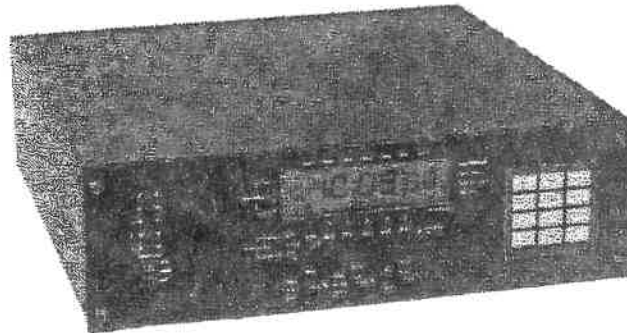
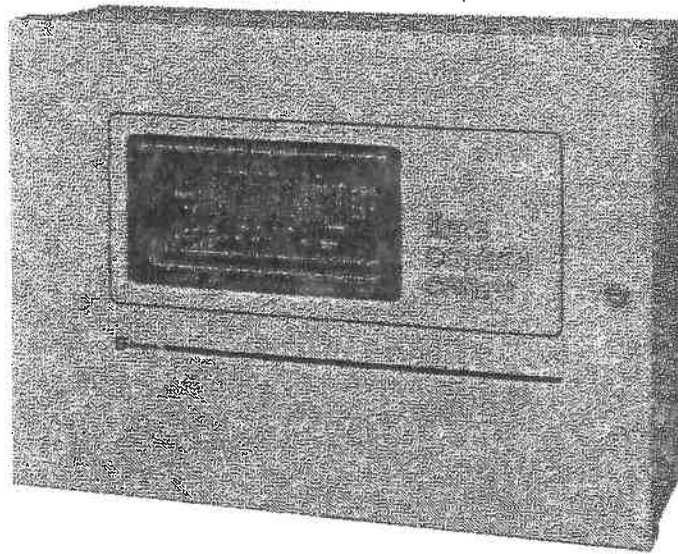




6400 Time Control Center

Programming Instructions



INTRODUCTION

The 6400 Time Control Center controls Simplex synchronous and BCD data (Celestra) digital secondary clocks and as an option, Simplex impulse secondary clocks as well as most competitive clock systems. The 6400 also provides six user programmable output circuits for the control of external devices such as bells, horns, thermostats, or lighting controls.

When programming the 6400, you enter commands into the available memory. These commands – referred to as “events” in this publication – are stored in memory for future use.

There are two types of events that can be programmed into the 6400: TIMED or DELAY. A TIMED event is programmed to automatically occur at a specific time while a DELAY event is programmed and then manually initiated when required.

Each TIMED event is a specific type: ON, OFF, or PULSE. An ON event is programmed to turn an external device ON while an OFF event turns the device OFF. A PULSE event turns the device ON for a specific pulse duration.

As for a DELAY event, it is always an ON or PULSE type after a manual initiation. A DELAY ON event turns ON an external device for a specific period of time (hours and/or minutes) and then turns the device OFF after the specific period of time has expired. A DELAY PULSE event delays turning ON an external device for a specific period of time (hours and/or minutes) and then turns the device ON for a specific pulse duration (seconds).

In this publication, **Section 1** explains keypad operation; **Section 2** covers basic keypad entries such as setting the time and day of the week, setting the date, etc.; and **Section 3** deals with event programming. See Appendix A, How to Use the 6400 Program Layout Sheets, before trying to program your 6400 for the first time.

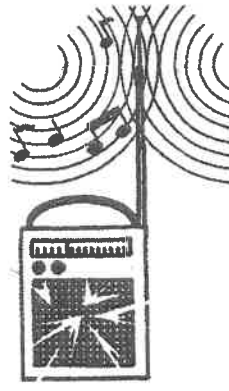
	<p style="text-align: center;">WARNING</p> <p>This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.</p>
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SECTION 1

KEYPAD OPERATION

General Notes

Your 6400 includes a keypad which allows you to enter information into the unit's memory (be programmed) and an LCD display. In addition to showing the time, the display prompts you throughout each programming procedure by asking questions (in the form of blinking characters or symbols).

If your answer is "YES" to a question (depress the keypad's [YES] key), the 6400 accepts the information as correct and asks another question. If your answer is "NO" to a question (depress the keypad's [NO] key), the 6400 rejects the information which had been blinking and provides you with another choice.

The above continues until all questions involved in a program entry have been answered "YES" — whereupon the display blinks all the information which you've instructed the 6400 to accept during the programming.

