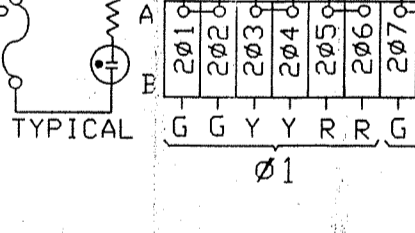
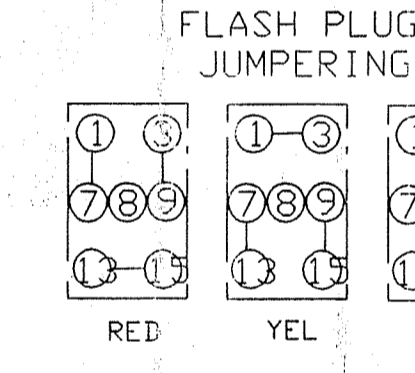
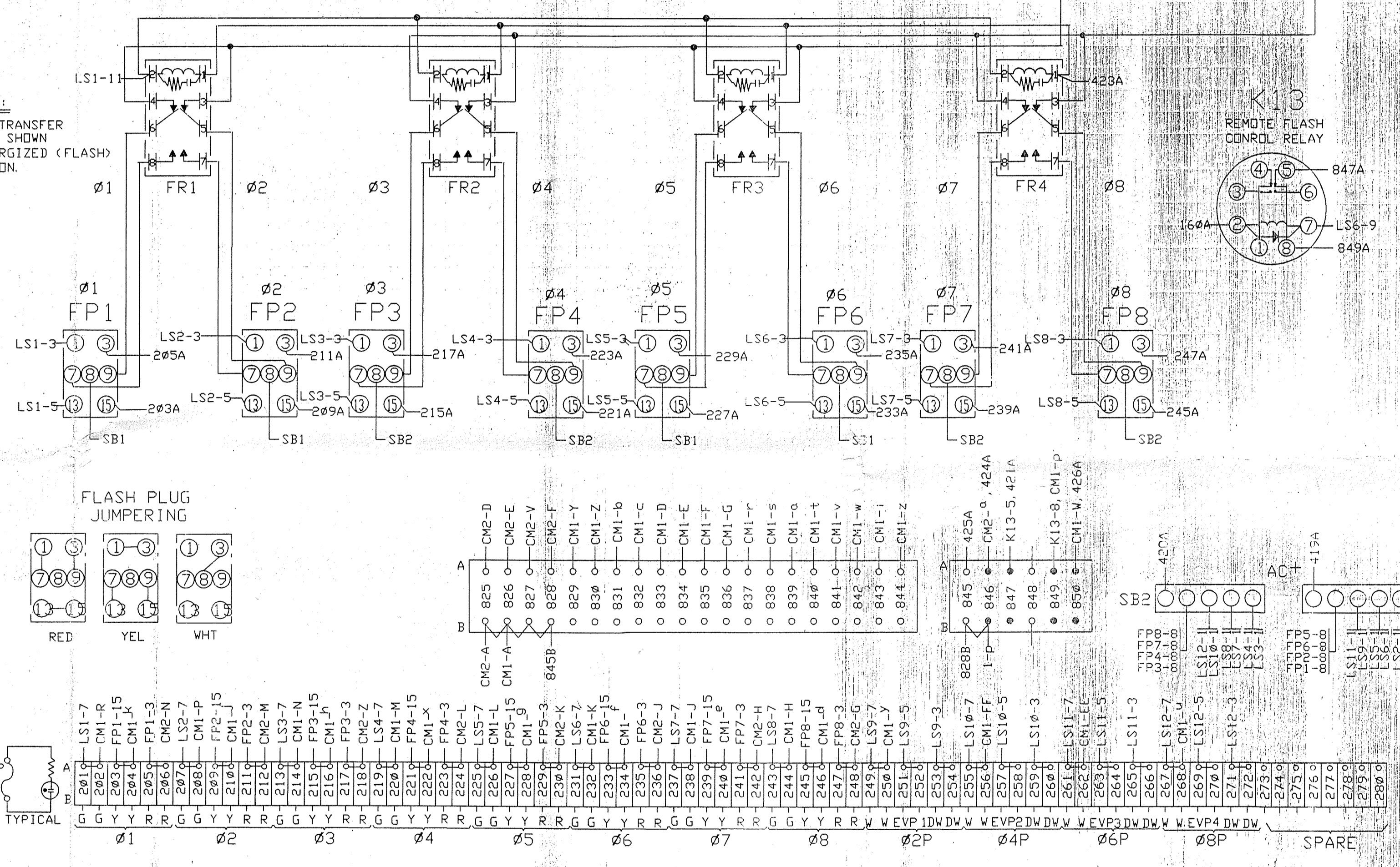


LS	1	2	3	4	5	6	7	8	9	10	11	12	13	14
CONT	1	2	3	4	5	6	7	8	2P	4P	6P	8P		
PLAN														
GREEN / WALK	10	62A	69A	76A	82A	102A	109A	116A	122A	72A	85A	112A	125A	
YELLOW / PED CLR	8	63A	70A	77A	83A	103A	110A	117A	123A	142B	144B	146B	148B	
RED / DON'T WALK	6	64A	71A	78A	84A	104A	111A	118A	124A	73A	86A	113A	126A	
GREEN / WALK	7	201A	207A	213A	219A	225A	231A	237A	243A	249A	255A	261A	267A	
RED / DON'T WALK	3	FP1-1	FP2-1	FP3-1	FP4-1	FP5-1	FP6-1	FP7-1	FP8-1	253A	259A	265A	271A	
+24 VDC	9													60B
CHASSIS GROUND	2													GB1
AC NEUTRAL	11	NB1	NB1	NB1	NB1	NB1	NB1	NB1	NB1	NB1	NB1	NB1	NB1	NB1
115 VAC	1	SB1	SB1	SB2	SB2	SB1	SB1	SB2	SB2	SB1	SB2	SB1	SB2	SB1

NOTE:
FLASH TRANSFER RELAYS SHOWN DE-ENERGIZED (FLASH) POSITION.



