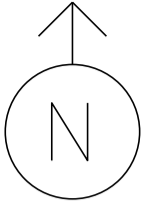










MS # 828

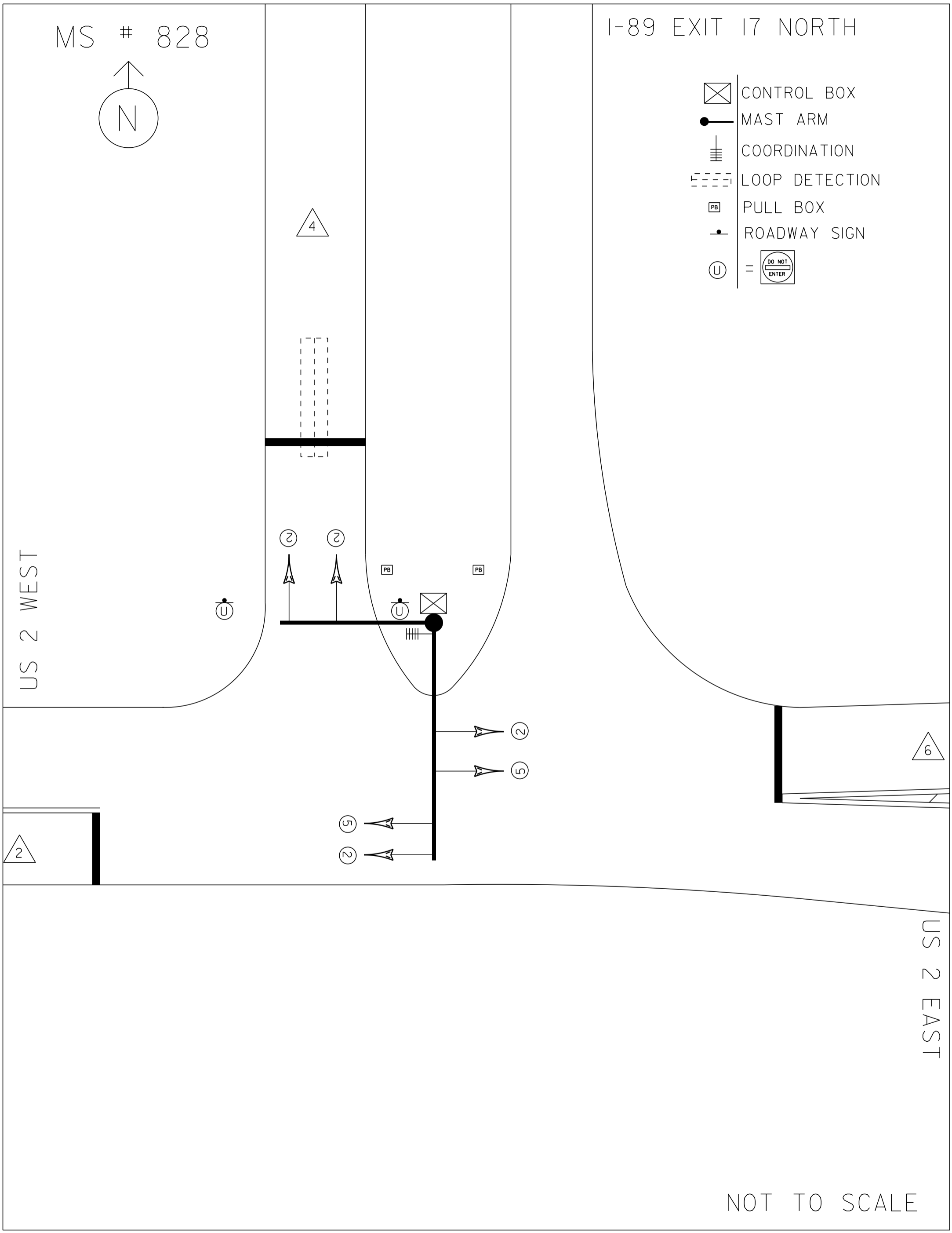


I-89 EXIT 17 NORTH

-  CONTROL BOX
-  MAST ARM
-  COORDINATION
-  LOOP DETECTION
-  PULL BOX
-  ROADWAY SIGN
-  U = 

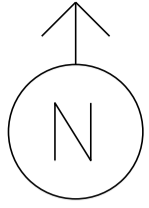
US 2 WEST

US 2 EAST



NOT TO SCALE

MS # 828



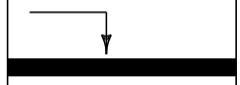
I-89 EXIT 17 NORTH

US 2 WEST

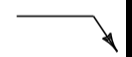
20'

16'

