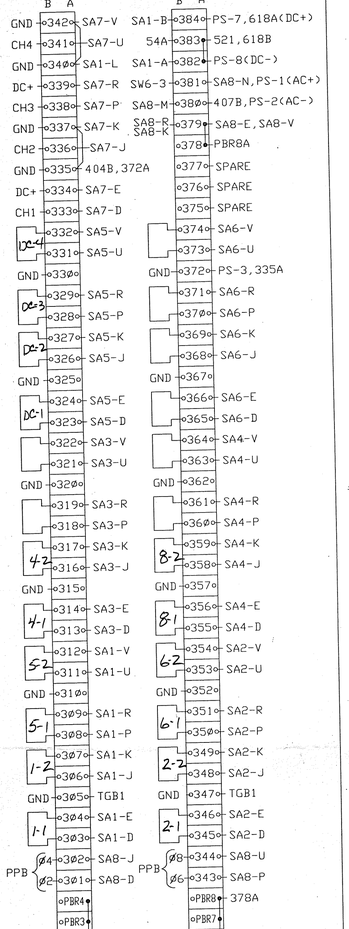


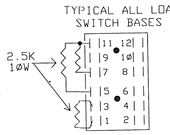
NOTE: 305,310,315,320,325,330,335, 340,347,352,357,362,367 AND 372 ARE INTERCONNECTED BY THE WIEDMULLER MOUNTING RAIL.

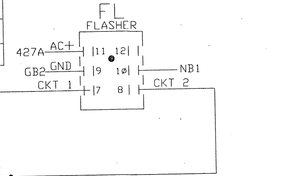
JUMPERS 335A-337A AND 340A-342A, ARE TO BE ADDED AS NEEDED FOR EVP.

LOAD SWITCH PANEL ASSEMBLY

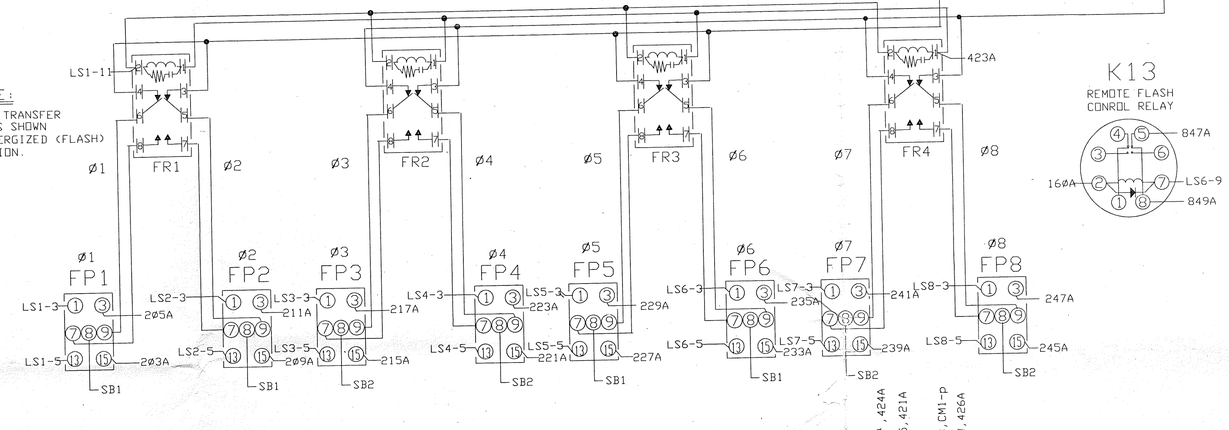
	LS	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	CONT Ø	1	2	3	4	5	6	7	8	2P	4P	6P	8P		
	PLAN Ø														
IN	GREEN / WALK	1Ø	62A	69A	76A	82A	102A	109A	116A	122A	72A	85A	112A	125A		
IN	YELLOW/PED CLR	8	63A	70A	77A	83A	103A	110A	117A	123A	142B	144B	146B	148B		
IN	RED/DON'T WALK	6	64A	71A	78A	84A	104A	111A	118A	124A	73A	86A	113A	126A		
OUT	GREEN / WALK	7	201A	207A	213A	219A	225A	231A	237A	243A	249A	255A	261A	267A		
OUT	YELLOW	5	FP1-13	FP2-13	FP3-13	FP4-13	FP5-13	FP6-13	FP7-13	FP8-13	251A	257A	263A	269A		
OUT	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		
POWER	+24 VDC	9	◁					K13-7						▷6ØB		
POWER	CHASSIS GROUND	2	◁													▷GB1
POWER	AC NEUTRAL	11	NB1 FR1-2	NB1	NB1	NB1	NB1	NB1	NB1	NB1	NB1	NB1	NB1	NB1	NB1	NB1
POWER	115 VAC	1	SB1	SB1	SB2	SB2	SB1	SB1	SB2	SB2	SB1	SB2	SB1	SB2 FP8-8		

