

LOS ANGELES COUNTY
DEPARTMENT OF PUBLIC WORKS
TRAFFIC & LIGHTING DIVISION
TRAFFIC SIGNAL TIMING

LACO - 1H

TYPE 170 PROGRAM

Intersection: VAN NESS AVENUE @ 104TH STREET

Date Prepared: 8 6.5.17

By: MH

T.S. No.: 2457

Date Implemented: 7/19/17

By: OP

PHASE TIMING	Keystrokes: F + Phase + Interval								
	Phase #	1	2	3	4	5	6	7	8
Minimum Walk	0		7		11		7		10
Flashing Don't Walk	1		12		18		11		17
Minimum Green	2		10		7		10		7
Queue Maximum	3		0		0		0		0
Added Green/Actuation	4		2.2		0.0		0.0		0.0
Vehicle Extension	5		4.0		3.0		2.0		3.0
Maximum Gap	6		5.0		3.0		2.0		3.0
Minimum Gap	7		3.0		3.0		2.0		3.0
Max Extension 1 (Free)	8		40		30		40		30
Max Extension 2 (Coord)	9		130		30		130		30
Offset 1	A	Dial 1 49	Dial 2 32	Dial 3 29					
Offset 2	b								
Offset 3	C								
Reduce 0.1 Sec. Every...	d		1.5		0.0		0.0		0.0
Yellow	E		4.5		4.0		4.5		4.0
Red Clearance	F		1.0		1.0		1.0		1.0

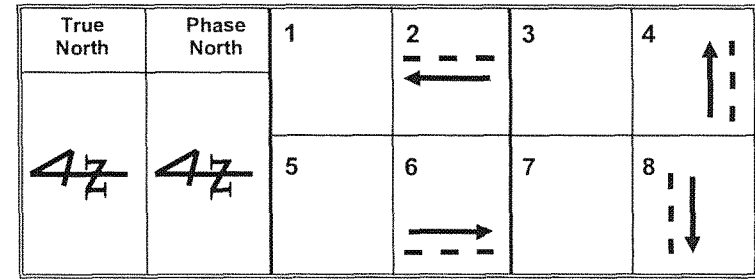
PREEMPTION		
Keystrokes: F+E+Function		
RR Select (0, 1, 2)		0
Track Clearance		1
RR Red		2
RR2 Maximum(Minutes)		3
EV-A Delay		4
EV-A Clearance		5
EV-B Delay		6
EV-B Clearance		7
EV-C Delay		8
EV-C Clearance		9
EV-D Delay		A
EV-D Clearance		b
EV Maximum (Seconds)		C
Delay Timer		d
Clearance Timer		E
Maximum Timer		F

PHASE FUNCTION FLAGS									
Keystrokes: F+F+Function									
		1	2	3	4	5	6	7	8
Phases Permitted	0		X		X		X		X
Red Lock	1								
Red & Yellow Lock	2		X				X		
Minimum Vehicle Recall	3		X				X		
Pedestrian Recall + Rest in Walk	4		X				X		
Pedestrian Phases	5		X		X		X		X
Rest in Red	6								
Semi Traffic Actuated Mode	7								
Double Entry	8				X				X
Maximum Vehicle Recall	9								
Overlap A	A								
Overlap B	b								
Barrier Recall	C								
Rest in Green	d								
Yellow Start Up	E		X				X		
Protected/Permissive Left Turn	F								

LAG PHASE FLAGS									
		1	2	3	4	5	6	7	8
Lag Free	d-F-0		X		X		X		X
Lag Dial 1	d-F-1		X		X		X		X
Lag Dial 2	d-F-2		X		X		X		X
Lag Dial 3	d-F-3		X		X		X		X

Max Added Green	F-0-E	25
Red Revert	F-0-F	2.0

Remarks:



LACO-1H

CLOCK AND EVENT TABLE SHEET

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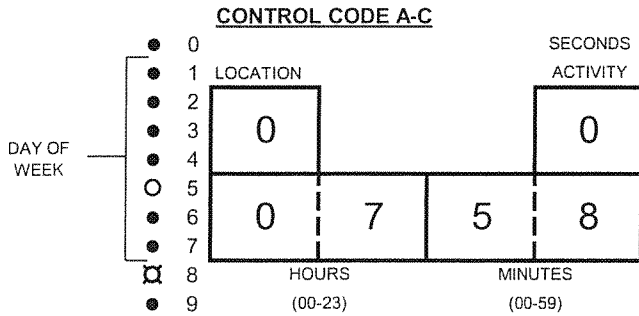


FIG. 1

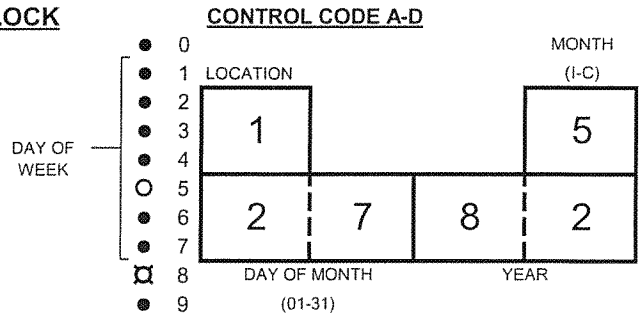


FIG. 2

ABOVE EXAMPLES

7:58 A.M. ON THURSDAY (FIG. 1)
MAY 27, 1982 (FIG. 2)

DAY OF WEEK

- 1 SUNDAY
- 2 MONDAY
- 3 TUESDAY
- 4 WEDNESDAY
- 5 THURSDAY
- 6 FRIDAY
- 7 SATURDAY

MONTH

- 1 JANUARY
- 2 FEBRUARY
- 3 MARCH
- 4 APRIL
- 5 MAY
- 6 JUNE
- 7 JULY
- 8 AUGUST
- 9 SEPTEMBER
- A OCTOBER
- B NOVEMBER
- C DECEMBER

DIRECTIONS

At control code A - C, key in hours and minutes, then key in 0 for seconds activity. Enter key E and turn on call light corresponding to day of the week. (NOTE: Seconds start at 0 seconds - for observation and correction use address D - 4 - F). At control code A - D, key in the day of the month, year and month, then enter key E.

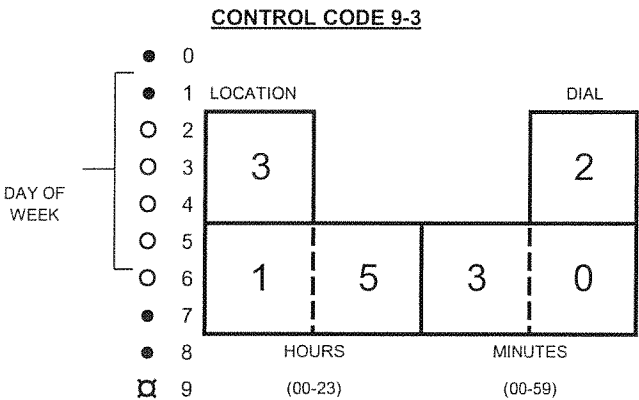


FIG. 3

ABOVE EXAMPLE

The example (FIG. 3), shows a time of day event at control code 9-3 with dial 2 to start at 3:30 P.M. each weekday from Monday through Friday.

DIRECTIONS

To set an event, key in 9 + the table location, key in hour, minute, and event, then enter key E. Set day(s) with call/active lights. To observe current event use address C - 0 - 5. (NOTE: These time of day events are local - not system events.)

REMARKS:

EVENT TABLE

FOR DIRECT INTERCONNECT ONLY. (D00=7)

		DAY AND LIGHT						
		← Set DAY using call/active LIGHT →						
LOC.	EVENT	SUN	MON	TUE	WED	THUR	FRI	SAT
9+ ↓	TIME	1	2	3	4	5	6	7
0								
1								
2								
3								
4								
5								
6								
7								
8								
9								
A								
B								
C								
D								
E								
F								

* DIAL 1 = 1, 2 = 2, 3 = 3, FREE = E, OFF = 0.