STOP BAR 20'



STOP BAR 16'

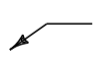


14'

20'

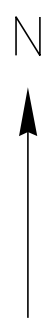
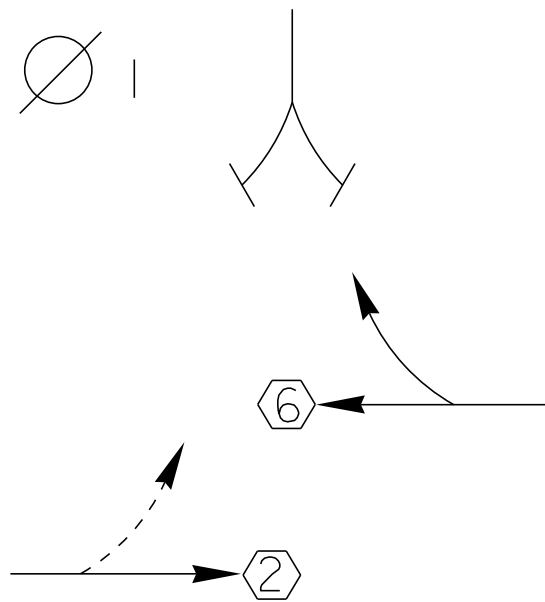
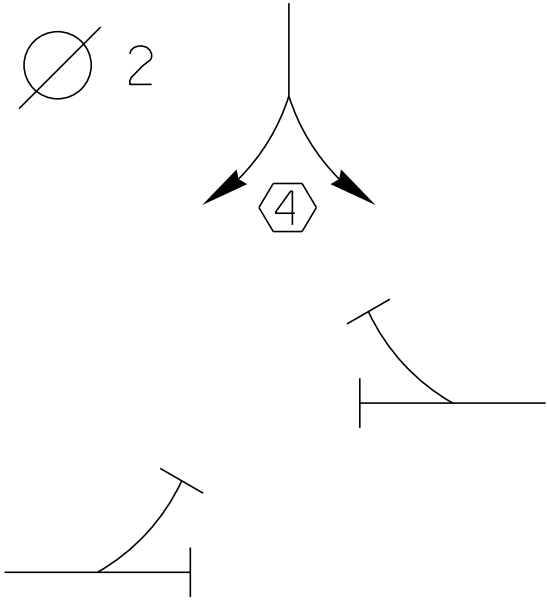
11'

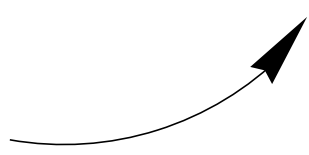
STOP BAR 11'



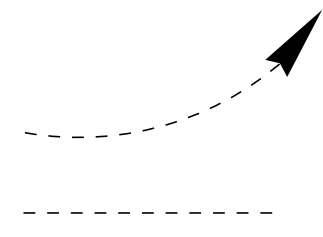
US 2 EAST

NOT TO SCALE

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">D I A G R A M</p> 	<p>Ø 1</p> 	<p>Ø 2</p> 	<p>Ø 3</p>	<p>Ø 4</p>
<p>TIMING</p>	<p>G = Y =</p>	<p>G = Y =</p>	<p>G = Y =</p>	<p>G = Y =</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">D I A G R A M</p>	<p>Ø 5</p>	<p>Ø 6</p>	<p>Ø 7</p>	<p>Ø 8</p>
<p>TIMING</p>	<p>G = Y =</p>	<p>G = Y =</p>	<p>G = Y =</p>	<p>G = Y =</p>



PROTECTED
TURNS



PERMITTED
TURNS
PEDESTRIAN

CYCLE LENGTH, C = _____ S



PROPERTY OF:
VT. AGENCY OF TRANS.
MAINTENANCE DIV.
IN EMERGENCY CALL:
DIST. TRANS. OFFICE
688-1680
NIGHTS & WEEKENDS: 250-0163
INTERSECTION NO. M9-826

← Park An
← Colches
← Milton
South Hero
EAST VT
20
← →

PROPERTY OF :

VT. AGENCY OF TRANS.
MAINTENANCE DIV.