TYPICAL ALL LOAD SWITCH BASES

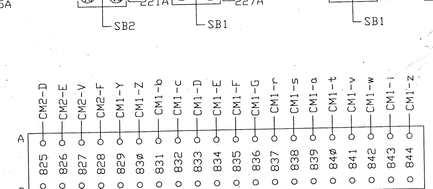


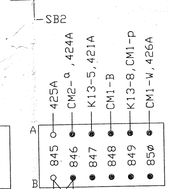


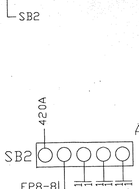
NOTE:
FLASH TRANSFER RELAYS SHOWN DE-ENERGIZED (FLASH) POSITION.

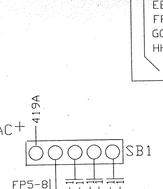


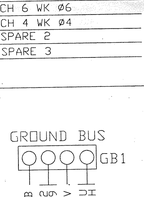
FLASH PLUG JUMPERING

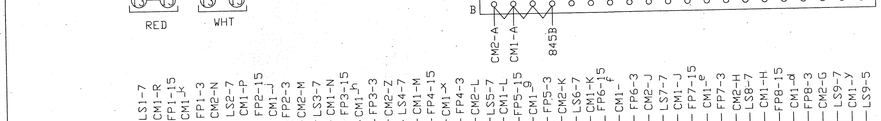


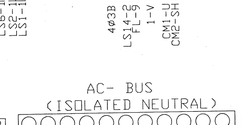












NEMA 12CH CONFLICT MONITOR

CM1

SH	SHELL GROUND	GB1
A	AC+ I	826B
B	RELAY 1 NO	848A
C	RELAY 2 NC	141A
D	CH 12 GRN	833A
E	CH 11 GRN	834A
F	CH 10 GRN	835A
G	CH 9 GRN	836A
H	CH 8 GRN Ø8	244A
J	CH 7 GRN Ø7	238A
K	CH 6 GRN Ø6	232A
L	CH 5 GRN Ø5	226A
M	CH 4 GRN Ø4	220A
N	CH 3 GRN Ø3	214A
P	CH 2 GRN Ø2	208A
R	CH 1 GRN Ø1	202A
S	+24V MONITOR I	59B
T	LOGIC GROUND	53B
U	CHASSIS GROUND	SHELL
V	AC-(NEUTRAL)	NB1
W	RELAY 1 COMMON (AC+)	850A
X	RELAY 2 COMMON (LG)	54B
Y	CH 12 YEL	829A
Z	CH 11 YEL	830A
a	CH 10 WK	839A
b	CH 10 YEL	831A
c	CH 9 YEL	832A
d	CH 8 YEL Ø8	246A
e	CH 7 YEL Ø7	240A
f	CH 6 YEL Ø6	234A
g	CH 5 YEL Ø5	228A
h	CH 3 YEL Ø3	216A
i	CH 3 WK	843A
j	CH 2 YEL Ø2	210A
k	CH 1 YEL Ø1	204A
m	CONT. VOLT. MON.	52B
n	+24V MONITOR INHIBIT	100B
p	RELAY 1 NC	849A
q	RELAY 2 NO	156A
r	CH 12 WK	837A
s	CH 11 WK	838A
t	CH 9 WK	840A
u	CH 8 WK Ø8	268A
v	CH 7 WK	841A
w	CH 5 WK	842A
x	CH 4 YEL Ø4	222A
y	CH 2 WK Ø2	250A
z	CH 1 WK	844A
AA	SPARE 1	142A
BB	RESET	104B
CC	CAB INTERLOCK A	103B
DD	CAB INTERLOCK B	102B
EE	CH 6 WK Ø6	262A
FF	CH 4 WK Ø4	256A
GG	SPARE 2	143A
HH	SPARE 3	144A

CM2

A	AC+II	825B
B	DELAY RELAY COMM	55B
C	DELAY RELAY NO	6A
D	CH 12 RED	825A
E	CH 11 RED	826A
F	CH 9 RED	828A
G	CH 8 RED Ø8	248A
H	CH 7 RED Ø7	242A
J	CH 6 RED Ø6	236A
K	CH 5 RED Ø5	230A
L	CH 4 RED Ø4	224A
M	CH 2 RED Ø2	212A
N	CH 1 RED Ø1	206A
P	SPARE 1	145A
R	+24V MONITOR II	58B
S	SPARE 2	146A
T	SPARE 3	147A
U	DELAY RELAY NC	100SB
V	CH 10 RED	827A
W	SPARE 4	100GB
X	SPARE 5	100TB
Y	SPARE 6	100BB
Z	CH 3 RED Ø3	218A
a	RED ENABLE	846A
b	SPARE 7	100SB
c	SPARE 8	10100B