(NOTE: At C - 0 - 5, Free = 14)

OFFSET TIMING = C T.O.D. FLASH = F

LACO-1H - ANNUAL TABLES

Intersection: VAN NESS AVENUE @ 104TH STREET

Date Prepared: 8.6.17 By: MH

T.S. No.: 2457

Date Implemented: 7/19/17 By: OP

EXCEPTION DAYS			s	m	t	w	t	f	s
Code	Month / Day	Flag	1	2	3	4	5	6	7
8-0	01 / 01	1	X	X	X	X	X		
8-1	01 / 02	1	X						
8-2	07 / 04	1	X	X	X	X	X		
8-3	07 / 05	1	X						
8-4	11 / 10	1						X	
8-5	11 / 11	1	X	X	X	X	X	X	
8-6	11 / 12	1	X						
8-7	12 / 24	1	X	X	X	X	X	X	
8-8	12 / 25	1	X	X	X	X	X	X	
8-9	12 / 26	1	X					X	
8-A									
8-b									
8-C									
8-d									
8-E									
8-F									

EXCEPTION TIMES			Table 8 Flags						
Code	Hour : Min	Plan	1	2	3	4	5	6	7
9-0	00 : 00	E	X						
9-1	08 : 00	1	X						
9-2	20 : 00	E	X						
9-3	:								
9-4	:								
9-5	:								
9-6	:								
9-7	:								
9-8	:								
9-9	:								
9-A	:								
9-b	:								
9-C	:								
9-d	:								
9-E	:								
9-F	:								

NOTES ON USING TABLES:

Starting from the base display [A/b], Table access is gained with a two digit Table Code. Access is verified by the flashing of both Call Light 9 and the Phase digit* of the display (* No Flash if Table # & Event # match).

Five keypresses will be required followed by [E] to either the data and open the flag mode. Day of Week flags can now be set.

ADDITIONAL KEY CODES:

d-0-3=1 Search Tables
d-0-3=3 Repoll WWV Clock
d-A-F=1 Repoll WWV Clock
d-0-3=071 Save Timing to Prom Module
d-0-3=170 Download Timing into 170
d-0-3=999 Clear All Tables
F-0-0=Phase/Dial Copy - Source
F-0-1=Phase/Dial Copy - Destination
F-0-4=Program Number (66)
d-0-8,9,A=Mo,Day,Yr of Latest Revision
E-E-0-0= Reinitialization

SPECIAL FUNCTION TABLE									
Keystrokes: F + d + Function									
		Phase Flags							
		1	2	3	4	5	6	7	8
(Green) Calling Phases	0								
(Green) Call To Phases	1								
(Yellow) Calling Phases	2								
(Yellow) Call To Phases	3								
Auxiliary Ovp A Output	4								
Mid-Block Ped Crossing	5								
Driveway Flash	6								
Green Extension	7								
Sequential Ped	8								
Not Used	9								
EV- A Clearance Phases	A								
EV- B Clearance Phases	b								
EV- C Clearance Phases	C								
EV- D Clearance Phases	d								
Track Clearance Phases	E								
Limited Services Phases	F								

When Any Flagged Phase Is Green ---
--- Place A Locked Call To These Phases.

When Any Flagged Phase Is Yellow ---
-- Place A Locked Call To These Phases.

"Three Color Single Phase Overlap" Outputs On Auxiliary File - Slot 1
Ø4P Only. Ø2 & Ø6 Reds Flash During Ø4P Clearance.
Flashes the Green Outputs of the Selected Phases.
Staggered Termination At Barrier Crossing.
Allows Ø1, Ø3 or Ø5 Ped to Output on the Ø8P Load Switch.

