2 (IN)	P1-23	----
B-4	24	+24 VDC	P1-24	----

TO PB J1

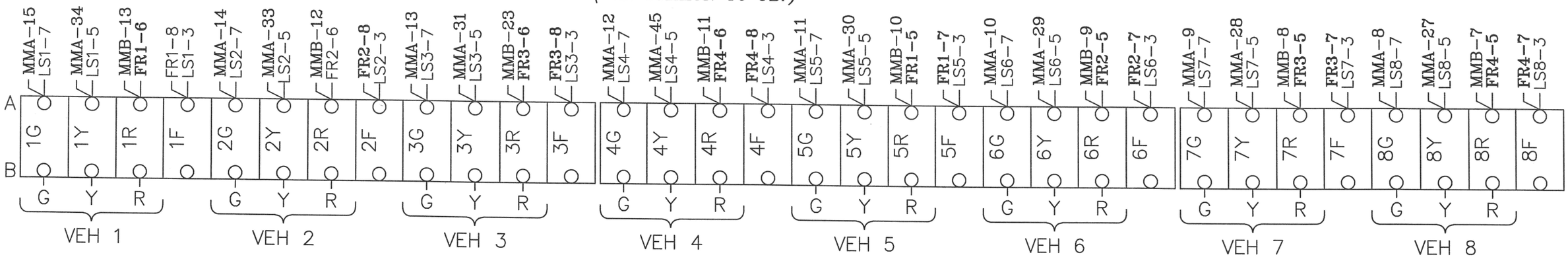
J3			J1	
A-35	25	LOGIC GROUND	J1-1	TB1-1
K1-11	26	+24 VDC (IN)	J1-2	TB1-2
	27	----	----	TB1-3
B-5	28	MMU FAULT MONITOR (IN)	J1-4	TB1-4
J1-31B	29	LINE FREQ. REFERENCE (IN)	J1-5	TB1-5
	30	----	----	TB1-6
J1-27B	31	+12 VAC (IN)	J1-7	TB1-7
K1-10	32	SIGNAL BUS CONTROL (IN)	J1-8	TB1-8
	33	----	----	TB1-9
K1-2	34	FILTERED AC NEUTRAL (IN)	J1-10	TB1-10
MMB-18	35	CONT. EQUIP. AC LINE (OUT)	J1-11	TB1-11
J3-1	36	FILTERED AC LINE (IN)	J1-12	TB1-12

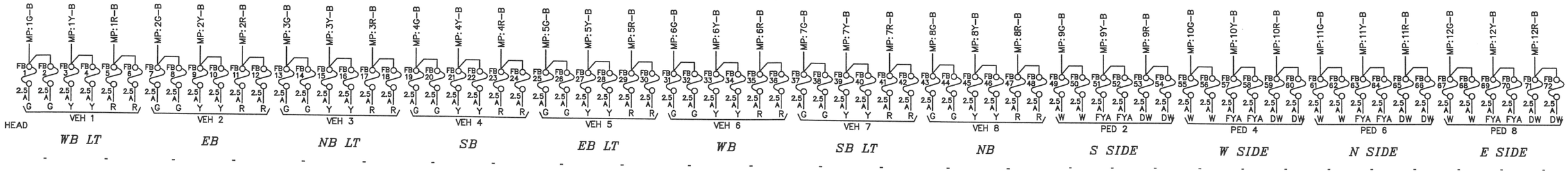
CONFIRMATION BEACONS

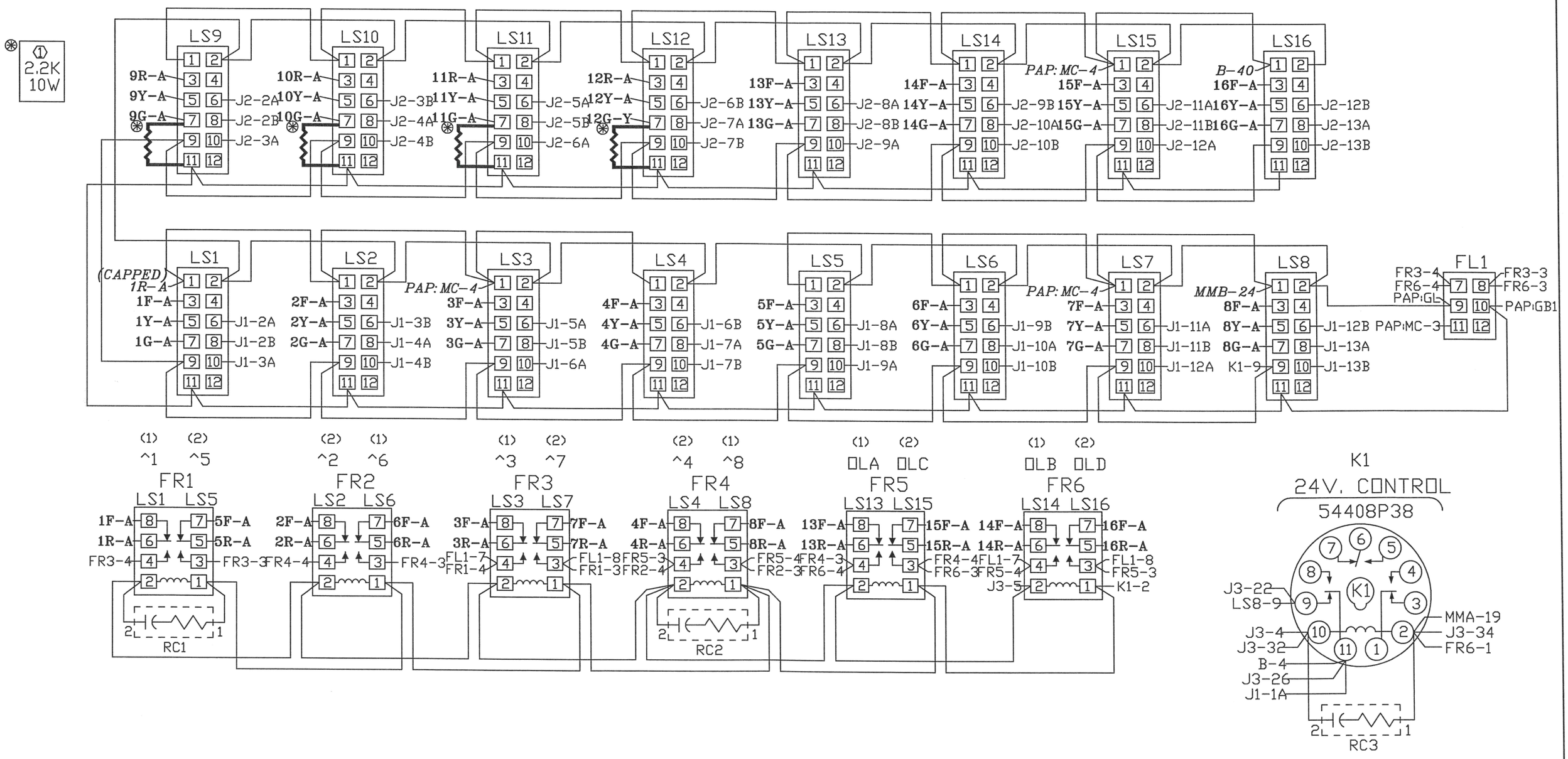
EVP 3 = 1–6
EVP 4 = 2–5
EVP 5 = 3–8
EVP 6 = 4–7