IN EMERGENCY CALL :

DIST. TRANS. OFFICE

655-1580

NIGHTS & WEEKENDS : 250-0163

INTERSECTION NO. MS - 828

CONTROL POWER

POWER OFF

AUTO

FLASH

STOP TIME

AUTO

OFF

ON

DANGER

115 VOLTS A.C.

WARNING

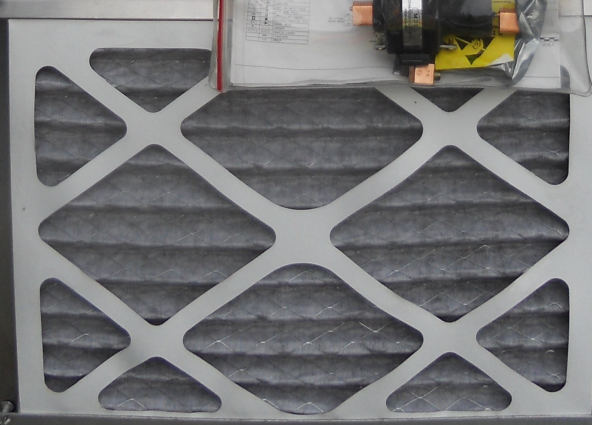
DO NOT OPERATE
CABINET WITHOUT
CMU / MMU

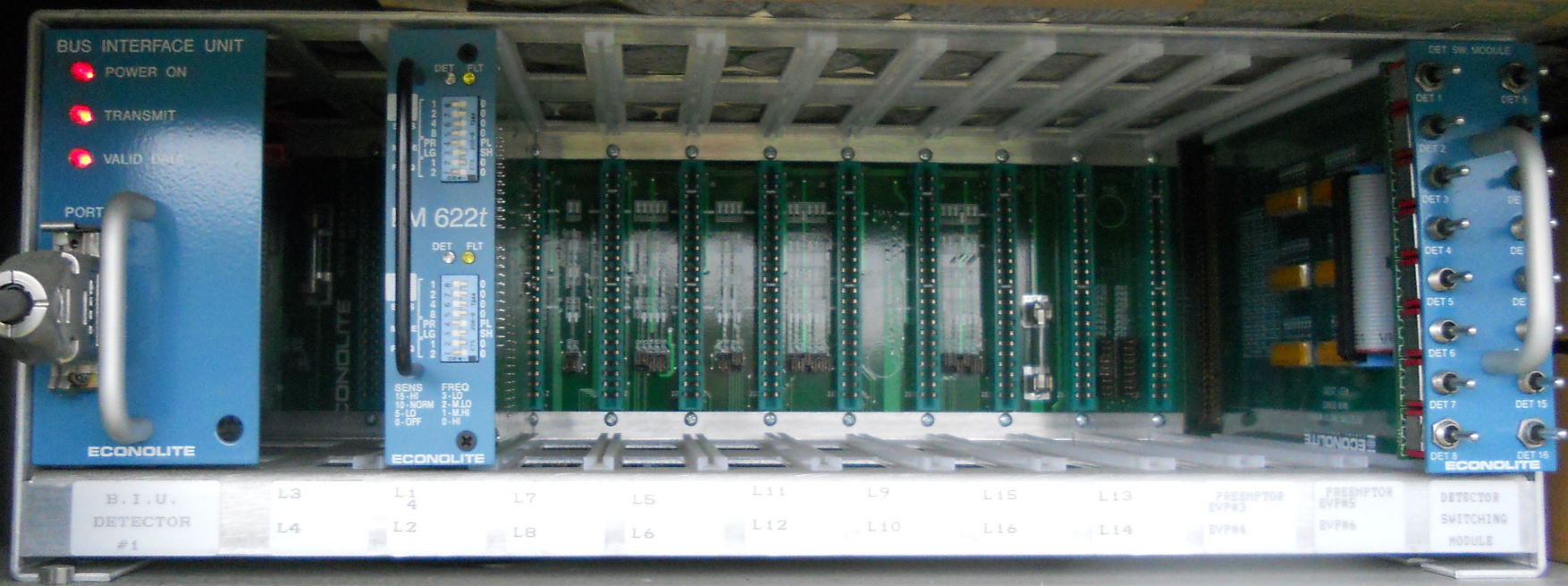
3/24/04

ECONOLITE

Technical drawing and wiring diagram on a plastic sheet, including a table of data and a small electronic component.

Item	Part No.	Qty.	Description
1	100-000000	1	Control Panel
2	100-000001	1	Power Switch
3	100-000002	1	Flash Switch
4	100-000003	1	Stop Time Switch
5	100-000004	1	Auto Switch
6	100-000005	1	Off Switch
7	100-000006	1	On Switch





- 1 CONFLICT
- 2 RED FAIL
- 3 CVM / WD
- 4 24V-1
- 5 24V-2
- 6 CLEARANCE FAIL
- 7 Y+R CLEARANCE
- 8 DUAL INDICATION
- 9 PORT 1 FAIL
- 10 FIELD CHECK FAIL
- 11 LOCAL FLASH
- 12 DIAGNOSTIC
- 13 RCM CARD / CE