When all of the information on the display is blinking, examine each piece of blinking information to make sure the entire entry is correct. If correct, press the [ENTER] key; if incorrect, press the [NO] key.

- If you press the [NO] key at this point, the 6400 will reject all of the information which it had previously accepted during the programming procedure, and instructs you to begin the program entry again.

No information blinks while the 6400 is in its [REVIEW] mode.



Figure 1
LCD Display

Keypad Normally Active

CPU Board's DIP switch #6 is in the ON position.

1. When the 6400's keypad is active, the LED next to the words "KEYPAD ACTIVE" is lit.
2. If you press [RUN] during any programming sequence, (1) the entry aborts and (2) the 6400 returns to normal operation (displays the time again).
3. Holding [NO] depressed causes the display to scroll through all possible entries in each programming step.

vs. Keypad Normally Inactive

CPU Board's DIP switch #6 is in the OFF position.

1. When the 6400's keypad is inactive, the LED next to the words "KEYPAD ACTIVE" is not lit.
2. To activate the keypad, depress the [PROG], [RUN], [YES], and [ENTER] keys in that order.
 - However, the keypad will only remain active for one minute without any entries being made.
3. If you press [RUN] during any programming sequence, (1) the entry aborts and (2) the 6400 returns to normal operation (displays the time again).
 - However, the keypad will remain active for one minute. But if you want to deactivate the keypad immediately after your 6400 returns to normal operation, depress [RUN] again.
4. Holding [NO] depressed causes the display to scroll through all possible entries in each programming step.

Keypad Modes

Depressing any one of the following keys when the 6400's keypad (Figure 2) is active causes the unit to go into the program mode represented by that key. The various program modes (and the keys used to select them) are:

[12/24]: To enter hour format (12 or 24) for LCD display

[TIME]: To set time and day of the week

[DATE]: To set date

[DST]: To program for automatic daylight savings time changes

[PROG]: To program events

[REVIEW]: To list and/or delete timed events

[SCHED]: To activate desired schedule(s)

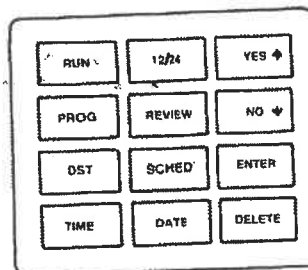


Figure 2
Keypad

SECTION 2

BASIC ENTRIES

To Enter Hour Format (12 or 24) For LCD Display

Depress [12/24]

- The display immediately changes from 24 to 12 hour format (or vice versa)

Note: The 6400 both prompts for and shows timed command entries in the same format as it is currently displaying the time in.

To Set the Time and Day of Week

- Depress [TIME]

(See Figure 3 for display)

- The display digits show
HR:MIN:SECS

- Prompts appear in order below. You must depress [YES] or [NO] in response to each prompt.

- Day of week
- Hour
- Minute
- Seconds

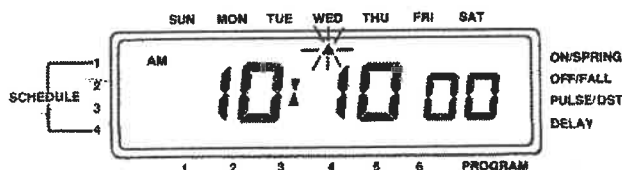


Figure 3
LCD Display After Depressing TIME Key

Note: Time starts running when [ENTER] is depressed.

To Set the Date

- Depress [DATE]

(See Figure 4 for display)

- The display digits show
MO DATE YR

- Prompts appear in the order below. You must depress [YES] or [NO] in response to each prompt.

- Year
- Month
- Date

- Depress [ENTER] when all information is blinking.

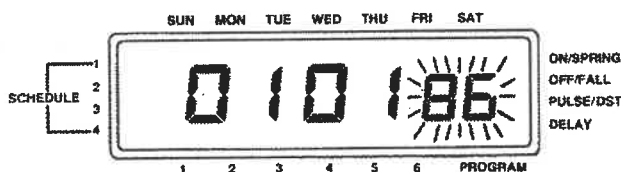


Figure 4
LCD Display After Depressing DATE Key

To Program for Automatic Daylight Savings Time (DST) Changes

- Depress [DST]

- The display digits show
HR MO DATE
(see Figure 5 for display)

- Prompts appear in the order below. You must depress [YES] or [NO] in response to each prompt.