SCREW SIZE	6-32	8-32	10-32
POUND INCHES	12	16	25.9
BLOCK TYPE	SAK56	RK6-10	SAK35N
POUND INCHES	16.5	16	35
BLOCK TYPE	ZB35	ZB10	
POUND INCHES	35.5	17.75	

VEHICLE SIGNALS		TERMINAL	
SIGNAL	← G ← Y ← R	G	Y
1-1	201 203 205		
1-2	202 204 206		
2-1		207 209 211	
2-2		208 210 212	
2-3		207 209 211	
6-1		231 233 235	
6-2		232 234 236	
6-3		231 233 235	
8-1		243 245 247	
8-2		244 246 248	
8-3		243 245 247	

VEH DETECTORS		TERMINAL	
DET		TERM	
D1-1	303, 304		
D1-2	306, 307		
D2-1	345, 346		
D2-2	348, 349		
D2-3	350, 351		
D6-1	313, 314		
D6-2	316, 317		
D6-3	318, 319		
D8-1	353, 356		
D8-2	358, 359		

PED SIGNALS		TERMINAL	
SIGNAL	WK	DW	
P2-1	249	253	
P2-2	250	254	
P6-1	261	265	
P6-2	262	266	
P8-1	267	271	
P8-2	268	272	

PED PUSHBUTTONS		TERMINAL	
PPB		TERM	
PB2-1,2	301		
PB6-1,2	343		
PB8-1,2	344		

EVP SENSORS		TERMINAL	
CONTR. CHAN.	PHASES	POLE #	SIGNAL
1	1/6	3	333 334 337
2	2	1	336 334 337
3	8	4	338 339 342

EVP CONFIRMATORY LIGHTS		TERMINAL	
CONTR. CHAN.	PHASES	POLE #	TERM
1	1/6	3	251
2	2	1	257
3	8	4	263

NOTES:

- 1) If EVP HEADS ARE INSTALLED JUMPER 367B TO 369B AND / OR 335B TO 337B.

TERMINAL BLOCK WIRING:

VEHICLE SIGNALS: G, Y, R

VEH DETECTORS: D1, D2, D6, D8

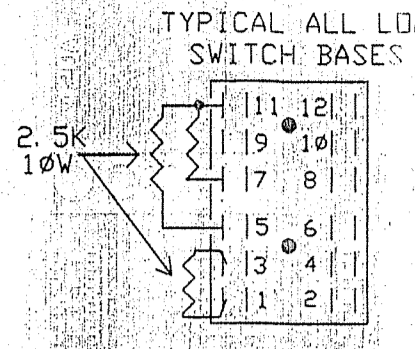
PED SIGNALS: P2, P6, P8

PED PUSHBUTTONS: PB2, PB6, PB8

EVP SENSORS: 1, 2, 3

EVP CONFIRMATORY LIGHTS: 1, 2, 3

LOAD SWITCH PANEL ASSEMBLY



NEMA #2CH CONFLICT MONITOR

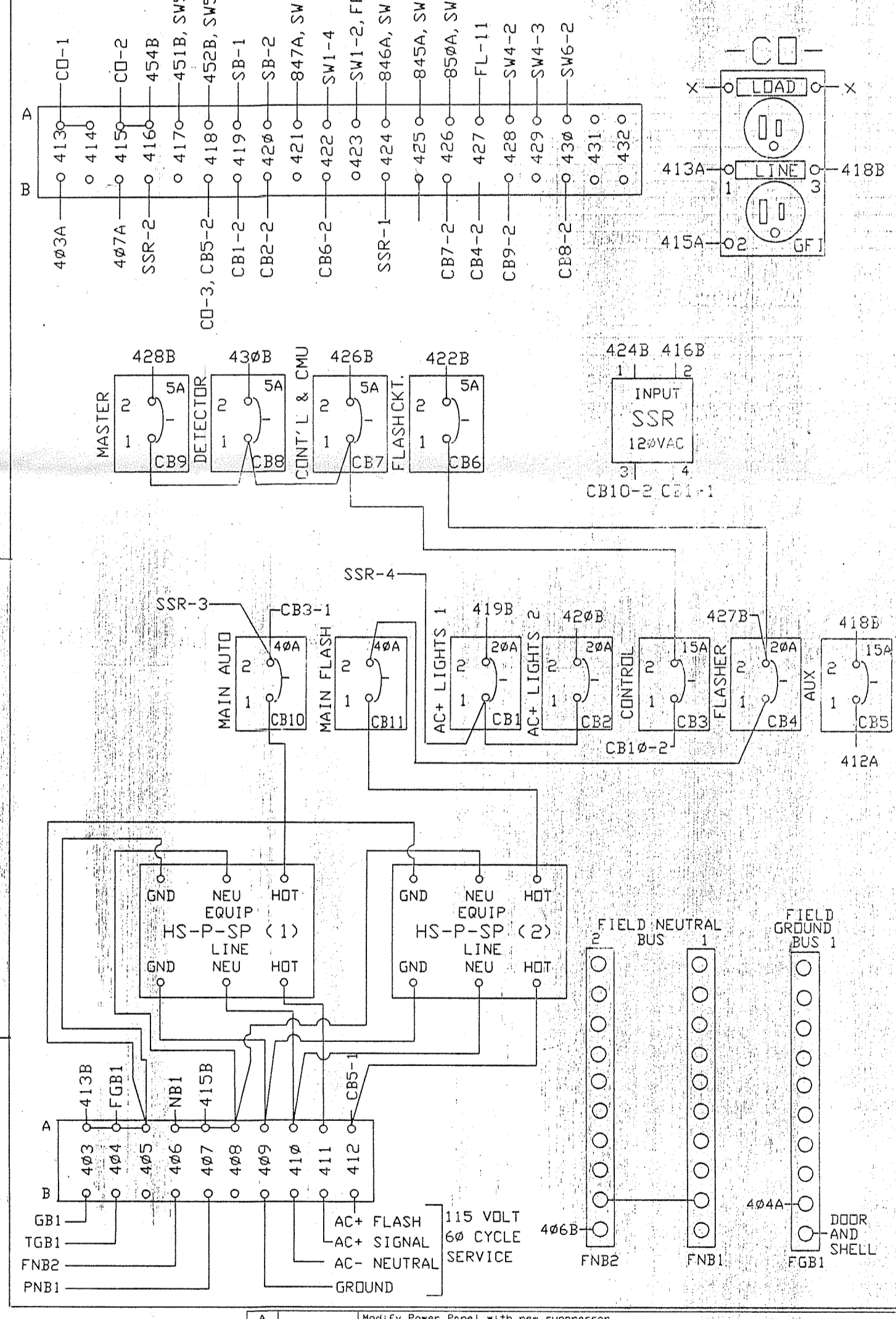
CM1	CM2
SH1 SHELL GROUND	GB1
A AC+I	826B
B RELAY 1 ND	148A
C RELAY 2 NC	141A
D CH 12 GRN	833A
E CH 1 GRN	834A
F CH 1 GRN	835A
G CH 1 GRN	836A
H CH 1 GRN #8	244A
I CH 1 GRN #7	238A
J CH 1 GRN #6	232A
K CH 1 GRN #5	226A
L CH 1 GRN #4	220A
M CH 1 GRN #3	214A
N CH 1 GRN #2	208A
O CH 1 GRN #1	202A
P +24V MONITOR I	59B
Q LOGIC GROUND	53B
R CHASSIS GROUND	SHELL
S (NEUTRAL)	NB1
V RELAY 1 COMMON (A)	850A
X RELAY 2 COMMON (A)	54B
Y CH 1 YEL	829A
Z CH 1 YEL	830A
a CH 1 WK	839A
b CH 1 YEL	831A
c CH 1 L #8	832A
d CH 7 YEL #7	246A
e CH 6 YEL #6	240A
f CH 5 YEL #5	234A
g CH 3 YEL #3	216A
h CH 2 YEL #2	210A
i CH 1 YEL #1	204A
m CONT. VOLT. MON.	52B
n +24V MONITOR INHIBIT	1001B
p RELAY 1 NC	849A
q RELAY 2 ND	156A
r CH 12 WK	837A
s CH 11 WK	838A
t CH 9 WK	840A
u CH 8 WK #8	268A
v CH 7 WK	841A
w CH 5 WK	842A
x CH 4 YEL #4	222A
y CH 2 WK #2	250A
z CH 1 WK	844A
aa SPARE 1	142A
bb RESET	144B
cc CAB INTERLOCK A	143B
dd CAB INTERLOCK B	1402B
ee CH 6 WK #6	252A
ff CH 4 WK #4	254A
gg SPARE 2	144A
hh SPARE 3	144A

