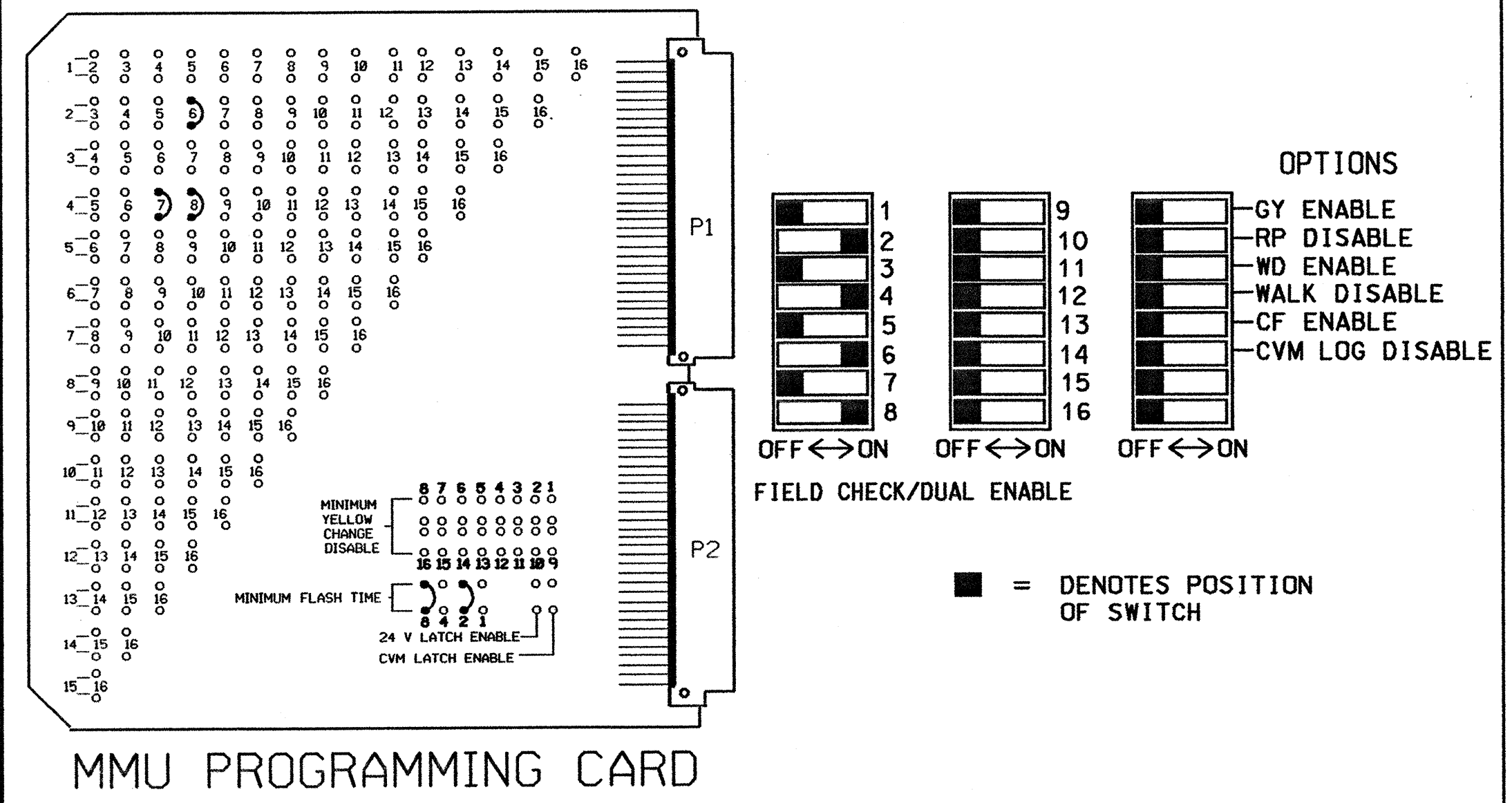


**EDI MODEL MMU-16E  
MALFUNCTION MANAGEMENT UNIT  
PROGRAMMING DETAIL**

(JUMPERS AND SWITCH SETTINGS ARE SAME AS TEMPORARY DESIGN)