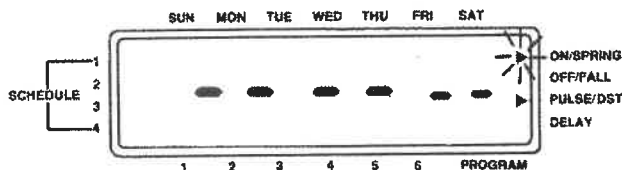


Figure 5
LCD Display After Depressing DST Key

1. Spring or fall correction
2. Correction month
3. Correction date
4. Correction hour

Notes

- A. To delete (rather than enter) DST information, depress [DELETE] (instead of [YES] or [NO] to any of the above prompts). Then, when the display shows blinking dashes, depress [ENTER].
- B. Since daylight savings standard time dates change yearly, your 6400 cancels automatic DST information after using it once. Because of this feature, new DST information must be entered yearly.
- C. The spring DST change causes the 6400 to jump ahead one hour, and to ignore all functions programmed to occur during the missing hour. The fall DST change causes it to jump back one hour, and to repeat all functions programmed to occur during the repeated hour.

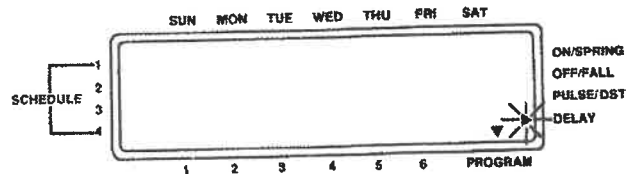
SECTION 3

EVENT PROGRAMMING

Notes

- A. Do not program a "delay" event and "timed" events on the same circuit. If a "delay" event is programmed for a particular circuit, none of the "timed" events on that particular circuit will be performed.
- B. For all coded relay transmissions (including manually controlled transmissions), the transmission duration is one minute. At the end of that minute, the programmed event occurs. For example, if you want to turn on a coded relay at 10:05, the coded event must be programmed for 10:04.
- C. A single circuit may be programmed for one "delay" event or 1000 "timed" events.

Depress [PROG] (See Figure 6 for display)



The display prompts for type of program entry (delay arrow blinking means delay entry; hour digits blinking means timed entry)

Figure 6
LCD Display After
Depressing PROG Key

Proceed as follows:

- A. If you selected "delay," see "To Enter a 'Delay' Event" on page 6.

Note: To manually control a remote coded relay, see "To Program a Manual Override Address for a Remote Coded Relay — 'Delay' Event Programming" on page 8.

- B. If you selected "timed," see "To Enter a 'Timed' Event" on page 9.

Note: For automatic remote coded relay programming using "timed" events, see "To Program a Remote Coded Relay for Automatic Control" on page 7.

To Enter a "Delay" Event

The display digits show HR:MINS SECS (See Figure 7 for display)

Prompts appear in the order below. You must depress [YES] or [NO] in response to each prompt.

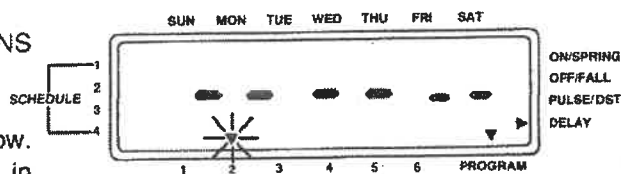


Figure 7
LCD Display After Selecting
DELAY Event in PROGRAM Mode

1. Output circuit

Note: Circuit 1 cannot be used for either "delay" or "timed" events if circuit 1 has been dedicated to remote coded relay control during installation.

2. "On" (see Figure 8 for display) or "pulse" (see Figure 9 for display) type event
3. Delay hours (0-15)

4. Delay minutes (in addition to hours already entered)
5. Pulse duration in seconds — 1-99 (if pulse selected)

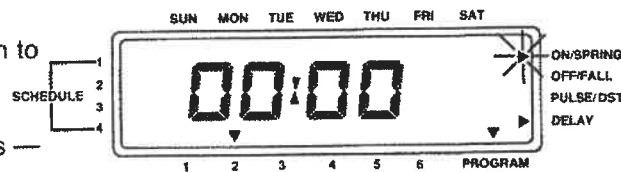


Figure 8
LCD Display After Selecting
ON Event in DELAY Event Programming

To Delete a "DELAY" Event

1. Depress [PROG]

- The display prompts for type of program entry (delay arrow blinking means delay entry; hour digits blinking means timed entry)

2. Depress [YES] when delay arrow is blinking

- The display digits show HR:MINS SECS



Figure 9
LCD Display After Selecting
PULSE Event in DELAY Event Programming

3. Prompts appear in the following order:

- a. Output circuit
- b. "On" (see Figure 8) or "pulse" (see Figure 9) type event
- c. Delay hours (0-15)
- d. Delay minutes (in addition to hours already entered)
- e. Pulse duration in seconds — 1-99 (if pulse selected)

4. To delete a particular delay event:

- A. Depress [DELETE] (instead of [YES] or [NO] to any of the above prompts).
- B. When the display shows blinking dashes, depress [ENTER].