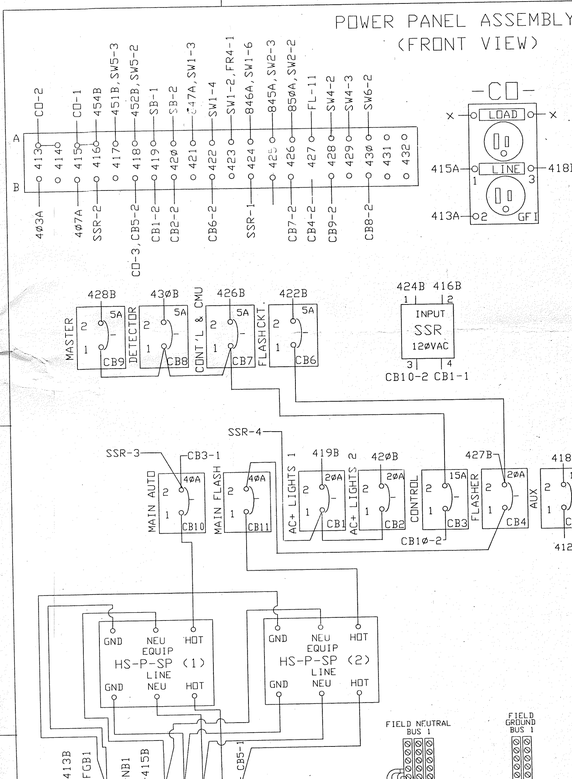
CONFLICT MONITOR MATRIX PROGRAMMING INSTRUCTIONS

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
1-7 2-8 3-9 4-10 5-11 6-12
1-8 2-9 3-10 4-11 5-12
1-9 2-10 3-11 4-12
1-10 2-11 3-12
1-11 2-12
1-12

CH1-Ø 1
CH2-Ø 2
CH3-Ø 3
CH4-Ø 4
CH5-Ø 5
CH6-Ø 6
CH7-Ø 7
CH8-Ø 8
CH9-Ø ___
CH10-Ø ___
CH11-Ø ___
CH12-Ø ___

CHANNEL-Ø 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)



TIGHTENING TORQUE SPECIFICATIONS

SCREW SIZE	6-32	8-32	10-32
POUND INCHES	12	16	25.9
BLOCK TYPE	SAK56	RK6-10	SAK35N
POUND INCHES	10.5	16	35
BLOCK TYPE	ZB35	ZB10	
POUND INCHES	35.5	17.75	

VEHICLE SIGNALS

SIGNAL	TERMINAL ◄G	◄Y	◄R	G	Y	R
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
4-1				219	221	223
4-2				220	222	224
4-3				219	221	223
5-1	225	227	229			
5-2	226	228	230			
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

SIGNAL HEAD NEUTRALS TO BE TERMINATED ON FNB1.

VEH DETECTORS

DET	TERMINAL
D1-1	303-304
D1-2	306-307
D2-1	345-346
D2-2	348-349
D4-1	313-314
D4-2	316-317
D5-1	308-309
D5-2	311-312
D6-1	350-351
D6-2	353-354
D8-1	355-356
D8-2	358-359
DC-1	323-324
DC-2	326-327
DC-3	328-329
DC-4	331-332

LOOP LEAD IN DRAIN WIRES ARE TO BE CONNECTED TO GREEN/TAN WIEDMULLER BLOCKS ONLY

PED SIGNALS

SIGNAL	TERMINAL WK	DW
P2-1	249	253
P2-2	250	254
P4-1	255	259
P4-2	256	260
P6-1	261	265
P6-2	262	266
P8-1	267	271
P8-2	268	272

PED HEAD NEUTRALS TO BE TERMINATED ON FNB1 OR FNB2

PED PUSHBUTTONS

PPB	TERMINAL
PB2-1,2	301
PB4-1,2	302
PB6-1,2	303
PB8-1,2	344

NOTES

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

EVP SENSORS

CONTR CHAN.	PHASES	POLE #	SIGNAL	DC(+)	GND
1	1-6	4	333	334	337
2	2-5	2	336	334	337
3	4	3	338	339	342
4	8	1	341	339	342

EVP CONFIRMATORY LIGHTS

CONTR CHAN.	PHASES	POLE #	TERM
1	1-6	4	251
2	2-5	2	257
3	4	3	263
4	8	1	263

EVP TYPICAL SENSOR WIRE COLORS

SIGNAL	DC(+)	GND
YEL	ORG	BLU
CLR	RED	BLK
WHT	RED	BLK

CSAH # 116/BUNKER AT ROSE ST/ DOWNTOWN CENTER

PROJECT # 02-716-04

CODE # 7142

3-12-99 - E.J.K

REV. STATUS			
SHEET	1	2	3
REV	A	A	A

FOR: ANOKA

REV	DATE	REVISION
DATE 12/1/98		
DRAWN MPD		

ACT Electronics, Inc.