- NOTES**
- TO PREVENT "FLASH-CONFLICT" PROBLEMS, WIRE ALL UNUSED LOAD SWITCHES TO FLASH RED. VERIFY THAT SIGNAL HEADS FLASH IN ACCORDANCE WITH THE SIGNAL PLANS.
  - TO PREVENT RED FAILURES ON UNUSED MONITOR CHANNELS, TIE UNUSED LOAD SWITCH RED OUTPUTS: 1, 3, 5, 9, 10, 11, & 12 TO LOAD SWITCH AC+ BY INSERTING A JUMPER PLUG IN THE UNUSED LOAD SWITCH SOCKET FROM PIN 1 (LS AC+) TO PIN 3 (RED OUT). MAKE SURE ALL FLASH TRANSFER RELAYS ARE IN PLACE.
  - PROGRAM THE CONTROLLER TO START UP IN PHASES 2 AND 6 GREEN.
  - SET POWER-UP FLASH TIME TO 10 SECONDS AND IMPLEMENT ON THE MALFUNCTION MANAGEMENT UNIT. SET CONTROLLER POWER-UP FLASH TIME TO 0 SECONDS.
  - ENABLE SIMULTANEOUS GAP-OUT FEATURE, ON CONTROLLER UNIT, FOR ALL PHASES.
  - PROGRAM PHASES 4 AND 8, ON CONTROLLER UNIT, FOR DUAL ENTRY.
  - SET ALL DETECTOR CARD UNITS TO 'PRESENCE' MODE.
  - PROGRAM DETECTOR CALL DELAY AND EXTENSION TIMING ON THE CONTROLLER UNLESS OTHERWISE SPECIFIED.
9. THIS CONTROLLER AND CABINET HAS BEEN PROGRAMMED AND WIRED AS PART OF AN EXISTING CLOSED LOOP SYSTEM ON US 70. THIS CONTRACTOR IS RESPONSIBLE FOR THE PROPER INTERCONNECTING AND OPERATION OF THIS SIGNAL WITHIN THE SYSTEM.

NOTE THE ADDITION OF SIGNAL HEAD '23' FOR FINAL DESIGN.

**FIELD CONNECTION HOOK-UP CHART**

PHASE	1	2	3	4	5	6	7	8	2 PED	4 PED	6 PED	8 PED
SIGNAL HEAD NO.	NU	21,22,23	NU	41,42	NU	61,62	41	81,82	NU	NU	NU	NU
GREEN		2G		4G		6G		8G				
YELLOW		2Y		4Y		6Y	*	8Y				
RED		2R		4R		6R		8R				
RED ARROW												
YELLOW ARROW												
GREEN ARROW								7G				

NU = NOT USED  
\*INSTALL LOAD RESISTOR ON LOAD SWITCH 7 YELLOW FIELD TERMINAL. REFER TO LOAD RESISTOR INSTALLATION DETAIL THIS SHEET.

**LOAD SWITCH ASSIGNMENT DETAIL**  
(program controller according to schedule in chart below)

LOAD SWITCH NUMBER	FUNCTION
1	Ø 1
2	Ø 2
3	Ø 3
4	Ø 4
5	Ø 5
6	Ø 6
7	Ø 7
8	Ø 8
9	Ø 2 PED
10	Ø 4 PED
11	Ø 6 PED
12	Ø 8 PED

**DETECTOR RACK SET-UP DETAIL**

INSERT DETECTOR CARDS IN RACK ACCORDING TO THE DETAIL SHOWN BELOW. PARTICULAR DETECTOR CHANNELS WILL CALL PHASES INDICATED.

BIU	CH1	CH1	CH1	CH1	CH1	CH1	SLOT	CH1	SLOT	SLOT	SLOT
	L3	L1	L7	L5	L11	L9		L13			
	Ø2	Ø2	Ø6	Ø4	Ø8	Ø6		SYS. DET.			
	CH2	CH2	CH2	CH2	CH2	CH2	EMPTY	CH2	EMPTY	EMPTY	EMPTY
	L4	L2	L8	L6	L12	L10		L14			
	Ø2	Ø2	Ø6	Ø4	Ø8			SYS. DET.			
	*					NOT USED					

**EQUIPMENT INFORMATION**

CONTROLLER.....ECONOLITE ASC/2S-2100\*\*  
 CABINET.....ECONOLITE M/PNL [TS2-1] TYPE NC-4\*\*  
 CABINET MOUNT.....BASE  
 LOADBAY POSITIONS.....12  
 LOAD SWITCHES USED.....2, 4, 6, 7, 8  
 PHASES USED.....2, 4, 6, 7\*, 8  
 OL/A.....NOT USED  
 OL/B.....NOT USED  
 OL/C.....NOT USED  
 OL/D.....NOT USED  
 MASTER CONTROLLER.....ECONOLITE ASC/2M-1000\*\*  
 (MOUNTED IN THIS CABINET)