CONFLICT MONITOR MATRIX PROGRAMMING INSTRUCTIONS

1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12
1-3	2-4	3-5	4-6	5-7	6-8	7-9	8-10	9-11	10-12	
1-4	2-5	3-6	4-7	5-8	6-9	7-10	8-11	9-12		
1-5	2-6	3-7	4-8	5-9	6-10	7-11	8-12			
1-6	2-7	3-8	4-9	5-10	6-11	7-12				CH5-0 5
1-7	2-8	3-9	4-10	5-11	6-12					CH6-0 6
1-8	2-9	3-10	4-11	5-12						CH7-0 7
1-9	2-10	3-11	4-12							CH8-0 8
1-10	2-11	3-12								CH9-0 9
1-11	2-12									CH10-0 10
1-12										CH11-0 11
										CH12-0 12

CHANNEL-0 COMBINATIONS NOT PINNED WITH MATRIX JUMPERS CONSTITUTE CONFLICTING MOVEMENTS TO PROGRAM. CIRCLE PERMISSIVE COMBINATIONS AND INSTALL JUMPERS ON CORRESPONDING PINS ON THE PROGRAM CARD.

POWER PANEL ASSEMBLY (FRONT VIEW)



AC BUS (ISOLATED NEUTRAL)

GROUND BUS

AC+ SIGNAL SERVICE

AC- NEUTRAL

GROUND

REVISION:

REV. STATUS:

SHEET 1 2 3

REV. D C C

ANOKA

DATE: 05/10/97

REVISION:

FILE: ACT98P1

REV. D SHEET 1 OF 3

River Rapids Dr.

#9 / ROUNDLAKE AT SHOPPING CTR S.W.

Electronics, Inc.

MODEL 1997 'R' & 'P' CABINET

SCALE: 1" = 1"