TITLE: MNDOT 1998 "R" & "P" CABINET

SIZE D | PART#

SCALE

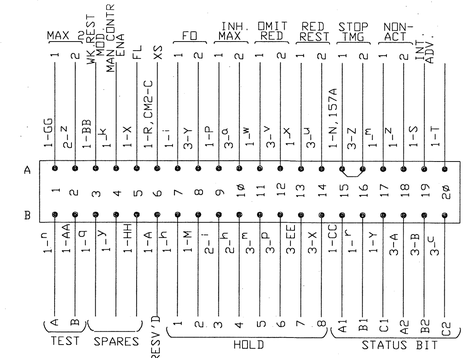
FILE ACT98API | REV A | SHEET 1 OF

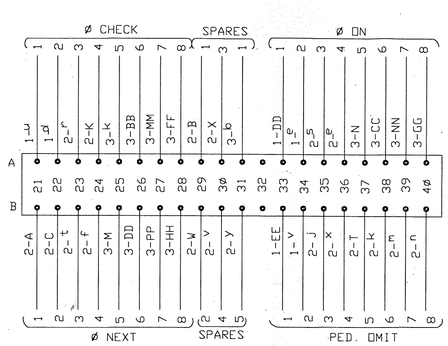
116 @ Rose

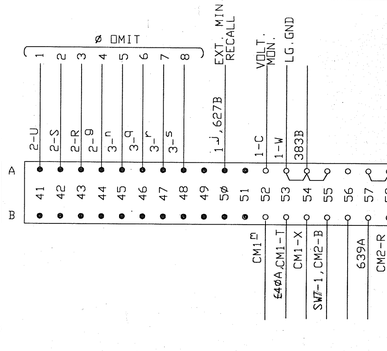
CONTROLLER INTERFACE PANEL

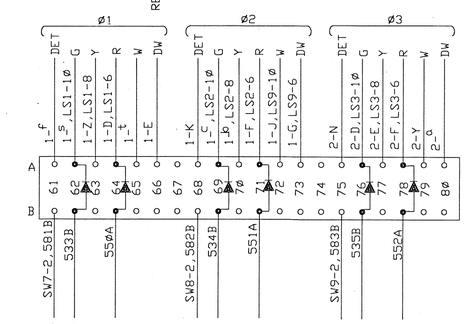
1		2		3	
SH	SHELL GROUND	1-V	A	Ø1 PHASE NEXT	21B
A	RESV.	6B	B	SPARE 1	29A
B	24VDC+	59A	C	Ø2 PHASE NEXT	22B
C	VOLTAGE MONITOR	52A	D	Ø3 GRN	76A
D	Ø1 RED	64A	E	Ø3 YEL	77A
E	Ø1 DWK	66A	F	Ø3 RED	78A
F	Ø2 RED	71A	G	Ø4 RED	84A
G	Ø2 DWK	73A	H	Ø4 PCL	1Ø04A
H	Ø2 PCL	1Ø02A	J	Ø4 DWK	86A
J	Ø2 WK	72A	K	Ø4 CHECK	24A
K	Ø2 VEH DET	68A	L	Ø4 VEH DET	81A
L	Ø2 PED DET	89A	M	Ø4 PED DET	91A
M	Ø2 HOLD	8B	N	Ø3 VEH DET	75A
N	STOP TIMING 1	15A	P	Ø3 PED DET	90A
P	INHIBIT MAX TERM 1	9A	R	Ø3 PHASE OMIT	43A
R	EXTERNAL START	6A	S	Ø2 PHASE OMIT	42A
S	INTERVAL ADVANCE	19A	T	Ø5 PED OMIT	37B
T	INDICATOR LAMP CONT	2ØA	U	Ø1 PHASE OMIT	41A
U	AC- NEUTRAL	NB1	V	PED RECYCLE 2	132A
V	CHASSIS GROUND	GB1	W	SPARE 2	29B
W	LOGIC GROUND	53A	X	SPARE 3	3ØA
X	FLASH LOGIC OUT	5A	Y	Ø3 WK	79A
Y	STATUS BIT C1	17B	Z	Ø3 PCL	1Ø03A
Z	Ø1 YEL	63A	a	Ø3 DWK	8ØA
a	Ø1 PCL	1Ø01A	b	Ø4 GRN	82A
b	Ø2 YEL	7ØA	c	Ø4 YEL	83A
c	Ø2 GRN	69A	d	Ø4 WALK	85A
d	Ø2 CHECK	22A	e	Ø4 PHASE ON	36A
e	Ø2 PHASE ON	34A	f	Ø4 PHASE NEXT	24B
f	Ø1 VEH DET	61A	g	Ø4 PHASE OMIT	44A
g	Ø1 PED DET	88A	h	Ø4 HOLD	1ØB
h	Ø1 HOLD	7B	i	Ø3 HOLD	9B
i	FORCE OFF 1	7A	j	Ø3 PED OMIT	35B
j	EXT MIN RECALL ALL/Ø	5ØA	k	Ø6 PED OMIT	38B
k	MAN. CONTROL ENABLE	4A	m	Ø7 PED OMIT	39B
m	CALL TO NON-ACT 1	17A	n	Ø8 PED OMIT	4ØB
n	TEST INPUT A	1B	P	OL A YEL	96A
P	AC+ CONTROL	846B	q	OL A RED	97A
q	SPARE 1	3B	r	Ø3 CHECK	23A
r	STATUS BIT B1	16B	s	Ø3 PHASE ON	35A
s	Ø1 GRN	62A	t	Ø3 PHASE NEXT	23B
t	Ø1 WK	65A	u	OL D RED	14ØA
u	Ø1 CHECK	21A	v	SPARE 4	3ØB
v	Ø2 PED OMIT	34B	w	OL D GRN	138A
w	OMIT RED CLR	11A	x	Ø4 PED OMIT	36B
x	RED REST MODE 1	13A	y	SPARE 5	31B
y	SPARE 2	4B	z	MAX 2 SELECT 2	2A
z	CALL TO NON-ACT II	18A	AA	OL A GRN	95A
AA	TEST INPUT B	2B	BB	OL B YEL	99A
BB	WALK REST MODIFIER	3A	CC	OL B RED	1ØØA
CC	STATUS BIT A1	15B	DD	OL C RED	137A
DD	Ø1 PHASE ON	33A	EE	OL D YEL	139A
EE	Ø1 PED OMIT	33B	FF	OL C GRN	135A
FF	PED RECYCLE 1	92A	GG	OL B GRN	98A
GG	MAX 2 SELECT	1A	HH	OL C YEL	136A
HH	SPARE 3	5B			