\* USED IN R. R. CLEAR ONLY  
 \*\* EXISTING TO REMAIN IN USE

WIRE LOOPS TO TERMINALS ON LOOP PANEL AS SHOWN IN THE CHART BELOW

LOOP NO.	LOOP PANEL TERMINALS
2A,2B	L1A, L1B
2C	L2A, L2B
2D	L3A, L3B
2E	L4A, L4B
4A	L5A, L5B
4B	L6A, L6B
6A,6B	L7A, L7B
6C,6D	L8A, L8B
6E	L9A, L9B
—	L10A, L10B
8A	L11A, L11B
8B	L12A, L12B
S18	L13A, L13B
S19	L14A, L14B
—	L15A, L15B
—	L16A, L16B

**NOTE**  
BE SURE TO PROGRAM DETECTOR TYPES AND TIMERS (EXTEND AND DELAY) AS SHOWN ON THE SIGNAL PLANS.

ASSIGN CONTROLLER SYSTEM DETECTORS TO LOCAL CONT. DET. NUMBERS AS SHOWN IN CHART BELOW

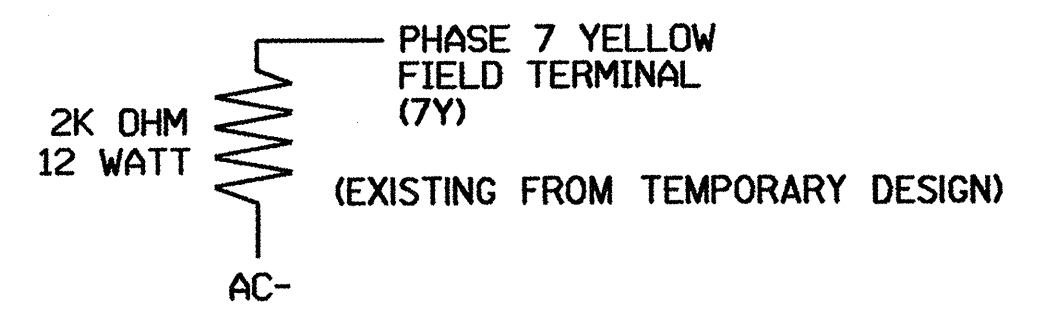
CONTROLLER SYS. DET. NO.	LOCAL CONT. DETECTOR NO.
1	13
2	14
3	—
4	—
5	—
6	—
7	—
8	—

PROGRAM CONTROLLER DETECTORS ACCORDING TO THE SCHEDULE SHOWN IN THE CHART BELOW

CONTROLLER DETECTOR NO.	FUNCTION	TIMING	
		FEATURE	TIME (SEC)
1	Ø 2	EXTEND	1.8
2	Ø 2	—	—
3	Ø 2	—	—
4*	Ø 2	DELAY	3
5	Ø 4	DELAY	3
6	Ø 4	DELAY	15
7	Ø 6	EXTEND	1.8
8	Ø 6	—	—
9*	Ø 6	DELAY	3
10	—	—	—
11	Ø 8	DELAY	3
12	Ø 8	DELAY	15
13	SYSTEM	—	—
14	SYSTEM	—	—
15	—	—	—
16	—	—	—

\* THIS DETECTOR IS EQUIPPED WITH DELAY AND EXTEND TIMER. PROGRAM THE TIMING REQUIRED FOR THIS DETECTOR CHANNEL ON THE DETECTOR UNIT, NOT THE CONTROLLER.

**LOAD RESISTOR INSTALLATION DETAIL**



THE PURPOSE OF THIS RESISTOR IS TO LOAD THE CHANNEL YELLOW MONITOR INPUT IN ORDER TO PREVENT THE MALFUNCTION MANAGEMENT UNIT FROM DETECTING ANY POSSIBLE 'PHANTOM' (OR FALSE) CONFLICTS, AS THIS CHANNEL HAS NO YELLOW FIELD DISPLAY.

FINAL DESIGN

**ELECTRICAL DETAIL - SHEET 1 of 2**

US 70 at SR 2318 (SHILOH CHURCH/FANJOY ROAD)  
 DIVISION 12 IREDELL COUNTY E. of STATESVILLE

PLANNED BY: F. E. RUSS  
 REVIEWED BY: T. J. JAYLE

DATE: JANUARY 2003

222 N. McDowell St., Raleigh, NC 27603

SEAL OF NORTH CAROLINA PROFESSIONAL ENGINEER GEORGE C. BROWN

SIG. INVENTORY NO. 12-1137