COMMUNICATIONS UNIT

POWER ON
TRANSMIT
VALID DATA

M 6221

ECONOLITE

B.T.U. INDICATOR	L.3	L.4	L.7	L.8	L.11	L.9	L.15	L.13	RECEIVER	TRANSMITTER	DETECTOR SWITCHING
DATA	L.6	L.2	L.0	L.6	L.12	L.10	L.16	L.14	DPH4	DPH6	DPH8

CABINET POWER SUPPLY

POWER SUPPLY

125 VAC 2.0 AMP ECO-REG
125 VAC 2.0 AMP ECO-REG
125 VAC 2.0 AMP ECO-REG
125 VAC 2.0 AMP ECO-REG

CONFLICT
REG FAIL
CVM / MD
24V1
24V2
CLEARANCE FAIL
Y-R CLEARANCE
DUAL INDICATION
PORT 1 FAIL
FIELD CHECK FAIL
LOCAL FLASH
DIAGNOSTIC
PGM CARD / CF
TYPE 12
POWER

MMU-16E

RECEIVE
TRANSMIT

1/4 AMP 5.0L

PORT 1 SDLC
PORT 2
PORT 3

COAX
RS232C

PROGRAM CARD

ASC/2S-2100

ECONOLITE CONTROL PRODUCTS, INC.

F1 MAIN MENU
F2 NEXT SCREEN
F3 SUB MENU
F4 NEXT DATA
F5 DISPLAY ADJUST
F6 NEXT PAGE
F7 STATUS DISPLAY
F8 HELP

1 2 3
4 5 6
7 8 9
0 CLEAR

ENTER

SPED. FUNC.