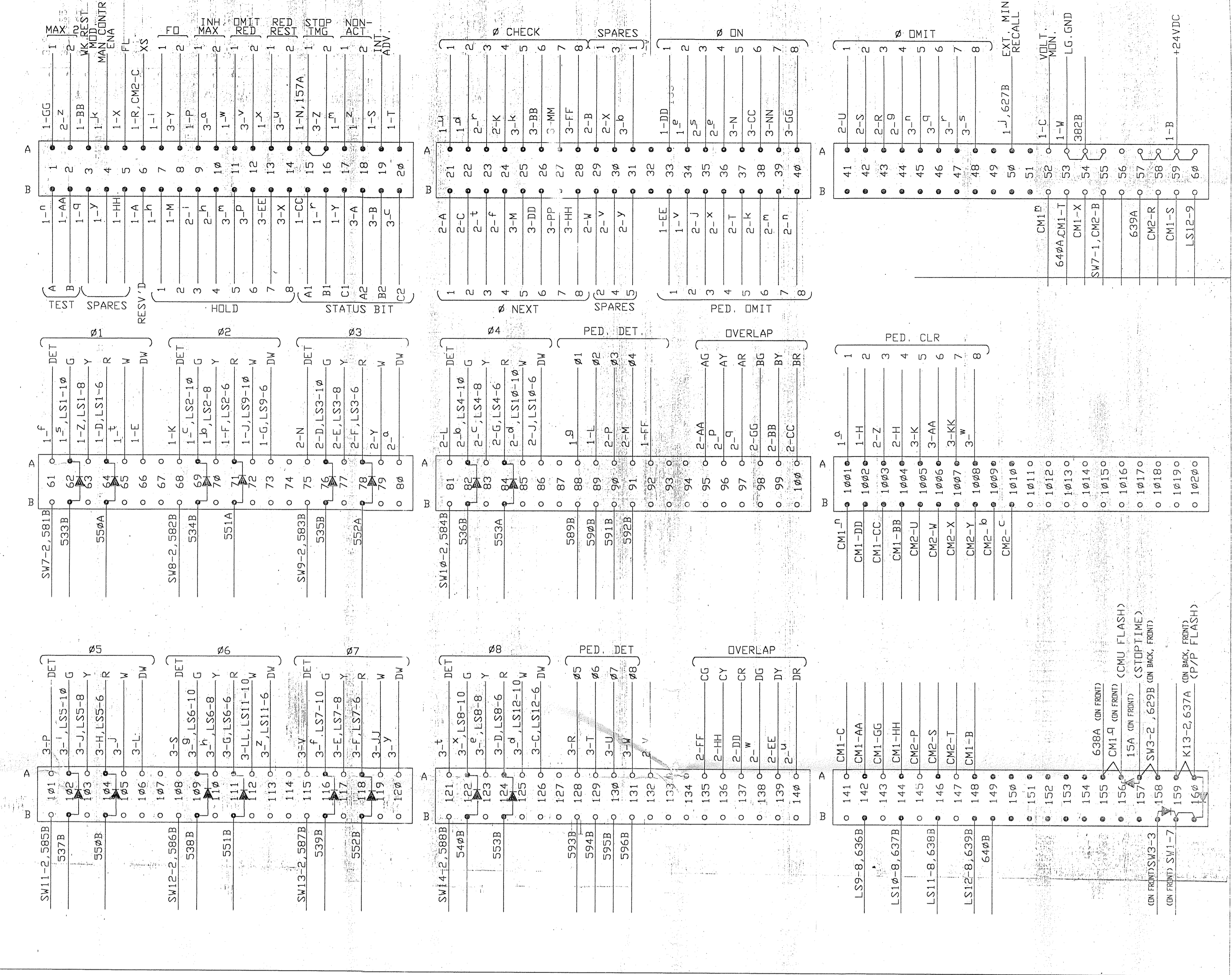
SD RVT #9

CONTROLLER INTERFACE PANEL

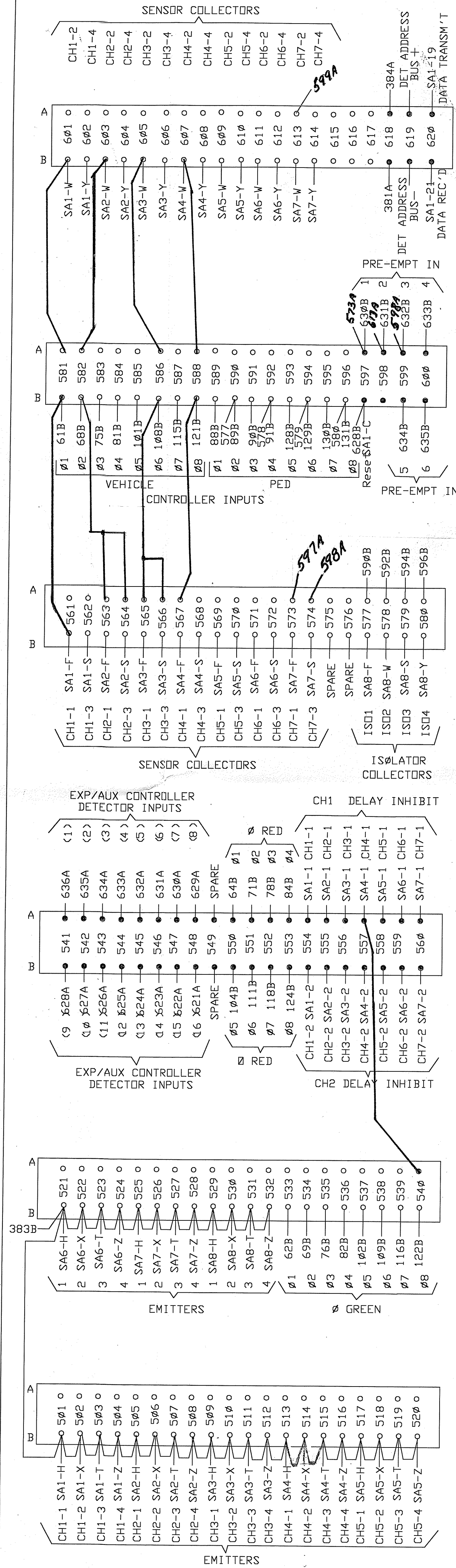
1	2	3
SH SHELL GROUND 1-V	A1 #1 PHASE NEXT 21B	AL STATUS BIT A2 18B
A RESV. 6B	B1 SPARE 1 29A	BL STATUS BIT B2 19B
B 24VDC+ 59A	C #2 PHASE NEXT 22B	CL #8 DWK 126A
C VOLTAGE MONITOR 52A	D #3 GRN 76A	DL #8 RED 124A
D #1 RED 64A	E #3 YEL 77A	EL #7 YEL 117A
E #1 DWK 61A	F #3 RED 78A	FL #6 RED 118A
F #2 DWK 73A	G #4 RED 84A	GL #5 RED 111A
G #2 PCL 1002A	H #4 PCL 1004A	HL #5 PCL 103A
J #2 WK 72A	JL #4 DWK 86A	JL #5 YEL 104A
K #2 VEH DET 68A	KL #4 CHECK 81A	KL #5 PCL 103A
L #2 PED DET 89A	LL #4 VEH DET 24A	LL #5 DWK 1005A
M #2 HOLD 88B	ML #4 PED DET 81A	ML #5 PHASE NEXT 106A
N STOP TIMING 1 15A	NL #3 VEH DET 91A	NL #5 PHASE ON 25B
P INHIBIT MAX TERM 1 9A	PL #3 PED DET 75A	PL #5 VEH DET 101A
R EXTERNAL START 6A	PL #3 PHASE OMIT 90A	PL #5 PED DET 128A
S INTERVAL ADVANCE 19A	PL #3 PHASE OMIT 43A	PL #5 VEH DET 108A
T INDICATOR LAMP CONT 20A	SL #2 PHASE OMIT 42A	SL #5 PED DET 129A
U AC- NEUTRAL NB1	TL #5 PED DET 37B	TL #5 PHASE OMIT 41A
V CHASSIS GROUND GB1	UL #1 PHASE OMIT 41A	UL #7 PED DET 130A
W LOGIC GROUND 53A	VL # PED RECYCLE 2 132A	VL #7 VEH DET 115A
X FLASH LOGIC OUT 53A	WL SPARE 2 29B	WL #8 PED DET 131A
Y STATUS BIT C1 5A	XL SPARE 3 30A	XL #8 HOLD 14B
Z #1 YEL 17B	YL #3 WK 79A	YL FORCE OFF 2 8A
a #1 PCL 63A	ZL #3 PCL 1003A	ZL STOP TIME 2 16A
b #1 YEL 1001A	a #3 DWK 80A	a # INHIBIT MAX TERM 2 10A
c #2 GRN 70A	k #4 GRN 82A	b SPARE 1 31A
d #2 CHECK 69A	cl #4 YEL 83A	c STATUS BIT C2 20B
e #2 PHASE ON 22A	el #4 WALK 85A	d #8 WK 125A
f #1 VEH DET 34A	e #4 PHASE ON 36A	d #8 YEL 123A