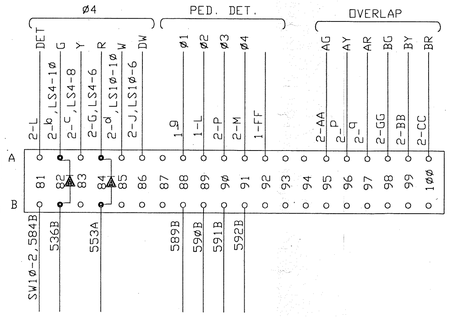
3		
A	STATUS BIT A2	18B
B	STATUS BIT B2	19B
C	Ø8 DWK	126A
D	Ø8 RED	124A
E	Ø7 YEL	117A
F	Ø7 RED	118A
G	Ø6 RED	111A
H	Ø5 RED	1Ø4A
J	Ø5 YEL	1Ø3A
K	Ø5 PCL	1Ø05A
L	Ø5 DWK	1Ø6A
M	Ø5 PHASE NEXT	25B
N	Ø5 PHASE ON	37A
P	Ø5 VEH DET	1Ø1A
R	Ø5 PED DET	128A
S	Ø6 VEH DET	1Ø8A
T	Ø6 PED DET	129A
U	Ø7 PED DET	13ØA
V	Ø7 VEH DET	115A
W	Ø8 PED DET	131A
X	Ø8 HOLD	14B
Y	FORCE OFF 2	8A
Z	STOP TIME 2	16A
a	INHIBIT MAX TERM 2	1ØA
b	SPARE 1	31A
c	STATUS BIT C2	2ØB
d	Ø8 WK	125A
e	Ø8 YEL	123A
f	Ø7 GRN	116A
g	Ø6 GRN	1Ø9A
h	Ø6 YEL	11ØA
i	Ø5 GRN	1Ø2A
j	Ø5 WK	1Ø5A
k	Ø5 CHECK	25A
m	Ø5 HOLD	11B
n	Ø5 PHASE OMIT	45A
P	Ø6 HOLD	12B
q	Ø6 PHASE OMIT	46A
r	Ø7 PHASE OMIT	47A
s	Ø8 PHASE OMIT	48A
t	Ø8 VEH DET	121A
u	RED REST MODE 2	14A
v	ØMIT RED CLR 2	12A
w	Ø8 PCL	1Ø08A
x	Ø8 GRN	122A
y	Ø7 DWK	12ØA
z	Ø6 DWK	113A
AA	Ø6 PCL	1Ø06A
BB	Ø6 CHECK	26A
CC	Ø6 PHASE ON	38A
DD	Ø6 PHASE NEXT	26B
EE	Ø7 HOLD	13B
FF	Ø8 CHECK	28A
GG	Ø8 PHASE ON	4ØA
HH	Ø8 PHASE NEXT	28B
JJ	Ø7 WK	119A
KK	Ø7 PCL	1Ø07A
LL	Ø6 WK	112A
MM	Ø7 CHECK	27A
NN	Ø7 PHASE ON	39A
PP	Ø7 PHASE NEXT	27B