(P.B. COMMON TO GB1)

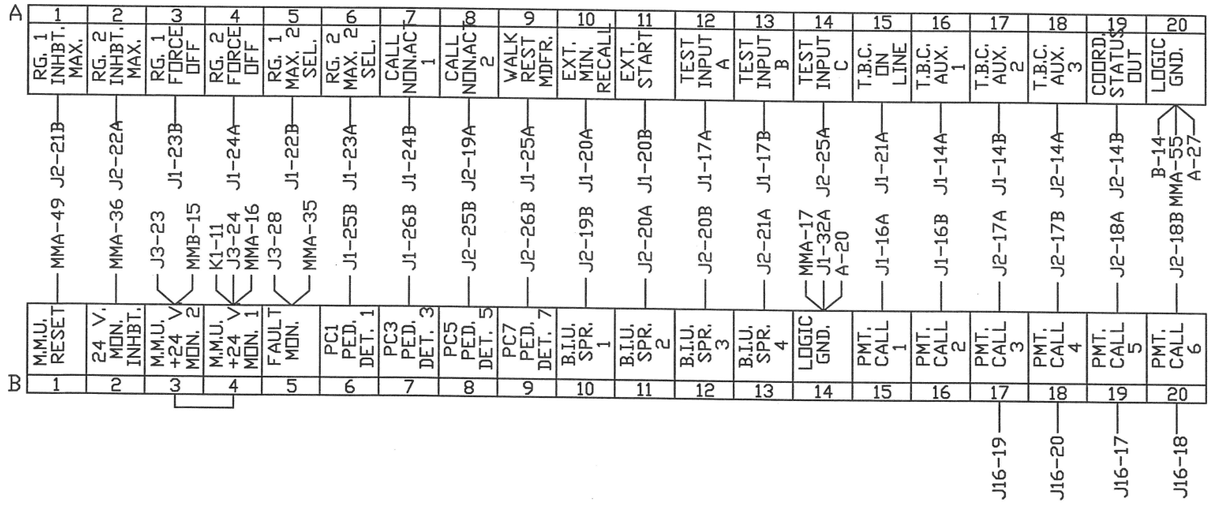






LOADBAY AND FLASH RELAY'S

SHEET 4 OF 11	SIZE B	#14 AT SHENANDOAH



INTERFACE TERMINAL BLOCKS

SHEET 5 OF 11	SIZE B	#14 AT SHENANDOAH

J1	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.	J3-31
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.	J3-29
32A	LOGIC GND.	B-14
32B	LOGIC GND.	J2-32A

J2	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	PMT ACT 3	A-23
15B	PMT ACT 4	A-24
16A	PMT ACT 5	A-25
16B	PMT ACT 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

MAIN PANEL CONTROL POWER C/C 34842G4	
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)

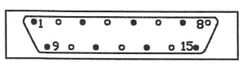
CONTROLLER POWER (CCA2) C/C 34842G3			
WIRE	PIN	SIGNAL	TO
1	A	FAULT MONITOR	PB-4
2	U	AC NEUTRAL	PB-10
3	V	EARTH GROUND	PB-9
4	W	LOGIC GROUND	PB-1
5	P	AC LINE	PB-11
6	SHL	EARTH GROUND	CCA2-V

TYPE 1 CONTROLLER POWER C/C 34842G2		
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.	PIN H

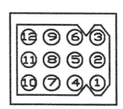
CABINET POWER SUPPLY C/C 34842G1		
PIN	FUNCTION	TO
A	AC NEUTRAL	PB-10
B	LINE FREQUENCY REF.	PB-5
C	AC LINE	PB-11
D	+12 VDC	PB-3
E	+24 VDC	PB-2
F	RESERVED	
G	LOGIC GND.	PB-1
H	EARTH GND.	PB-9
I	+12 VAC	PB-7
J	RESERVED	
SHL	EARTH GND.	PIN H

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	
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	
13	TWISTED PAIR 3-	SDLC-8	BIU TXD-
14	RESERVED	----	
15	TWISTED PAIR 4-	SDLC-11	BIU TXC-