g #1 PED DET 61A	f #4 PHASE NEXT 24B	f #7 GRN 116A
h #1 HOLD 88A	g #4 PHASE OMIT 44A	g #6 GRN 199A
i #1 HOLD 73A	h #4 HOLD 10B	h #6 YEL 111A
j #1 FORCE OFF 1 7A	il #3 HOLD 9B	il #5 GRN 111A
k #1 EXT MIN RECALL ALL 50A	jl #3 PED OMIT 35B	jl #5 WK 11A
l #1 MAN. CONTROL ENABLE 4A	kl #6 PED OMIT 38B	kl #5 CHECK 15A
m #1 CALL TO NON-ACT I 17A	ml #7 PED OMIT 39B	ml #5 HOLD 3A
n #1 TEST INPUT A 1B	nl #8 PED OMIT 40B	nl #5 PHASE OMIT 3A
o #1 AC+ CONTROL 846B	pl #1 A YEL 96A	pl #6 HOLD 12B
p #1 SPARE 1 3B	ql #1 A RED 97A	ql #6 PHASE OMIT 46A
q #1 STATUS BIT B1 16B	r #3 CHECK 23A	rl #7 PHASE OMIT 47A
r #1 GRN 62A	s #3 PHASE ON 35A	sl #8 PHASE OMIT 48A
t #1 WK 65A	tl #3 PHASE NEXT 23B	tl #8 VEH DET 121A
u #1 CHECK 21A	ul #1 D RED 140A	ul #8 REST MODE 2 12A
v #2 PED OMIT 34B	vl # SPARE 4 30B	vl #8 PED CLR 2 12A
w #1 DMIT RED CLR 11A	wl #4 PED OMIT 138A	wl #8 GRN 1008A
x #1 RED REST MODE 1 13A	xl # SPARE 5 36B	xl #8 PCL 122A
y #1 SPARE 2 4B	yl # MAX 2 SELECT 2 31B	yl #7 DWK 120A
z #1 CALL TO NON-ACT II 18A	zl #6 DWK 120A	zl #6 DWK 113A
aa #1 TEST INPUT B 2B	aal #1 PCL 1006A	aal #6 PCL 1006A
ab #1 WALK REST MODIFIER 3A	bb #1 D B YEL 99A	bb #6 CHECK 26A
ac #1 STATUS BIT A1 15B	cc #1 D B RED 100A	cc #6 PHASE ON 38A
ad #1 PHASE ON 33A	dd #1 D C YEL 137A	dd #6 PHASE NEXT 26B
ae #1 PED OMIT 33B	ee #1 D D RED 139A	ee #7 HOLD 13B
af #1 PED RECYCLE 1 92A	ff #1 D C GRN 135A	ff #8 CHECK 28A
ag #1 MAX 2 SELECT 1A	gg #1 D B GRN 98A	gg #8 PHASE ON 28A
ah #1 SPARE 3 5B	hh #1 D C YEL 136A	hh #8 PHASE NEXT 28B
		jj #7 WK 119A
		kk #7 PCL 1007A
		ll #6 WK 112A
		mm #7 CHECK 27A
		nn #1 PHASE ON 39A
		pp #7 PHASE NEXT 29B