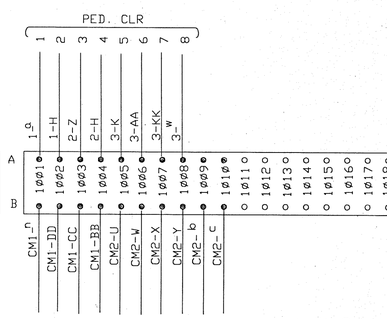


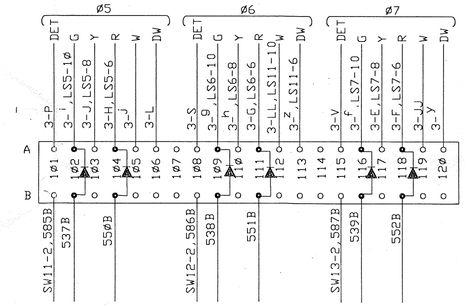


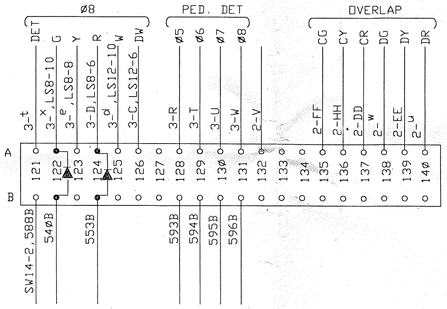


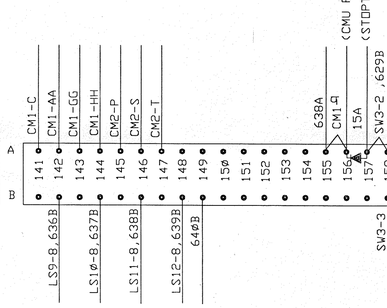




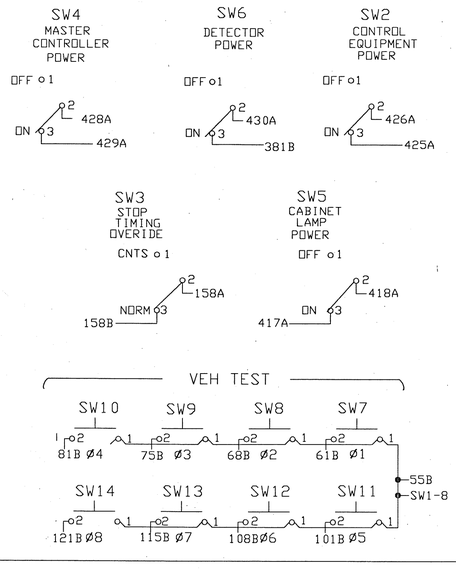


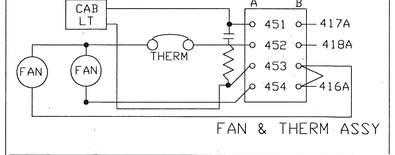


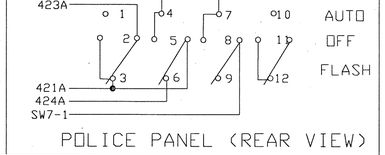


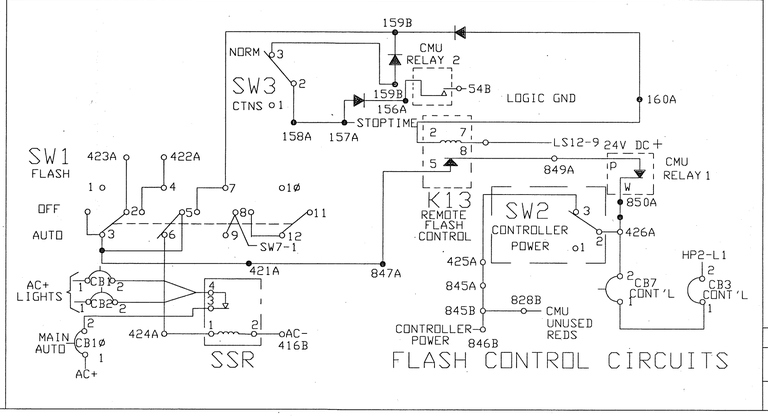


AUX PANEL (REAR VIEW)









REV. STATUS					
SHEET	1	2	3		
REV	A	A	A		

REV	DATE	REVISION
DATE	11/24/98	
DRAWN	MPD	

ACT Electronics,

TITLE: MNDOT 1998 "R" & "P"