OVERLAP GREEN OMIT	Keys	1	2	3	4	5	6	7	8
Green Omit for Overlap A	F-C-4								
Green Omit for Overlap B	F-C-5								
Green Omit for Overlap C	F-C-6								
Green Omit for Overlap D	F-C-7								

F-9-7	Coordination Free Time (Seconds) After railroad preempt
F-9-d	Green Rest Delay Time (Seconds)
d-0-1	RAILROAD ROUTINE SELECT: 0=Normal Railroad 1=Special Two Input Railroad Routine
d-0-2	MANUAL CONTROL: 0=Not Enabled 1=No Rcalls 2=Vehicle recalls 3=Vehicle and Ped Recalls

PHASE OMIT	Keys	1	2	3	4	5	6	7	8
Phase Omit (Observe Only)	d-d-4								
Phase Omit for Dial 1	d-d-5								
Phase Omit for Dial 2	d-d-6								
Phase Omit for Dial 3	d-d-7								

ADDITIONAL OVERLAPS	Keys	1	2	3	4	5	6	7	8
Aux File 2 Color Overlap C	d-d-C								
Aux File 2 Color Overlap D	d-d-d								
Ø7 Load Sw. 3 Color Ovrtp E	d-d-E								
Green Omit for Overlap E	d-d-F								

PHASE OMIT is active when Coordination CALL function is active and the OMIT flag is set.

Overlap E will not function if the Railroad Preempt has been selected.

LACO-1H - COMMUNICATION & SPECIAL OPTIONS

Intersection: VAN NESS AVENUE @ 104TH STREET

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T.S. No.: 2457

Date Implemented: 7/19/17 By: ag

SPECIAL OPTIONS	Keys	
Comm 3 Options	F-9-3	
User Flag Options	F-C-2	
AB3418 Slave Number (1-62)	F-9-0	

Comm 3 Options (F-9-3)

- 1 = Unused
- 2 = Transmit 7-Wire
- 3 = Unused
- 4 = Transmit Time & Day
- 5 = Unused
- 6 = Transmit Plan
- 7 = Transmit State Protocol AB3418 Time & Date
- 8 = Receive & Respond to State Protocol AB3418

User Options (F-C-2)

- 1 = Send out the "System Sync Pulse" on Phase 4 Ped Yellow
- 2 = Send out the "Time of Day Output" on Phase 4 Ped Yellow
- 3 = Send out the "Midnight Sync Pulse" on Phase 4 Ped Yellow
- 4 = Reserved
- 5 = Enable AB3418 to set the Time & Date
- 6 = Enable AB3418 to set the Coordination Free
- 7 = Enable the Special Time of Day Overlap B
- 8 = Enable the Freeway Ramp Release Logic Routine

Note: A Slave Number must be entered at F-9-0 (1-62) when using Option # 8.

COMM BAUD RATES	Keys	
Comm 1 Baud Rate	D-E-C	
Comm 2 Baud Rate	D-E-D	
Comm 3 Baud Rate	D-E-E	
Comm 4 Baud Rate	D-E-F	

Baud Rate Setting:

- 128 = 1200 bps (Default)
- 64 = 2400 bps
- 32 = 4800 bps
- 16 = 9600 bps
- 08 = 19.2k bps
- 04 = 38.4k bps
- 02 = 76.8k bps
- 01 = 153.6k bps

Note:

Upon initialization, all Comm ports are set to the Default baud rate of 1200 bps. This is also the baud rate for the WWV radio and GPS clock receivers.

To enable Ram Clock/Calander, set D-0-B ≠ 0

DAYLIGHT SAVINGS TIME		
Page Set: F - 9 - F = 4; Key In: C - 9 - Row	ROW	
Standard Time Month* (01 thru 12)	0	
Standard Time Sunday (01 thru 04)	1	
Daylight Savings Time Month* (01 thru 12)	2	
Daylight Savings Time Sunday (01 thru 04)	3	

*Setting either the Standard Time Month or the Daylight Savings Time Month to zero will disable the LACO-1H DST Adjustment function.