Qty	Description	Mfr. Pt. #	Manufacturer
2	block, 20 pt. closed back	73120	Vernitron
10	block, 20 pt. feedthrough	73620	Vernitron
8	block, 20 pt. feedthrough	73620-59	Vernitron
2	block, 6pt. closed back	73106	Vernitron
8	bolt, 10-32x5/16"	10-32x5/16 SS SPMS	Adams
38	bolt, .32x1/4"	6-32x1/4 SS SPMS	Adams
49	bolt, .32x1/2"	8-32x1/2 SS SPMS	Adams
4	bolt, .32x1/4"	8-32x1/4 SS SPMS	Adams
3	bus bar, 3.625"	34890	Weidmuller
1	bus bar, 3.625"	34890	Weidmuller
1	able "A", blue, UL1015, 20AVG, 116"	CABLE A	TSC
1	able "B", blue, UL1015, 20AVG, 116"	CABLE B	TSC
1	able "C", blue, UL1015, 20AVG, 116"	CABLE C	TSC
1	able "CM1", red, UL1015, 20AVG, 116"	CABLE CM1	TSC
1	able "CM2", red, UL1015, 20AVG, 116"	CABLE CM2	TSC
25	clamp, small, ZB10	126130	Weidmuller
56	contact, female, flash plug	02-09-1104D	Molex
80	contact, male, flash plug	02-09-2103	Molex
1	cover, lexan, 1.75" x 12"	LEXAN.DADBACK	Cadillac
1	cover, lexan, 2.25" x 15"	LEXAN.DADFR1	Cadillac
1	cover, SIMIRA BLACK, .118" thick, 1.9"x2.875"	COVER, HOLE, FR5	Cadillac
191	crimp, spade, 18-22 AWG	320665	AMP
20	diode, blocking	1N4005	Motorola
12	grommet, large	48600703B	Lifetime
17	grommet, small	486000547B	Lifetime
8	insulator, bus bar	29986	Weidmuller
109	jumper, between blocks	3620	Wrico
14	jumper, curved	7833	Vernitron
2	label, "High Voltage", small	PLD-67	Panduit
2	mounts, cable tie, small	TC5828	T&B
1	panel, loadbay	9601	Excel
1	panel, loadswitch support	9202	Excel
8	plug, flash, red	03-09-2154R	Molex
4	plug, flash, white	03-09-2154	Molex
4	plug, flash, yellow	03-09-2154	Molex
36	resistor, 2.5K, 7.5W min	20J2K5	Dhmitte
1	silkscreen load switch support	9202-S	SilkScreen
1	silkscreen loadbay	9601-S	SilkScreen
4	snubber	KX0472	Okaya
8	socket, flash plug	03-09-1151	Molex
4	socket, flash relay	S3-5408-LAB	Vernitron
1	socket, flasher	S3-5406-LAB	Vernitron
14	socket, loadswitch	S3-5412-LAB	Vernitron
1	socket, actal, relay	SR2P-51	Vernitron
3	standoff, 1.25"	8433	Keystone
2	standoff, 1.625"	8436	Keystone
5	tag, cable	8409-0356	SPC Products
8	washer, #10, internal lock	#10 INT LOCK SS	Adams
38	washer, #6, internal lock	#6 INT LOCK SS	Adams
48	washer, #8, internal lock	#8 INT LOCK SS	Adams
5	wingnuts, 8-32, nylon	0600932W	Adams

Qty	Description	Mfr. Pt. #	Manufacturer
8	bolt, 10-32x1/4"	10-32x1/4 SS SPMS	Adams
8	hinge, 2-4" pieces	NA570-1-1/2	Austin
2	panel, hinge	9603	Strand
16	washer, #10, internal lock	#10 INT LOCK SS	Adams

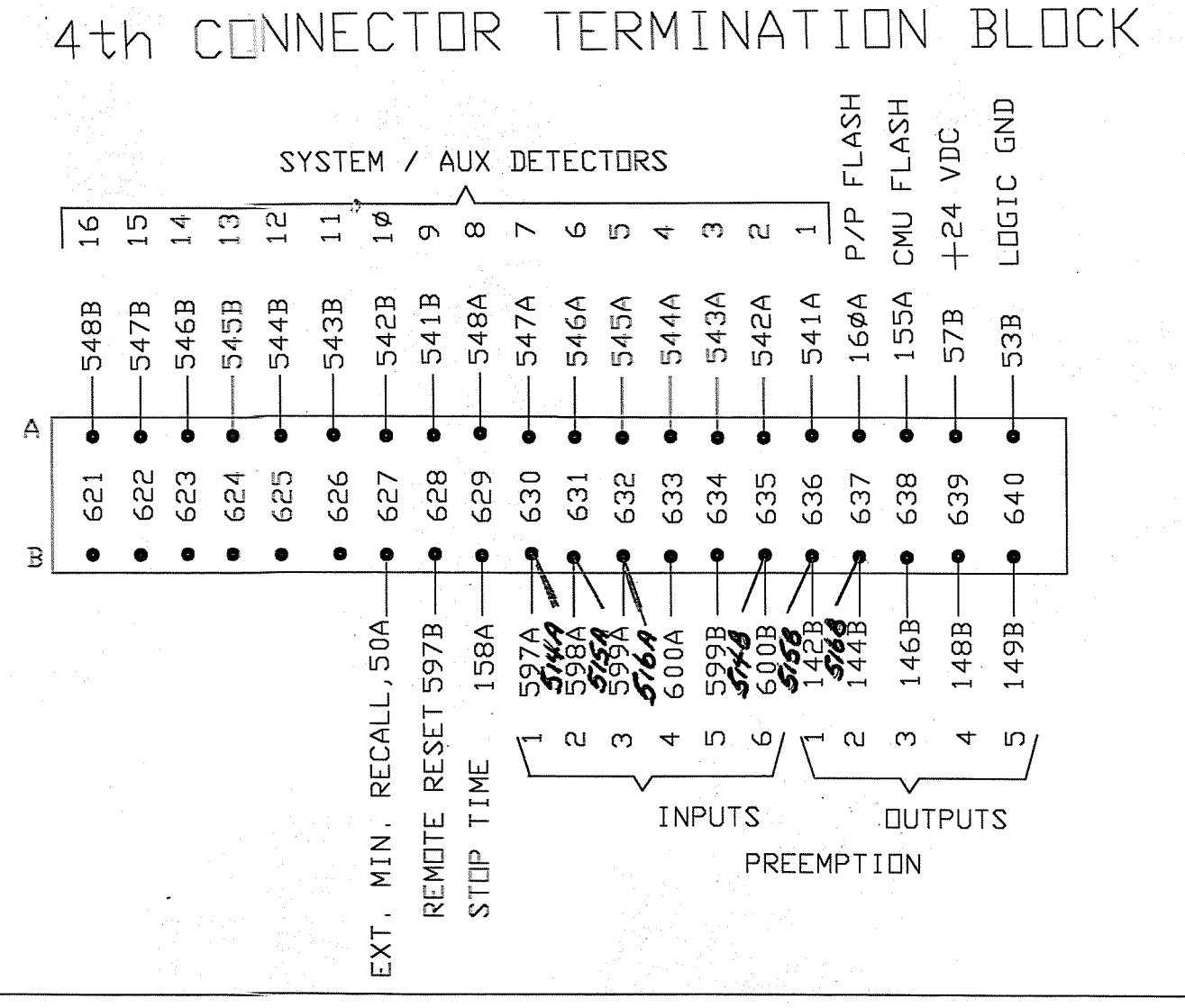
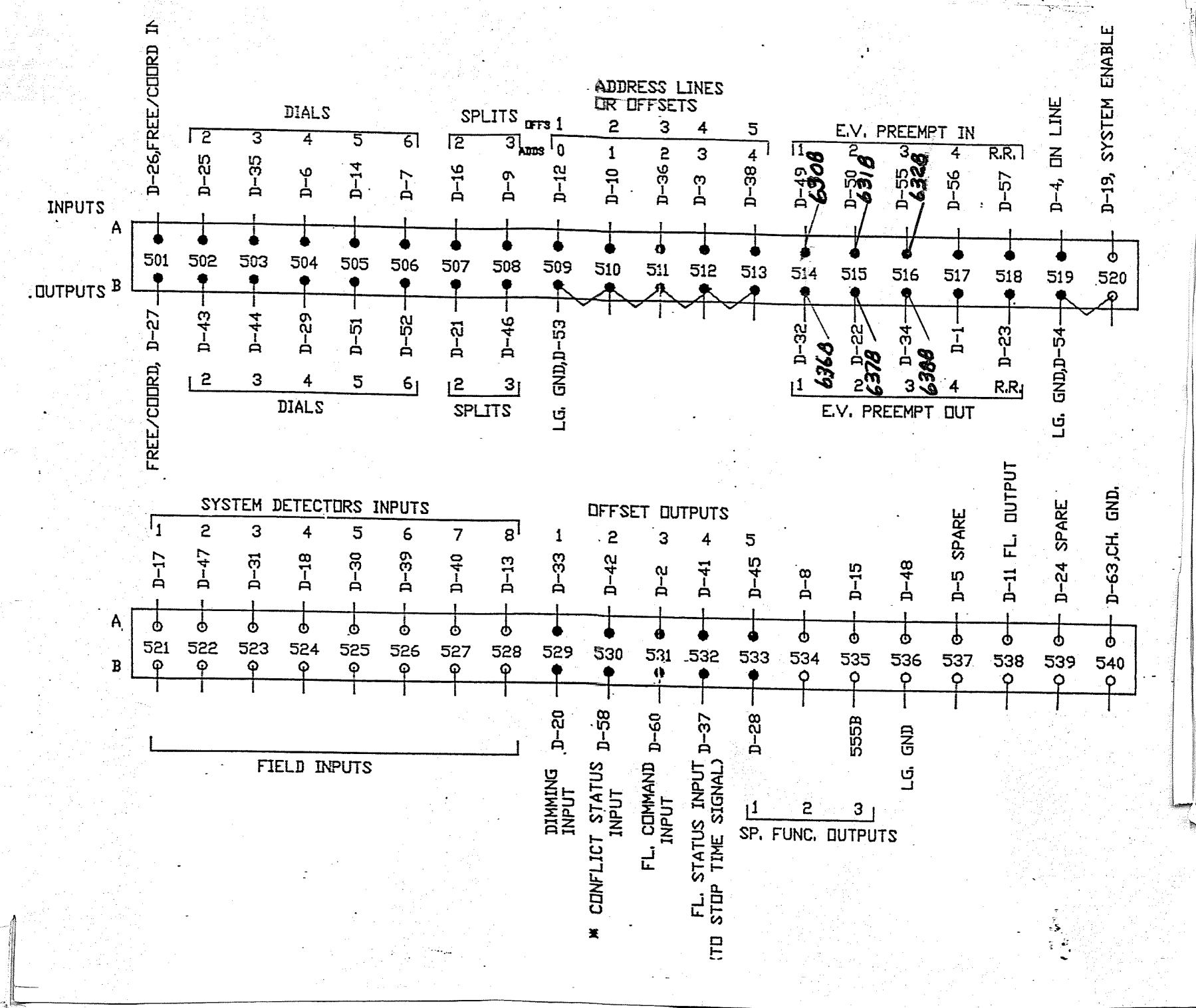