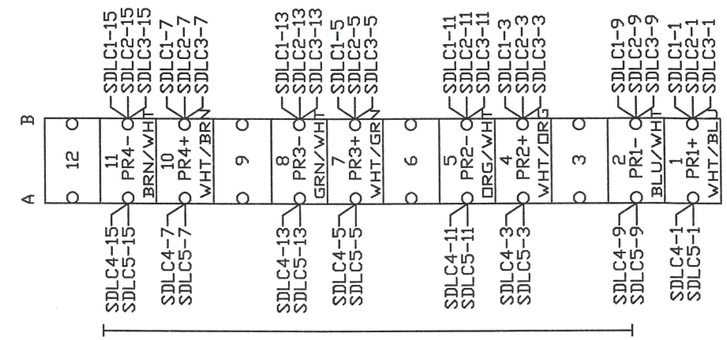


FRONT VIEW OF BU1 - BU5

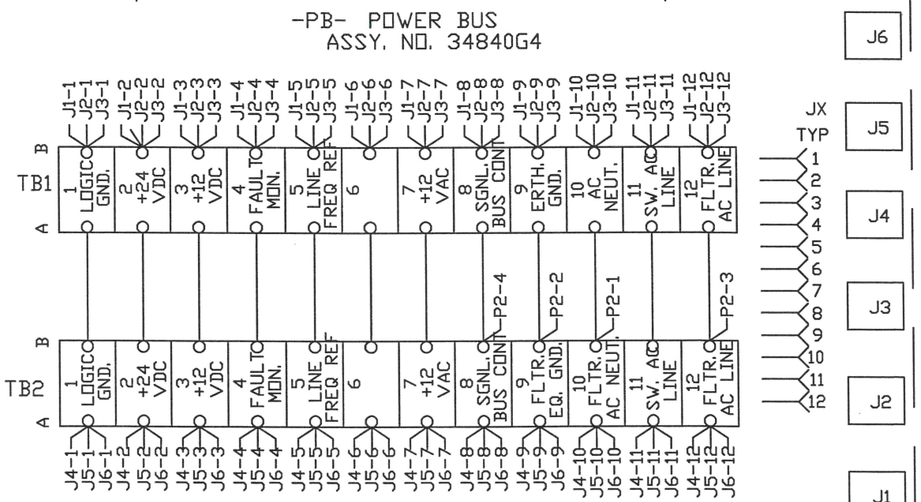


FRONT VIEW OF J1-J6

SDLC CABLE ASSY.
ASSY. NO. 34862G5



-PB- POWER BUS
ASSY. NO. 34840G4



BIU AND CONNECTING CABLES

SHEET 6 OF 11	SIZE B	#14 AT SHENANDOAH

WIRE LIST FOR NEMA MALFUNCTION MANAGEMENT UNIT

CONNECTOR "A" (MMA)

PIN	WIRE	MON. FUNCTION	TO	SIG. FUNCTION
A	A-1	AC+ I INPUT	B21	
B	A-2	OUT RLY 1 OPEN	B22	
C	A-3	OUT RLY 2 CLSD	B23	
D	A-4	CH. 12 GREEN	12G-A	^8 WLK
E	A-5	CH. 11 GREEN	11G-A	^6 WLK
F	A-6	CH. 10 GREEN	10G-A	^4 WLK
G	A-7	CH. 9 GREEN	9G-A	^2 WLK
H	A-8	CH. 8 GREEN	8G-A	^8 GRN
J	A-9	CH. 7 GREEN	7G-A	^7 GRN
K	A-10	CH. 6 GREEN	6G-A	^6 GRN
L	A-11	CH. 5 GREEN	5G-A	^5 GRN
M	A-12	CH. 4 GREEN	4G-A	^4 GRN
N	A-13	CH. 3 GREEN	3G-A	^3 GRN
P	A-14	CH. 2 GREEN	2G-A	^2 GRN
R	A-15	CH. 1 GREEN	1G-A	^1 GRN
S	A-16	+24V MON. I	B-4	LS +24V MON.
T	A-17	LOGIC GND	B-14	LOGIC GND
U	A-18	CHASSIS GND	LS7-2	EARTH GND.
V	A-19	AC- (COMMON)	K1-2	AC NEUTRAL
W	A-20	OUT RLY 1 COM.	J3-7	SIG BUS CONT
X	A-21	OUT RLY 2 COM.	A-27	LOGIC GND
Y	A-22	CH. 12 YELLOW	-T-	
Z	A-23	CH. 11 YELLOW	-T-	
a	A-24	CH. 10 WALK	----	
b	A-25	CH. 10 YELLOW	-T-	
c	A-26	CH. 9 YELLOW	-T-	
d	A-27	CH. 8 YELLOW	8Y-A	^8 YEL
e	A-28	CH. 7 YELLOW	7Y-A	^7 YEL
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	J3-3	
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.

CONNECTOR "B" (MMB)

PIN	WIRE	MON. FUNCTION	TO	SIG. FUNCTION
A	B-1	AC+ II INPUT	J3-2	MMU POWER
B	B-2	S. DLY RLY COMM.	J3-6	MMU POWER
C	B-3	S. DLY RLY OPEN	B28	
D	B-4	CH. 12 RED	B40	
E	B-5	CH. 11 RED	B39	
F	B-6	CH. 9 RED	B37	
G	B-7	CH. 8 RED	8R-A	^8 RED
H	B-8	CH. 7 RED	7R-A	^7 RED
J	B-9	CH. 6 RED	6R-A	^6 RED
K	B-10	CH. 5 RED	5R-A	^5 RED
L	B-11	CH. 4 RED	4R-A	^4 RED
M	B-12	CH. 2 RED	2R-A	^2 RED
N	B-13	CH. 1 RED	1R-A	^1 RED
P	B-14	(SPARE 1)	B29	
R	B-15	+24V MONITOR II	B-3	+24V MON. II
S	B-16	(SPARE 2)	B30	
T	B-17	CH. 13 RED	13R-A	OLA RED
U	B-18	S. DLY RLY CLSD	J3-35	CONT. POWER
V	B-19	CH. 10 RED	B38	
W	B-20	CH. 14 RED	14R-A	OLB RED
X	B-21	CH. 15 RED	15R-A	OLC RED
Y	B-22	CH. 16 RED	16R-A	OLD RED
Z	B-23	CH. 3 RED	3R-A	^3 RED
a	B-24	RED ENABLE	LS8-1	SIG BUS CON.
b	B-25	(SPARE 3)	B31	
c	B-26	LOCAL FLASH IN	CAPPED	POL/AX FLSH
	B-27	SHELL GROUND	LS6-2	EARTH GND.

NOTES FOR 16 CHANNEL M.M.U.