To Program a Remote Coded Relay for Automatic Control (Optional)

1. Depress [PROG]

- The display prompts for type of program entry (delay arrow blinking means delay entry; hour digits blinking means timed entry)

2. Depress [NO] when delay arrow is flashing.

- The display digits show HR:MINS SECS (See Figure 12 for display)

3. Prompts appear in the order below. You must depress [YES] or [NO] in response to each prompt.

a. Hour event is to occur

b. Minute event is to occur

Note: Although 6400 prompts for second event entry, leave second event at 00 seconds because seconds cannot be entered.

c. Day(s) on which event is to occur

d. Schedule(s) which are to include event

e. Circuit(s) which are to be affected by event

Note: Select Circuit 1 only.

- LED #1 representing relay address #1 is blinking. See Figure 10.

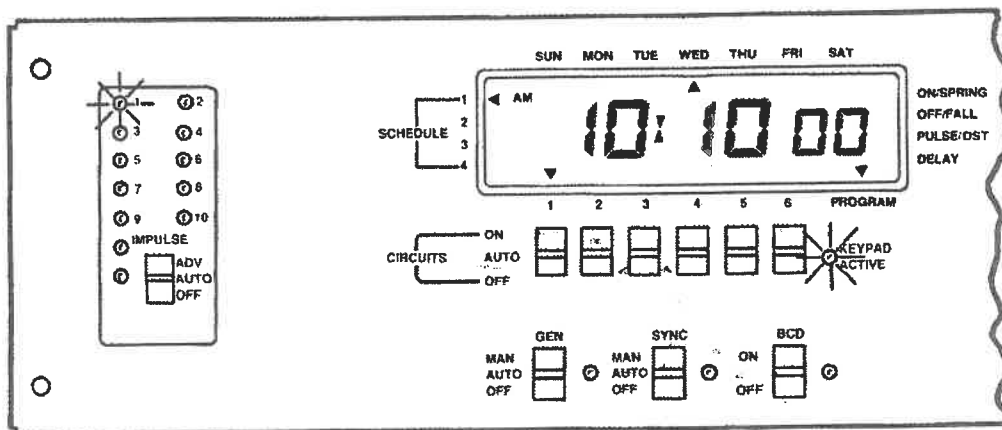


Figure 10
LCD Display & LED Addresses After Selecting Circuit 1
in Remote Coded Relay Programming (Automatic Control)

- Depress [YES] key to select address #1; depress [NO] key to move to address #2 (LED #2 is blinking) without selecting address #1.

- Repeat previous step for remaining addresses (2 through 10).

Note: Any combination of the 10 relay addresses can be selected if your 6400 is programmed for coded relay turn-on without delay. However, if your 6400 is programmed for a 5-second delay, only 9 addresses are available. And programming a 10-second delay leaves only 8 addresses available.

f. Type of event ("on" or "off")

Note: A "pulse" event is not available.

4. Depress [ENTER] when all information is blinking or [NO] if you want to change the information that is blinking

Note: Depressing the [NO] key instead of the [ENTER] key returns the 6400 to Step 3 above and cancels all previous program entries.

To Program a Manual Override Address for a Remote Coded Relay — "Delay" Event Programming (Optional)

1. Depress [PROG]

- The display prompts for type of program entry (delay arrow blinking means delay entry; hour digits blinking means timed entry)

2. Depress [YES] when delay arrow is blinking.

- Circuit 1's arrow is blinking.

3. Depress [YES] to select Circuit 1.

- The ON arrow is blinking.

4. Depress [YES] to select an ON event; depress [NO] and then [YES] (when OFF arrow is blinking) to select an OFF event.

- LED #1 representing relay address #1 is blinking whether an OFF or ON event is chosen. See Figure 11 which shows an ON event selection.