SENSOR PROGRAM PANEL



SPECIAL FUNCTION MODULE PIN ASSIGNMENT 'D' CABLE 28022900-004

CONN	PIN I/O	FUNCTION	TERM.
1	1	EMERG. PR. 4 OUT	517B
1	2	OFFSET 3 OUT	530A
1	3	OFFSET 4 (ADD BIT 3)	519A
1	4	ON LINE	519A
1	5	SPARE	537A
1	6	DIAL 4	504A
1	7	DIAL 3	504A
1	8	SPECIAL FUNCTION 2 OUT	534A
1	9	SPLIT 3	508A
1	10	OFFSET 2 (ADD BIT 1)	510A
1	11	FLASH OUT	538A
1	12	OFFSET 1 (ADD BIT 0)	509A
1	13	SYSTEM DET. 8	528A
1	14	DIAL 2	504A
1	15	SPECIAL FUNCTION 3 OUT	535A
1	16	SPLIT 2	507A
1	17	SYSTEM DET. 1 (SEQ. #1)	529A
1	18	SYSTEM DET. 4 (SEQ. #4)	524A
1	19	SYSTEM ENABLE	520A
1	20	DIMMING ENABLE	529B
1	21	SPLIT 1	507B
1	22	EMERG. PR. 2 OUT	515B
1	23	RAILROAD PR. OUT	518B
1	24	SPARE	539A
1	25	DIAL 2 (SPECIAL FUNCTION 2)	509A
1	26	FREE/COORD (SPECIAL FUNCTION 1)	501A
1	27	FREE/COORD OUT	501B
1	28	SPECIAL FUNCTION 1 OUT	533B
1	29	DIAL 4 OUT	504B
1	30	SYSTEM DET. 5	525A
1	31	SYSTEM DET. 3 (SEQ. #3)	522A
1	32	EMERG. PR. 1 OUT	514B
1	33	OFFSET 1 OUT	509A
1	34	EMERG. PR. 3 OUT	516B
1	35	DIAL 2 (SPECIAL FUNCTION 3)	509A
1	36	OFFSET 3 (ADD BIT 2)	511A
1	37	FLASH STATUS	532B
1	38	OFFSET 5 (ADD BIT 4)	513A
1	39	SYSTEM DET. 6	526A
1	40	SYSTEM DET. 7	527A
1	41	OFFSET 4 OUT	532A
1	42	DIAL 2 OUT	502B
1	43	DIAL 3 OUT	503B
1	44	OFFSET 2 OUT	533A
1	45	SPLIT 3 OUT	508B
1	46	SYSTEM DET. 2 (SEQ. #2)	522A
1	47	LOGIC GND.	536A
1	48	EMERG. PREEMPT 1	514A
1	49	EMERG. PREEMPT 2	515A
1	50	DIAL 1 OUT	505B
1	51	DIAL 6 OUT	506B
1	52	LOGIC GND.	509B
1	53	LOGIC GND.	519B
1	54	EMERG. PREEMPT 3	516A
1	55	EMERG. PREEMPT 4	517A
1	56	RAILROAD PREEMPT	518A
1	57	CONFLICT STATUS	530B
1	58	RESERVED	T
1	59	RESERVED	T
1	60	RESERVED	T
1	61	CHASSIS GND.	540A