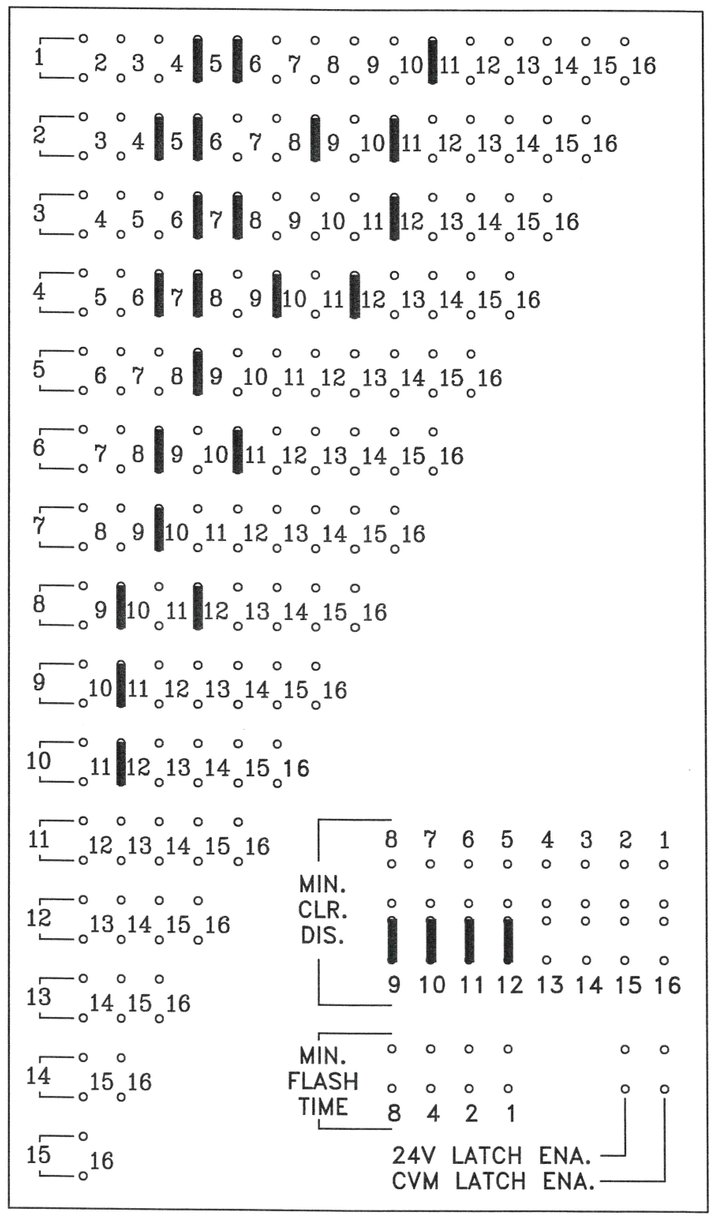
(1) RELAY CONTACT POSITIONS SPECIFIED ARE FOR NON-CONFLICT MODE.

(2) TO PROGRAM MMU, SOLDER JUMPERS IN PROGRAMMING CARD FOR ALL PERMISSABLE PHASE MOVEMENTS, MINIMUM CHANGE DISABLE FOR ALL PEDESTRIAN CHANNELS, AND MIN. FLASH, VOLTAGE MON., AND 24V. MON. LATCH OPTIONS AS DESIRED.

M.M.U. CHANNEL ASSIGNMENTS

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 = OLAP A
CH. 14 = L/S 14 = OLAP B
CH. 15 = L/S 15 = OLAP C
CH. 16 = L/S 16 = OLAP D

MMU PROGRAM CARD



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

DETECTOR RACK 34030G1

POWER SUPPLY OR B.I.U.	L3	L1	L7	L5	L11	L9	L15	L13	PMT 5 8	PMT 3 1–6	PGM. CARD
	5–1	1–1	6–1	2–1	7–1	3–1	ø	ø			
	☐ 2CH 5–2	☐ 2CH 1–2	☐ 2CH 6–2	☐ 2CH 2–2	☐ 2CH 7–2	☐ 2CH 3–2	☐ 2CH ø	☐ 2CH ø	☐ 2CH OPTICOM/ OPIC CH. C CH. D 4	☐ 4CH ☐ 2CH OPTICOM/ OPIC CH. A CH. B 2–5	
	L4	L2	L8	L6	L12	L10	L16	L14	PMT 6	PMT 4	

J13	J16	J14	J18	J15	J17	J19
C/C 33284G10 DC POWER	C/C 33284G8 EXP. OUTPUTS	C/C 33284G2 LPS 1–8	C/C 33284G9 SYS. OUTPUTS	C/C 33284G3 LPS 9–16	C/C 33284G6 AC POWER	C/C 33284G17 PGM. CARD