ENCOM Wireless Modem

RSSI
DATA

INSTRUMENT

INSTRUMENT

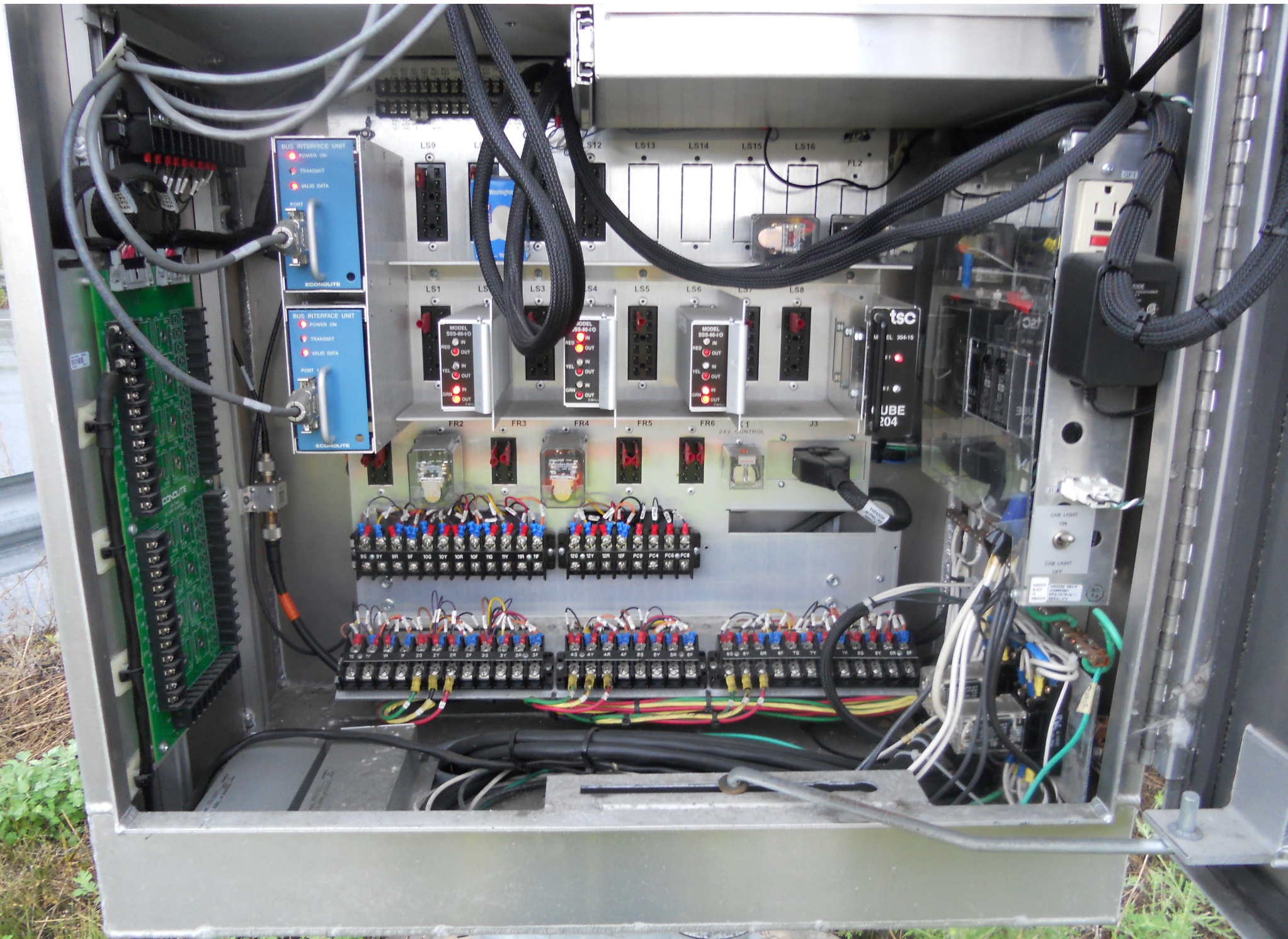
INSTRUMENT

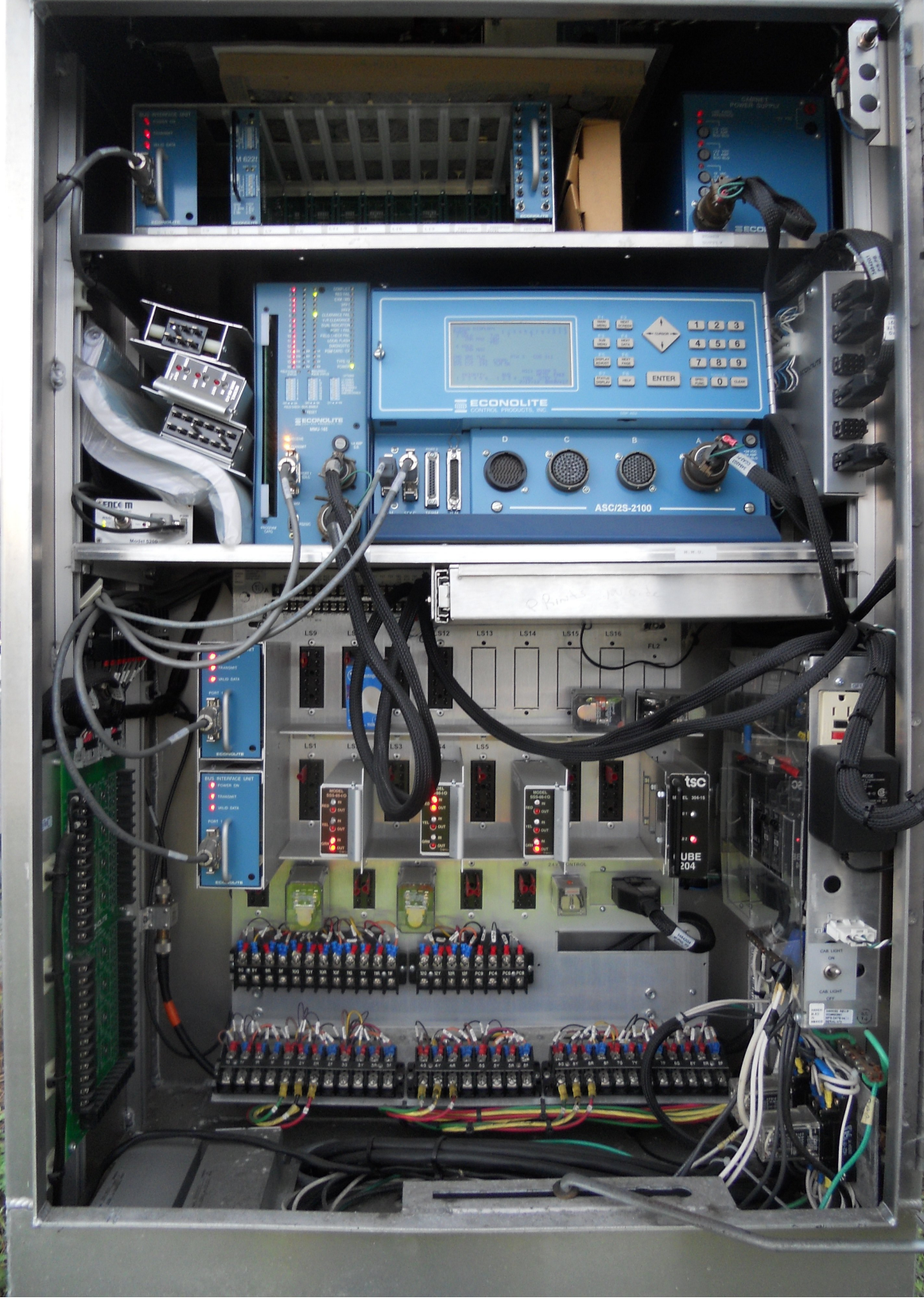
INSTRUMENT

ECONOLITE

J4

127410







MODEL SSS-86-I/O

RED IN OUT

YEL IN OUT

GRN IN OUT

82 west

LS4

MODEL SSS-86-I/O ASSEMBLED IN U.S.A. BY BALL TO RAMP

MODEL SSS-86-I/O

RED IN OUT

YEL IN OUT

GRN IN OUT

04 North OFF RAMP

MODEL SSS-86-I/O

RED IN OUT

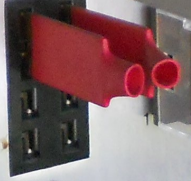
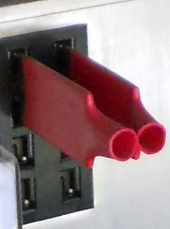
YEL IN OUT

GRN IN OUT

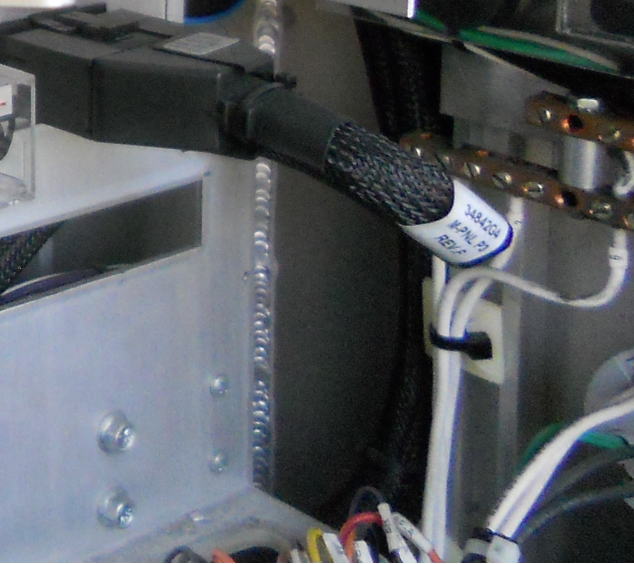
04 + 5V3

C/N FU4304 S/N C9201

1



PC4 PC6 PC8



VEHICLE DETECTOR LOOPS

LOOP NO.	LANE	CALL #	SIZE	TYPE & NO. TURNS	DELAY OR PRESENCE	INDUCTANCE CALC. ACT.	RESISTANCE CALC. ACT.	LEAKAGE TO GROUND	LOCKING MEMORY
4	SB	4	6x40	QUAD-2	PRESENCE	351	0.73		

INDUCTANCE IN MICROHENRIES
RESISTANCE IN OHMS (AT 77 DEGREES FAHRENHEIT)