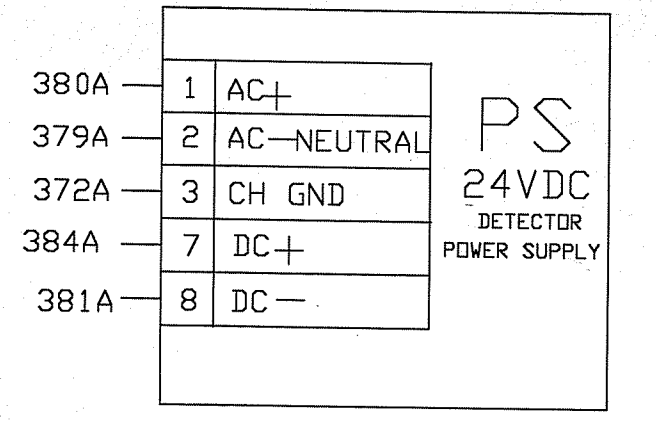


DETECTORS AND PPB ISOLATION

ALL SOCKETS ARE WIRED TO ACCEPT VEH. DET. OR EVP DISCRIMINATOR PPB ISOLATOR

PARK ADDRESS	SA-PIN	SA1				SA2		SA3		SA4		SA5		SA6		SA7		SA8		FUNCTIONS
		PHASE	FUNC	DET	MODEL	PHASE	DET	PHASE	DET	PHASE	FUNC	DET	PHASE	FUNC	DET	PHASE	FUNC	DET	PHASE	
1	A	DC GROUND			381B															1-CALL&EXTEND
2	B	24V DC+			384B															2-CALL ONLY
3	C	REMOTE RESET			597B															3-EXTEND ONLY
4	D-4	CH 1 LOOP	303A		345A			313A		355A			323A		365A		333A	301A	CH 1	4-CALL ONLY DENS
5	E-5	CH 1 LOOP	304A		346A			314A		356A			324A		366A		334A	379B	CH 2	5-DLY CALL ONLY
6	F	ADDRESS BI# 0	619B		SA1-15			SA2-10		SA3-15			SA4-15		SA5-10		SA6-15	NC	CH 3	6-DLY CALL ONLY
7	G	CH 1 OUTPUT (+)	561B		563B			565B		567B			569B		571B		573B	577B	CH 4	7-DLY CALL IMMED EXTEND
8	H	CH 1 OUTPUT (-)	501B		505B			509B		513B			517B		521B		525B	529B	CH 1	8-CARRY OVER
9	J	CH 2 LOOP	306A		348A			316A		358A			326A		368A		336A	302A	CH 2	9-ADVISORY
10	K-9	CH 2 LOOP	307A		349A			317A		359A			327A		369A		337A	378B	CH 3	10-SAMPLING
11	L	ADDRESS BI# 1	619A		SA1-6			SA3-6		SA4-6			SA4-10		SA5-15		SA7-6	NC	CH 4	11-SPECIAL -SEE NOTE-
12	M	CHASSIS GROUND	340A																CHASSIS GROUND	
13	N	AC-	SA2-M															378A	AC-(NEUTRAL)	
14	P-13	LOOP CH 3	308A		350A			318A		360A			328A		370A		338A	343A	INPUT CH 3	
15	R-14	LOOP CH 3	309A		351A			319A		361A			329A		371A		339A	377B	INPUT COMMON	
16	S	ADDRESS BI# 2	SA1-10		SA2-6			SA2-15		SA3-10			SA3-6		SA6-10		SA7-10	NC		
17	T	CH 3 OUTPUT (+)	562B		564B			566B		568B			570B		572B		574B	579B	OUTPUT CH 3 (+)	
18	U	CH 3 OUTPUT (-)	503B		507B			511B		515B			519B		523B		527B	531B	OUTPUT CH 3 (-)	
19	V-17	CH 4 LOOP	311A		353A			321A		363A			331A		373A		341A	344A	INPUT CH 4	
20	W-18	CH 4 LOOP	312A		354A			322A		364A			332A		374A		342A	377A	INPUT COMMON	
21	X	DATA TRANSMIT	620A																NC	
22	Y	DATA RECEIVE	620B																NC	
23	Z	CH 2 OUTPUT (+)	601B		603B			605B		607B			609B		611B		613B	578B	OUTPUT CH 2 (+)	
24	1	CH 2 OUTPUT (-)	502B		506B			510B		514B			518B		522B		526B	530B	OUTPUT CH 2 (-)	
25	2	CH 4 OUTPUT (+)	602B		604B			606B		608B			610B		612B		614B	580B	OUTPUT CH 4 (+)	
26	3	CH 4 OUTPUT (-)	504B		508B			512B		516B			520B		524B		528B	532B	OUTPUT CH 4 (-)	
27	4	CH 1 GREEN	554A		555A			556A		557A			558A		559A				SPARE	
28	5	CH 2 GREEN	554B		555B			556B		557B			558B		559B				SPARE	

Handwritten notes: "22 200000 025 2 m", "#0 / 100000 025 2 m".



REV. STATUS

SHEET	1	2	3
REV	C	C	C

ACT Electronics, Inc.

MNDOT 1997 "R" & "P" CABINET

DATE: 10/10/97

SCALE: D

REV. C SHEET 3 OF 3