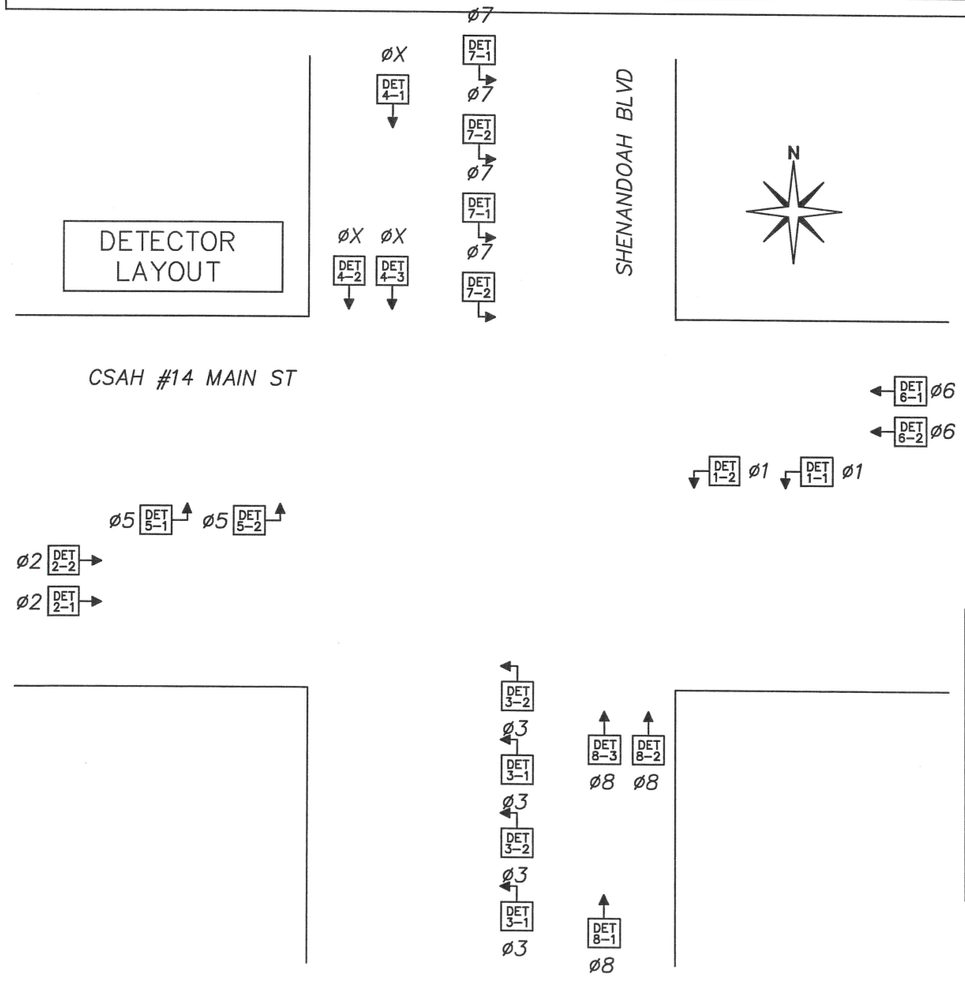
①

ADDRESS TABLE					
RACK #	JMPR	DET. #'S	RACK #	JMPR	DET. #'S
1		1–16	5		65–80
2		17–32	6		81–96
3		33–48	7		97–112
4		49–64	8		113–128

DETECTOR ASSIGNMENTS

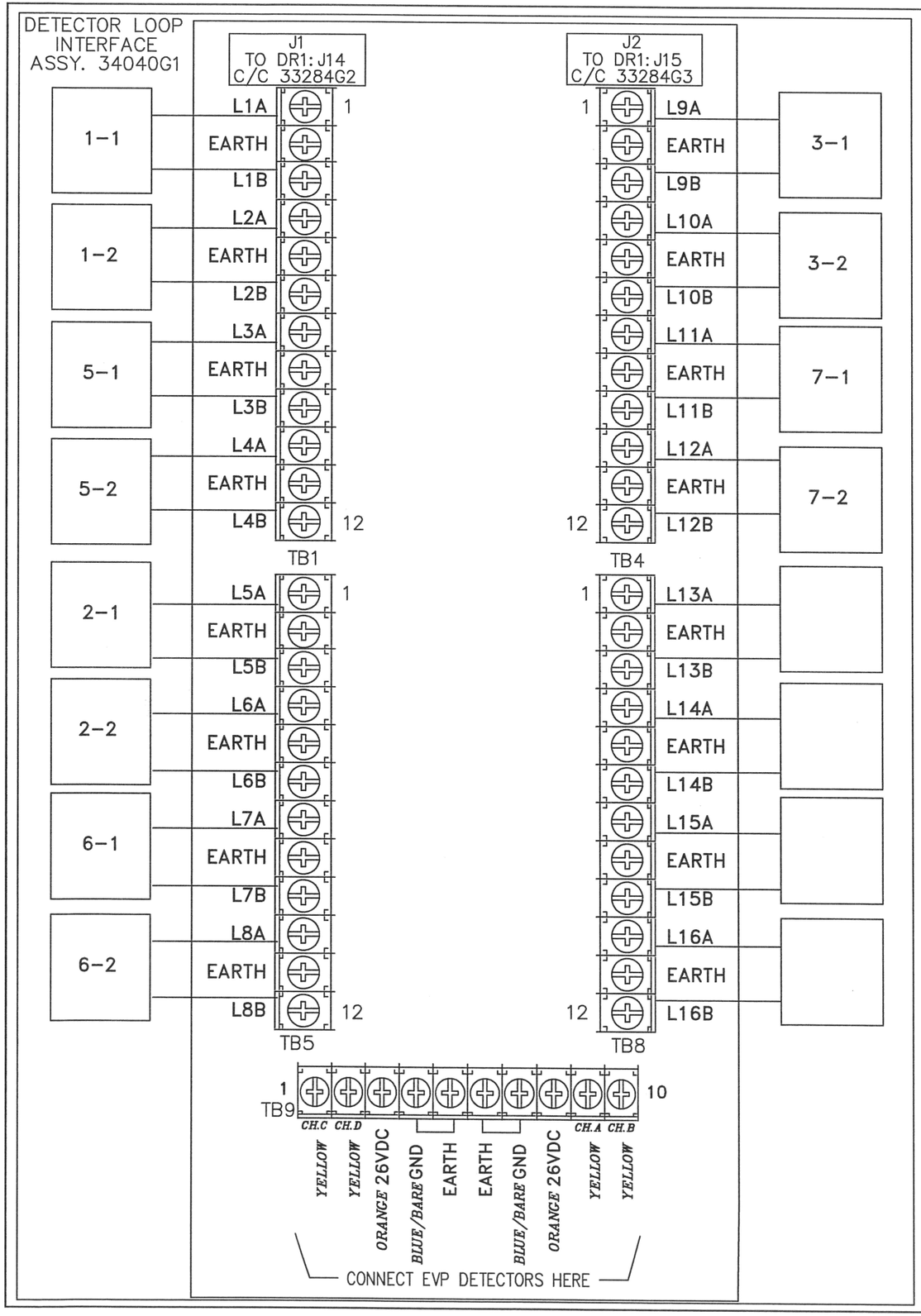
CONT. INPUT	PHASE ASGN.	DETECTOR TYPE
1	1–1	1
2	1–2	1
3	5–1	1
4	5–2	1
5	2–1	1
6	2–2	1
7	6–1	1
8	6–2	1
9	3–1	1
10	3–2	1
11	7–1	1
12	7–2	1
13		
14		
15		
16		
17	4–1	1
18	4–2	1
19	4–3	1
20		
21	8–1	1
22	8–2	1
23	8–3	1
24		
25		
26		
26		
28		
29		
30		
31		
32		
33		
34		
35		
36		