LIST OF MAJOR EQUIPMENT

ITEM #	DESCRIPTION	QUANTITY
1	ITEM # 678, 15 INB RAMP	1
2	MAST ARM POLES	1
3	POWER DROP STATION	1
4	NEW 12" TRAFFIC SIGNAL HEADS	
5	W/ TUNNEL VISORS, DISCONNECT HANGERS & MOUNTING HARDWARE	
6	A. ONE-WAY SECTION	6
7	POLE MOUNTED CABINET/CONTROLLER	1
8	TRUSS ARMS	2
9	BACKPLATES	6
10	WIRELESS INTERCONNECT EQUIPMENT	1

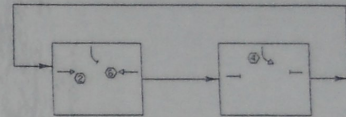
CONTROLLER TIMING CHART

US-2 & I-89 NORTH RAMPS

PHASE	1	2	3	4	5	6	7	8
TRAFFIC MOVEMENT	→	→	→	↓	←	←	←	←
MINIMUM GREEN	8	8	8	8	8	8	8	8
MAXIMUM 1 GREEN	38	10	38					
MAXIMUM 2 GREEN	29	16	29					
MAXIMUM 3 GREEN	29	13	23					
YELLOW CLEARANCE	4	4	4					
ALL RED CLEARANCE	2	2	2					
VEH. EXTENSION	3	3	3					

CONTROLLER TO OPERATE MAXIMUM 1 GREEN TIMINGS FROM 54:00AM-54:00PM
CONTROLLER TO OPERATE MAXIMUM 2 GREEN TIMINGS FROM 54:00PM-6:00PM
CONTROLLER TO OPERATE MAXIMUM 3 GREEN TIMINGS FROM 9:00AM-3:00PM & 6:00PM-6:00PM