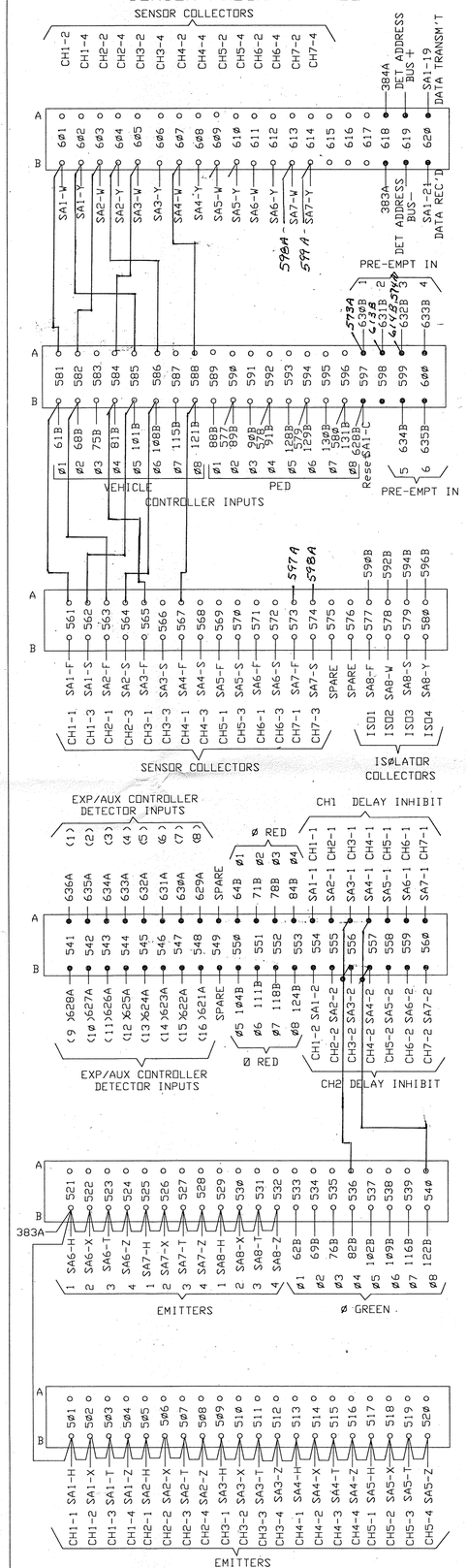
SIZE: D | PART#:

SCALE:

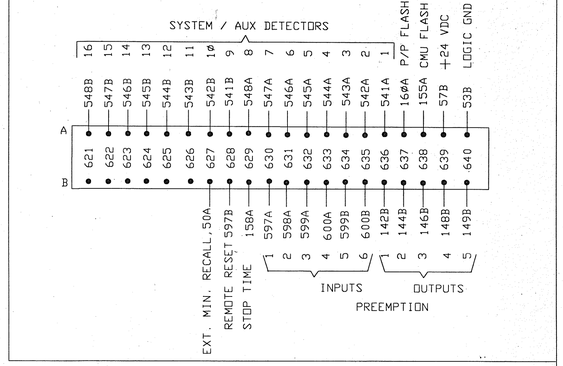
FOR: MNDOT

FILE ACT98RP2 | REV

SENSOR PROGRAM PANEL



4th CONNECTOR TERMINATION BLOCK



SA

DETECTORS AND PPB ISOLATION

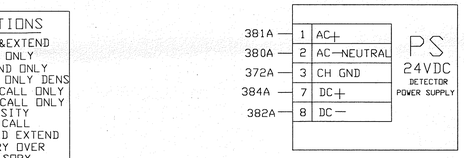
⊕ SA1 THROUGH SA7 ARE WIRED TO ACCEPT VEH DET. OR EVP DISCRIMINATOR OR PPB ISOLATOR.

☒ Pin 10 of the edge conn. can be jumpered for use as CH4 delay inhibit. Jumpering will disable addressing.

	SA1			SA2			SA3			SA4			SA5			SA6			SA7			SA8	
	PHASE	FUNC	DET	PHASE	FUNC	DET	PHASE	FUNC	DET	PHASE	FUNC	DET	PHASE	FUNC	DET	PHASE	FUNC	DET	PHASE	FUNC	DET	PPB ISOLATION PHASE	
CH 1	1	1	1-1	2	1	2-1	4	7	4-1	8	7	8-1			DC-1				4	ped	1-6	2	CH 1
CH 2	1	1	1-2	2	1	2-2	4	7	4-2	8	7	8-2			DC-2				2	ped	2-5	4	CH 2
CH 3	5	1	5-1	6	1	6-1									DC-3				3	ped	4	6	CH 3
CH 4	5	1	5-2	6	1	6-2									DC-4				1	ped	8	8	CH 4
MODEL	224			224			222T			222T			224									244	MODEL