DETECTOR LAYOUT



DETECTOR RACK PROGRAMMING JUMPERS

DET. TYPE	JP1	JP2	SLOT 1/2 ① JP3	JP4	JP5	JP6	JP7	JP8	JP9	SLOT 3/4 ① JP10	JP11	JP12	JP13	JP14	JP15	JP16	SLOT 5/6 ① JP17	JP18	JP19	JP20	JP21	JP22	JP23	SLOT 7/8 ① JP24	JP25	JP26	JP27	JP28	JP29	JP30
① TS–1	NO	NO																												
② TS–2	YES	YES																												
③ LM–632T 262–FC	NO	NO																												
④ MAG.	NO	NO																												



DET. LOOPS 9–16 (J15) C/C 33284G3		
PIN	SIGNAL	TO
1	LOOP 9+	LPI2: TB4–1
2	LOOP 9–	LPI2: TB4–3
3	LOOP 10+	LPI2: TB4–4
4	LOOP 10–	LPI2: TB4–6
5	LOOP 11+	LPI2: TB4–7
6	LOOP 11–	LPI2: TB4–9
7	LOOP 12+	LPI2: TB4–10
8	LOOP 12–	LPI2: TB4–12
9	LOOP 13+	LPI2: TB8–1
10	LOOP 13–	LPI2: TB8–3
11	LOOP 14+	LPI2: TB8–4
12	LOOP 14–	LPI2: TB8–6
13	LOOP 15+	LPI2: TB8–7
14	LOOP 15–	LPI2: TB8–9
15	LOOP 16+	LPI2: TB8–10
16	LOOP 16–	LPI2: TB8–12
17	----	
18	----	
19	----	
20	----	

DET. RACK POWER C/C 34842G5			
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		LINE FREQUENCY REF.	PB–5
	1	EARTH GROUND	----
	2	AC LINE	PB–12
	3	AC NEUTRAL	PB–10
	4	LOGIC GROUND	----

DET. LOOPS 1–8 (J14) C/C 33284G2		
PIN	SIGNAL	TO
1	LOOP 1+	LPI1: TB1–1
2	LOOP 1–	LPI1: TB1–3
3	LOOP 2+	LPI1: TB1–4
4	LOOP 2–	LPI1: TB1–6
5	LOOP 3+	LPI1: TB1–7
6	LOOP 3–	LPI1: TB1–9
7	LOOP 4+	LPI1: TB1–10
8	LOOP 4–	LPI1: TB1–12
9	LOOP 5+	LPI1: TB5–1
10	LOOP 5–	LPI1: TB5–3
11	LOOP 6+	LPI1: TB5–4
12	LOOP 6–	LPI1: TB5–6
13	LOOP 7+	LPI1: TB5–7
14	LOOP 7–	LPI1: TB5–9
15	LOOP 8+	LPI1: TB5–10
16	LOOP 8–	LPI1: TB5–12
17	PMT. DET. CH. C	LPI1: TB9–1
18	PMT. DET. CH. D	LPI1: TB9–2
19	KEY PIN	
20	PMT. CH. C/D +26VDC	LPI1: TB9–3
21	PMT. DC GROUND	LPI1: TB9–4,7
22	PMT. CH. A/B +26VDC	LPI1: TB9–8
23	PMT. DET. CH. A	LPI1: TB9–9
24	PMT. DET. CH. B	LPI1: TB9–10
25	----	
26	----	

EXPANSION OUTPUTS C/C 33284G8		
J16	FUNCTION	TO
17	DET. 17 / PMT. A OUT	MP: B19
18	DET. 18 / PMT. B OUT	MP: B20
19	PMT. C OUT	MP: B17
20	PMT. D OUT	MP: B18

DETECTOR LOOP INTERFACE

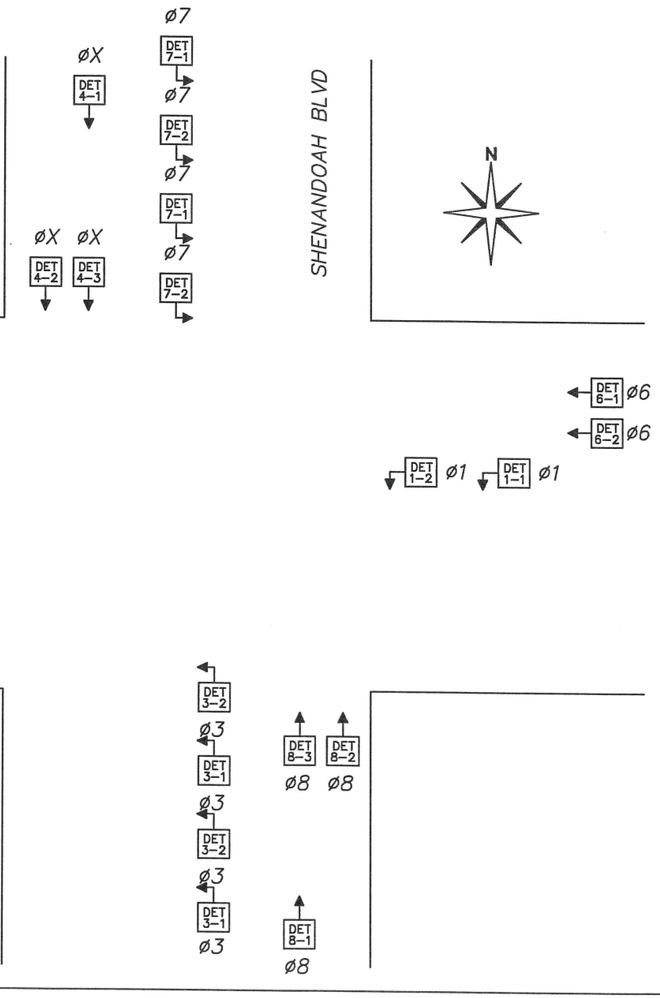
SHEET 9 OF 11	SIZE B	#14 AT SHENANDOAH

DETECTOR RACK 34030G1

POWER SUPPLY OR B.I.U.	L19	L17	L23	L21	L27	L25	L31	L29			PGM. CARD
	4–3	4–1	8–3	8–1	ø	ø	ø	ø			
	☐ 2CH ø	☐ 2CH 4–2	☐ 2CH ø	☐ 2CH 8–2	☐ 2CH ø	☐ 2CH ø	☐ 2CH ø	☐ 2CH ø			
	L20	L18	L24	L22	L28	L26	L32	L30			