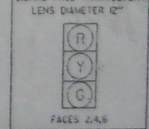
PHASING DIAGRAM



WIRED CONDUIT RUNS

DESCRIPTION	CONDUIT SIZE	DESCRIPTION
POWER POLE TO PB #2	1-1/2"	2'
PB #2 TO CONTROLLER	3/4"	POWER
LOOP #4 TO PB #1	6"	LOOP #4
PB #1 TO CONTROLLER	3/4"	LOOP #4
STATIONION TO CONTROLLER	10"	11'
SUBTOTALS	40'	395'
ROUNDING	10'	26'
TOTALS	50'	421'

SIGNAL FACE ARRANGEMENT



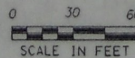
LEGEND

EXISTING	NEW	LEGEND
○	○	UTILITY POLE
○	○	LUMINAIRE
○	○	LIGHT OR WOOD POLE
○	○	MAST ARM POLE
○	○	CONTROLLER CABINET
○	○	PULLBOX/JUNCTION BOX
○	○	SIGNAL HEAD
○	○	CONDUIT
○	○	VEHICLE LOOPS
○	○	STATIONION
○	○	SWEEP

US 2 & I-89 NORTH RAMPS

US 2 FROM SOUTH HERO	AM	OFF	PM	US 2 FROM WILTON
363	222	303	592	364
			224	473

US 2 & I-89
NORTH RAMPS
3000
AVERAGE WEEKDAY
TRAFFIC



PROJECT NAME: COLCHESTER
PROJECT NUMBER: NHG_SQNL(22)
FILE NAME: sqnl1821
PROJECT LEADER: B. NYQUIST
DESIGNED BY: B. MCAYOY
PLOT DATE: 18-SEP-2003
DRAWN BY: B. MCAYOY
CHECKED BY:
SHEET 3 OF 3



EAST

TO

WEST

2

7

2









← Park And Ride
← Colchester 4
← Milton 9
Campan Islands →
← State Via 128 →
← SERVICES
← CAMPING 6 →

AHEAD
YIELD

↑

← 89 North
Georgia
St. Albans
Montreal

STOP
HERE ON
RED
↙

2172

STOP
HERE ON
RED
↙





NORTH
gia
ans
real

← Park Ave High 4
← Colchester 4
← Milton 5
← South Hill 7
EAST I-90 I-95
2 7 2





← 89 NORTH
Georgia
St. Allens
Montpelier

NORTH
INTERSTATE
89
←



← 89 NORTH
Georgia
St. Albans
Montreal

270
270
270













WEST

JCT

INTERSTATE
89

2

89 NORTH →
Georgia
St. Albans
Montreal



INTERSTATE
89 NORTH →
Georgia
St. Albans
Montreal







Coordination Patterns

```

-----
Pattern 1
Cycle Length . . . 60   COS . . . . . 111
Offset . . . . . 50
Vehicle Permissive . . [1]   0   [2]   0
Vehicle Perm 2 Displacement 0   Phase Reservice. . . NO
Splits:   Phase 1- 0 2- 44 3- 0 4- 16
           Phase 5- 0 6- 44 7- 0 8- 0
           Phase 9- 0 10- 0 11- 0 12- 0   Split Sum: 0
Split Extension/Ring [1]   0   [2]   0
Split Demand Pattern [1]   0   [2]   0
XRT Pattern. . . 0
  Phase Number: 1 2 3 4 5 6 7 8 9 10 11 12
Coord Phases . . . X . . . X . . . . .
Veh Recall . . . . . . . . . . . . . .
Veh Max Recall . . . . . . . . . . . . .
Ped Recall . . . . . . . . . . . . . .
Veh Omit . . . . . . . . . . . . . .
Alt Sequence . . A: . B: . C: . D: . E: . F: .
-----
    
```

```

-----
Pattern 2
Cycle Length . . . 72   COS . . . . . 211
Offset . . . . . 55
Vehicle Permissive . . [1]   0   [2]   0
Vehicle Perm 2 Displacement 0   Phase Reservice. . . NO
Splits:   Phase 1- 0 2- 37 3- 0 4- 35
           Phase 5- 0 6- 37 7- 0 8- 0
           Phase 9- 0 10- 0 11- 0 12- 0   Split Sum: 0
Split Extension/Ring [1]   0   [2]   0
Split Demand Pattern [1]   0   [2]   0
XRT Pattern. . . 0
  Phase Number: 1 2 3 4 5 6 7 8 9 10 11 12
Coord Phases . . . X . . . X . . . . .
Veh Recall . . . . . . . . . . . . . .
Veh Max Recall . . . . . . . . . . . . .
Ped Recall . . . . . . . . . . . . . .
Veh Omit . . . . . . . . . . . . . .
Alt Sequence . . A: . B: . C: . D: . E: . F: .
-----
    
```

```

-----
Pattern 3
Cycle Length . . . 60   COS . . . . . 311
Offset . . . . . 50
Vehicle Permissive . . [1]   0   [2]   0
Vehicle Perm 2 Displacement 0   Phase Reservice. . . NO
Splits:   Phase 1- 0 2- 37 3- 0 4- 23
           Phase 5- 0 6- 37 7- 0 8- 0
           Phase 9- 0 10- 0 11- 0 12- 0   Split Sum: 0
Split Extension/Ring [1]   0   [2]   0
Split Demand Pattern [1]   0   [2]   0
XRT Pattern. . . 0
  Phase Number: 1 2 3 4 5 6 7 8 9 10 11 12
Coord Phases . . . X . . . X . . . . .
Veh Recall . . . . . . . . . . . . . .
Veh Max Recall . . . . . . . . . . . . .
Ped Recall . . . . . . . . . . . . . .
Veh Omit . . . . . . . . . . . . . .
Alt Sequence . . A: . B: . C: . D: . E: . F: .
-----
    
```