MAIN I/O BLOCK	WIRE COLOR	SA I/O BLOCK	EDGE CONN				
1	BLK/YEL	—	A	DC GROUND	382B ◁		NC	SPARE	A
2	RED	—	B	24V DC+	384B ◁		NC	SPARE	B
3	BLK/BLU	—	C	REMOTE RESET	597B ◁		NC	SPARE	C
	BRN	3	D-4	CH 1 LOOP	303A	345A	313A	355A	323A	365A	333A	301A	INPUT CH 1	D
	WHT/BRN	4	E-5	CH 1 LOOP	304A	346A	314A	356A	324A	366A	334A	379A	INPUT COMMON	E
5	ORANGE		6	ADDRESS BIT # Ø	619B	SA1-15	SA2-10	SA3-15	SA4-15	SA5-10	SA6-15	NC		
	WHT/BLU	5	F	CH 1 OUTPUT (+)	561B	563B	565B	567B	569B	571B	573B	577B	OUTPUT CH 1 (+)	F
	BLUE	6	H	CH 1 OUTPUT (-)	501B	505B	509B	513B	517B	521B	525B	529B	OUTPUT CH 1 (-)	H
	BLK/RED	7	J-8	CH 2 LOOP	306A	348A	316A	358A	326A	368A	336A	302A	INPUT CH 2	J
	BLK/WHT	8	K-9	CH 2 LOOP	307A	349A	317A	359A	327A	369A	337A	379B	INPUT COMMON	K
6	YELLOW		10	ADDRESS BIT # 1	619A	SA1-6	SA3-6	SA4-6	SA4-10	SA5-15	SA7-6	NC		
12	GREEN	—	L	CHASSIS GROUND	340A ◁							▷	CHASSIS GROUND	L
15	WHITE	—	M	AC-	SA2-M ◁							▷ 380B	AC- (NEUTRAL)	M
13	BLACK	—	N	115V AC+	SA2-N ◁							▷ 381A	115V AC+	N
	ORANGE	9	P-13	LOOP CH 3	308A	350A	318A	360A	328A	370A	338A	343A	INPUT CH 3	P
	WHT/OR	10	R-14	LOOP CH 3	309A	351A	319A	361A	329A	371A	339A	379B	INPUT COMMON	R
			15	ADDRESS BIT # 2	SA1-10	SA2-6	SA2-15	SA3-10	SA5-6	SA6-10	SA7-10	NC		
	WHT/GRY	11	S	CH 3 OUTPUT (+)	562B	564B	566B	568B	570B	572B	574B	579B	OUTPUT CH 3 (+)	S
	GREY	12	T	CH 3 OUTPUT (-)	503B	507B	511B	515B	519B	523B	527B	531B	OUTPUT CH 3 (-)	T
	YELLOW	13	U-17	CH 4 LOOP	311A	353A	321A	363A	331A	373A	341A	344A	INPUT CH 4	U
	WHT/YEL	14	V-18	CH 4 LOOP	312A	354A	322A	364A	332A	374A	342A	379A	INPUT COMMON	V
8	GREY		19	DATA TRANSMIT	620A ◁							▷ NC		
10	VIOLET		21	DATA RECEIVE	620B ◁							▷ NC		
	WHT/VIO	15	W	CH 2 OUTPUT (+)	601B	603B	605B	607B	609B	611B	613B	578B	OUTPUT CH 2 (+)	W
	VIOLET	16	X	CH 2 OUTPUT (-)	502B	506B	510B	514B	518B	522B	526B	530B	OUTPUT CH 2 (-)	X
	WHT/GRN	17	Y	CH 4 OUTPUT (+)	602B	604B	606B	608B	610B	612B	614B	580B	OUTPUT CH 4 (+)	Y
	WHT/BLK	18	Z	CH 4 OUTPUT (-)	504B	508B	512B	516B	520B	524B	528B	532B	OUTPUT CH 4 (-)	Z
	WHT/RED	1	1	CH 1 GREEN	554A	555A	556A	557A	558A	559A	560A	——	SPARE	
	RED	2	2	CH 2 GREEN	554B	555B	556B	557B	558B	559B	560B	——	SPARE	

FUNCTIONS
1-CALL&EXTEND
2-CALL ONLY
3-EXTEND ONLY
4-CALL ONLY DENS
5-DLY CALL ONLY
6-DLY CALL ONLY DENSITY
7-DLY CALL IMMED EXTEND
8-CARRY OVER
9-ADVISORY
10-SAMPLING
11-SPECIAL -SEE NOTE-



REV. STATUS					
SHEET	1	2	3		
REV	A	A	A		

REV	DATE

REVISION

DATE 11/24/98
DRAWN MPD

ACT Electronics, Inc.

TITLE
MNDOT 1998 "R" & "P" CABINET

SIZE D | PART#

FOR: MNDOT

SCALE

FILE ACT98RP3 | REV A | SHEET 3 OF 3