J13	J16	J14	J18	J15	J17	J19
C/C 33284G10 DC POWER	C/C 33284G8 EXP. OUTPUTS	C/C 33284G2 LPS 1–8	C/C 33284G9 SYS. OUTPUTS	C/C 33284G3 LPS 9–16	C/C 33284G6 AC POWER	C/C 33284G17 PGM. CARD

DETECTOR LAYOUT



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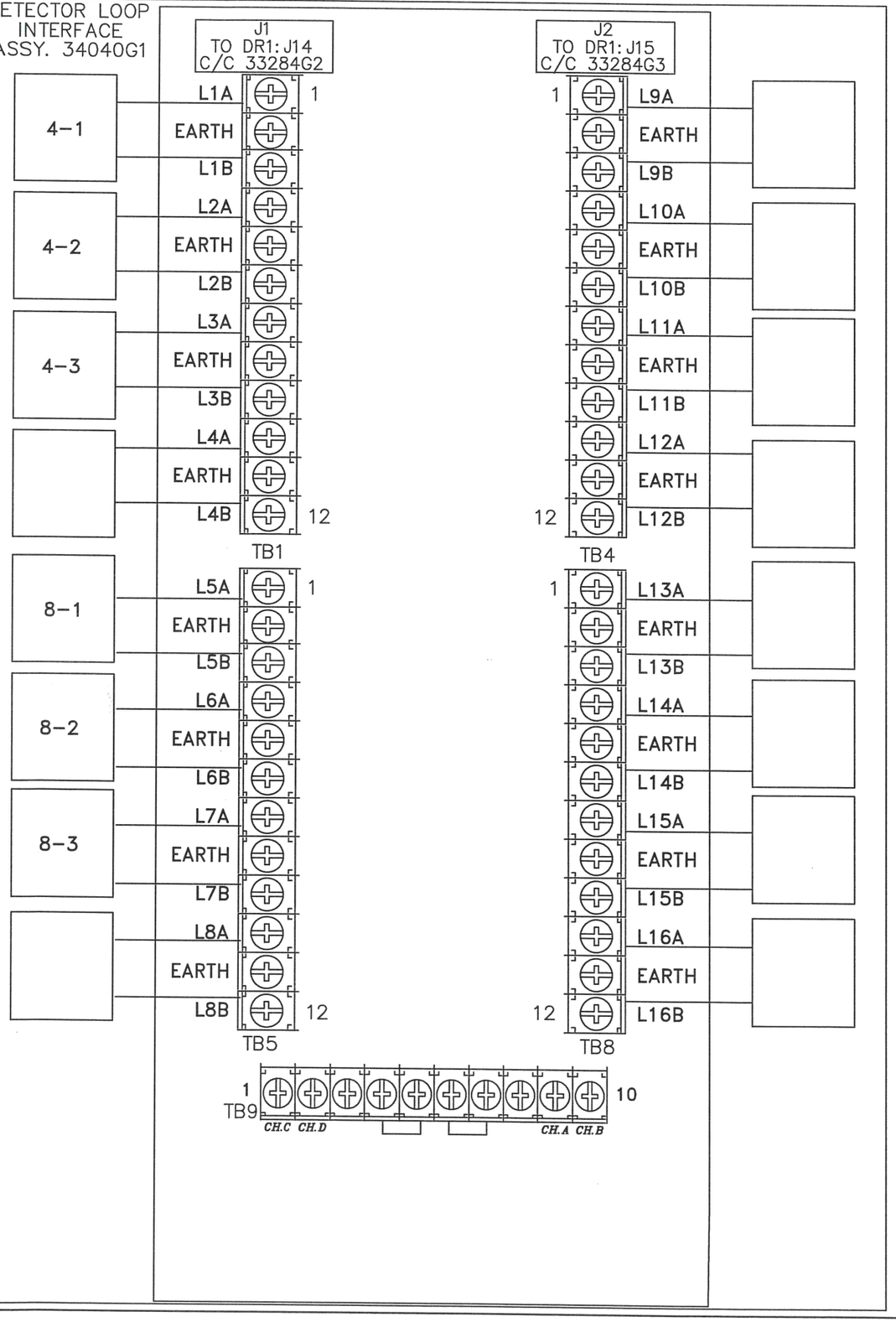
ADDRESS TABLE					
RACK #	JMPR	DET. #'S	RACK #	JMPR	DET. #'S
1		1–16	5		65–80
2		17–32	6		81–96
3		33–48	7		97–112
4		49–64	8		113–128

DETECTOR ASSIGNMENTS

CONT. INPUT	PHASE ASGN.	DETECTOR TYPE
1	1–1	1
2	1–2	1
3	5–1	1
4	5–2	1
5	2–1	1
6	2–2	1
7	6–1	1
8	6–2	1
9	3–1	1
10	3–2	1
11	7–1	1
12	7–2	1
13		
14		
15		
16		
17	4–1	1
18	4–2	1
19	4–3	1
20		
21	8–1	1
22	8–2	1
23	8–3	1
24		
25		
26		
26		
28		
29		
30		
31		
32		
33		
34		
35		
36		

DETECTOR RACK PROGRAMMING JUMPERS

DET. TYPE	JP1	JP2	SLOT 1/2 ① JP3	JP4	JP5	JP6	JP7	JP8	JP9	SLOT 3/4 ① JP10	JP11	JP12	JP13	JP14	JP15	JP16	SLOT 5/6 ① JP17	JP18	JP19	JP20	JP21	JP22	JP23	SLOT 7/8 ① JP24	JP25	JP26	JP27	JP28	JP29	JP30
① TS–1	NO	NO																												
② TS–2	YES	YES																												
③ LM–632T 262–FC	NO	NO																												
④ MAG.	NO	NO																												