Coordination Patterns

```

-----
Pattern 4
Cycle Length . . . 60   COS . . . . . FREE
Offset . . . . . 0
Vehicle Permissive . . [1] 0 [2] 0
Vehicle Perm 2 Displacement 0 Phase Reservice. . NO
Splits:   Phase 1- 0 2- 29 3- 0 4- 19
           Phase 5- 0 6- 29 7- 0 8- 0
           Phase 9- 0 10- 0 11- 0 12- 0   Split Sum: 0
Split Extension/Ring [1] 0 [2] 0
Split Demand Pattern [1] 0 [2] 0
XRT Pattern. . . 0
  Phase Number: 1 2 3 4 5 6 7 8 9 10 11 12
Coord Phases . . . X . . . X . . . . .
Veh Recall . . . . . . . . . . . . . . .
Veh Max Recall . . . . . . . . . . . . . . .
Ped Recall . . . . . . . . . . . . . . .
Veh Omit . . . . . . . . . . . . . . .
Alt Sequence . . A: . B: . C: . D: . E: . F: .
-----

```


NIC Program Steps

Step	Program	Step Begins	Pattern	Override
1	1	0600	1	NO
2	1	0900	3	NO
3	1	1500	2	NO
4	1	1900	3	NO
5	1	2200	0	NO
6	2	0600	3	NO
7	2	2200	0	NO

TOD Program Steps

Step 3 Program 1 Step Begins 1500

Flash. Dimming Enable.
 Red Rest Alt Veh Extension
 Spare 5. Det Log Enable.
 Spare 3. Spare 4
 Type 0 Dly Enable. . . Spare 2
 Det Diag Plan. . . . 0

	Phase Number											
	1	2	3	4	5	6	7	8	9	10	11	12
Max 2 Enable	X	X	.	X	.	X	.	.	.	.	.	.
Max 3 Enable
Veh Recall
Veh Max Recall
Ped Recall
Cond Service Inhibit.
Phase Omit
Special Function

Alt Sequence A B C D E F

Step 4 Program 1 Step Begins 1900

Flash. Dimming Enable.
 Red Rest Alt Veh Extension
 Spare 5. Det Log Enable.
 Spare 3. Spare 4
 Type 0 Dly Enable. . . Spare 2
 Det Diag Plan. . . . 0

	Phase Number											
	1	2	3	4	5	6	7	8	9	10	11	12
Max 2 Enable
Max 3 Enable	X	X	.	X	.	X	.	.	.	.	.	.
Veh Recall
Veh Max Recall
Ped Recall
Cond Service Inhibit.
Phase Omit
Special Function

Alt Sequence A B C D E F

TOD Program Steps

Step 7 Program 2 Step Begins 2200

Flash. Dimming Enable.
 Red Rest Alt Veh Extension
 Spare 5. Det Log Enable.
 Spare 3. Spare 4
 Type 0 Dly Enable. . . Spare 2
 Det Diag Plan. . . . 0

	Phase Number											
	1	2	3	4	5	6	7	8	9	10	11	12
Max 2 Enable
Max 3 Enable	X	X	.	X	.	X	.	.	.	.	.	.
Veh Recall
Veh Max Recall
Ped Recall
Cond Service Inhibit.
Phase Omit
Special Function

Alt Sequence A B C D E F