DET. LOOPS 9-16 (J15) C/C 33284G3		
PIN	SIGNAL	TO
1	LOOP 9+	LPI2: TB4-1
2	LOOP 9-	LPI2: TB4-3
3	LOOP 10+	LPI2: TB4-4
4	LOOP 10-	LPI2: TB4-6
5	LOOP 11+	LPI2: TB4-7
6	LOOP 11-	LPI2: TB4-9
7	LOOP 12+	LPI2: TB4-10
8	LOOP 12-	LPI2: TB4-12
9	LOOP 13+	LPI2: TB8-1
10	LOOP 13-	LPI2: TB8-3
11	LOOP 14+	LPI2: TB8-4
12	LOOP 14-	LPI2: TB8-6
13	LOOP 15+	LPI2: TB8-7
14	LOOP 15-	LPI2: TB8-9
15	LOOP 16+	LPI2: TB8-10
16	LOOP 16-	LPI2: TB8-12
17	----	
18	----	
19	----	
20	----	

DET. RACK POWER C/C 34842G5			
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		LINE FREQUENCY REF.	PB-5
	1	EARTH GROUND	----
	2	AC LINE	PB-12
	3	AC NEUTRAL	PB-10
	4	LOGIC GROUND	----

DET. LOOPS 1-8 (J14) C/C 33284G2		
PIN	SIGNAL	TO
1	LOOP 1+	LPI1: TB1-1
2	LOOP 1-	LPI1: TB1-3
3	LOOP 2+	LPI1: TB1-4
4	LOOP 2-	LPI1: TB1-6
5	LOOP 3+	LPI1: TB1-7
6	LOOP 3-	LPI1: TB1-9
7	LOOP 4+	LPI1: TB1-10
8	LOOP 4-	LPI1: TB1-12
9	LOOP 5+	LPI1: TB5-1
10	LOOP 5-	LPI1: TB5-3
11	LOOP 6+	LPI1: TB5-4
12	LOOP 6-	LPI1: TB5-6
13	LOOP 7+	LPI1: TB5-7
14	LOOP 7-	LPI1: TB5-9
15	LOOP 8+	LPI1: TB5-10
16	LOOP 8-	LPI1: TB5-12
17	PMT. DET. CH. C	LPI1: TB9-1
18	PMT. DET. CH. D	LPI1: TB9-2
19	KEY PIN	
20	PMT. CH. C/D +26VDC	LPI1: TB9-3
21	PMT. DC GROUND	LPI1: TB9-4,7
22	PMT. CH. A/B +26VDC	LPI1: TB9-8
23	PMT. DET. CH. A	LPI1: TB9-9
24	PMT. DET. CH. B	LPI1: TB9-10
25	----	
26	----	

EXPANSION OUTPUTS C/C 33284G8		
J16	FUNCTION	TO
17	DET. 17 / PMT. A OUT	MP: B19
18	DET. 18 / PMT. B OUT	MP: B20
19	PMT. C OUT	MP: B17
20	PMT. D OUT	MP: B18

DETECTOR LOOP INTERFACE

SHEET 11 OF 11	SIZE B	#14 AT SHENANDOAH

B.I.U

DET	PH	F	DET	DLY	EXT
CH 1	1		1-1		
CH 2	1		1-2		
CH 3	5		5-1		
CH 4	5		5-2		

DET	PH	F	DET	DLY	EXT
CH 5	2		2-1		
CH 6	2		2-2		
CH 7	6		6-1		
CH 8	6		6-2		

DET	PH	F	DET	DLY	EXT
CH 9	3		3-1		
CH 10	3		3-2		
CH 11	7		7-1		
CH 12	7		7-2		

DET	PH	F	DET	DLY	EXT
CH 13					
CH 14					
CH 15					
CH 16					

EVP	PH	POLE #	CONT CH #
CH 1	1-6	2	3
CH 2	2-5	4	4
CH 3	3-8	3	5
CH 4	4-7	1	6

B.I.U

DET	PH	F	DET	DLY	EXT
CH 17	4		4-1		3
CH 18	4		4-2	10	
CH 19	4		4-3		
CH 20					

DET	PH	F	DET	DLY	EXT
CH 21	8		8-1		
CH 22	8		8-2	10	
CH 23	8		8-3		
CH 24					

DET	PH	F	DET	DLY	EXT
CH 25					
CH 26					
CH 27					
CH 28					

DET	PH	F	DET	DLY	EXT
CH 29					
CH 30					
CH 31					
CH 32					

EVP SENSORS

CABLE	DISCR. CHAN.	PHASES	POLE#	TERMINAL TB9 SIGNAL	DC(+)	GND
24	1	1-6	2	A	26+	GND
39	2	2-5	4	B	26+	GND
51	3	3-8	3	C	26+	GND
13	4	4-7	1	D	26+	GND

EVP VERIFY LIGHTS

CABLE	CONTR CHAN.	PHASES	POLE#	TERM.
23	3	1-6	2	13R
38	4	2-5	4	14R
50	5	3-8	3	15R
12	6	4-7	1	16R

VEHICLE SIGNALS

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

VEH DETECTORS

CABLE	DET	SLOT	FUNC	RACK	TERMINAL
43	1-1	1	1	1	L1
44	1-2	2	1	1	L2
14	2-1	5	1	1	L5
15	2-2	6	1	1	L6
31	3-1	9	1	1	L9
32	3-2	10	1	1	L10
27	4-1	17	3/8	2	L1
25	4-2	18	7	2	L2
26	4-3	19	1	2	L3
16	5-1	3	1	1	L3
17	5-2	4	1	1	L4
52	6-1	7	1	1	L7
53	6-2	8	1	1	L8
28	7-1	11	1	1	L11
29	7-2	12	1	1	L12
42	8-1	21	3/8	2	L5
40	8-2	22	7	2	L6
41	8-3	23	1	2	L7

PED PUSHBUTTONS

CABLE	PPB	TERMINAL	RETURN
10	2-1	PC2	GB1
36	2-2	PC2	GB1
22	4-1	PC4	GB1
11	4-2	PC4	GB1
48	6-1	PC6	GB1
21	6-2	PC6	GB1
37	8-1	PC8	GB1
49	8-2	PC8	GB1

PED SIGNALS

CABLE	SIGNAL	TERMINAL WK	DW
8	2-1	49	53
34	2-2	50	54
19	4-1	55	59
8	4-2	56	60
46	6-1	61	65
19	6-2	62	66
34	8-1	67	71
46	8-2	68	72