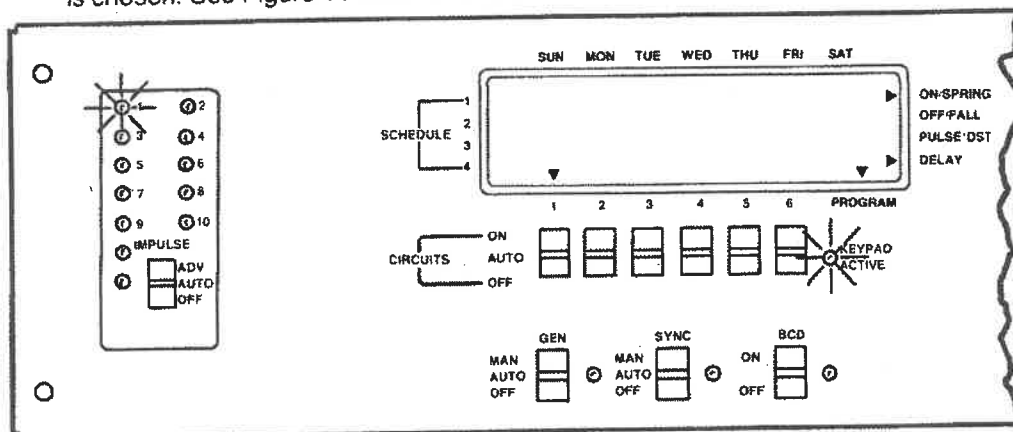


Figure 11

LCD Display & LED Addresses After Selecting ON Event
in Remote Coded Relay Programming (Manual Override)

Note: Selecting an ON event allows you to later turn ON your choice of remote relay(s) by placing the Circuit 1 manual override switch (see Figure 10) in the ON position. Selecting an OFF event allows you to later turn OFF your choice of remote relay(s) by placing the Circuit 1 manual override switch in the ON position.

5. Depress [YES] key to select address #1; depress [NO] key to move to address #2 (LED #2 is blinking) without selecting address #1.

6. Repeat Step 5 for remaining addresses (2 through 10).

Note: Any combination of the 10 relay addresses can be selected.

7. Depress [ENTER] key when all selected LEDs are blinking.

Note: Depressing the [NO] key instead of the [ENTER] key returns the 6400 to Step 3 above and cancels all previous program entries.

MANUAL OVERRIDE SWITCH (CIRCUIT 1)

8. Once the above information (Steps 1 through 7) has been programmed, the stored program can be overridden by placing the Circuit 1 Manual Override Switch in the ON position.

Notes

- A. The remote relays can be manually turned OFF or ON using the Circuit 1 Manual Override Switch. Whether the relays are turned OFF or ON depends on what delay event for Circuit 1 is programmed (OFF or ON). For example, if an OFF delay event is programmed for Circuit 1, the relays will turn OFF if the Circuit 1 Manual Override Switch is placed in the ON position.
- B. Returning the Manual Override Switch to the AUTO position (from the ON or OFF position) resumes operation of the stored program. However, the selected remote relay(s) will remain OFF or ON until the first command of the stored program changes their condition.
- C. The OFF position allows you to remove all communication with remote relay(s).

To Enter a "Timed" Event

The display digits show HR:MINS SECS (See Figure 12 for display)

Prompts appear in the order below. You must depress [YES] or [NO] in response to each prompt.

1. Hour event is to occur
2. Minute event is to occur

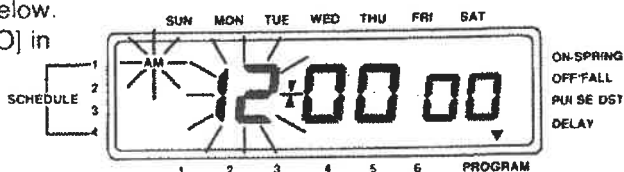


Figure 12

LCD Display After Selecting

9 TIMED Event in PROGRAM Mode

3. Second event is to occur (except for "pulse" event where seconds signify pulse duration)
4. Day(s) on which event is to occur
5. Schedule(s) which are to include event
6. Circuit(s) which are to be affected by event
7. Type of event ("on," "off" or "pulse")



Figure 13
LCD Display After Selecting
PULSE Event in TIMED Event Programming

Note: For "pulse" event, see Figure 13.

8. Pulse duration in seconds (if pulse type event selected)

Depress [ENTER] when all information is blinking or [NO] if you want to change the information that is blinking.

Note: Depressing the [NO] key instead of the [ENTER] key returns the 6400 to initial display and cancels all previous program entries.

To Review and/or Delete "Timed" Event

Depress [REVIEW]

Notes

- A. When the 6400's put in its "review" mode, the earliest-in-the-day timed command is immediately displayed.
- B. If you press the [YES] key when in the review mode, the 6400 displays the next-later command; if you press the [NO] key when in the review mode, it displays the preceding command.
- C. Any timed command which contains incorrect information must be deleted and then re-entered.
- D. To delete a command, simply depress the [DELETE] key when the 6400 displays the command which is to be deleted.

To Activate Desired Schedule(s)

Depress [SCHD] (See Figure 14 for display)

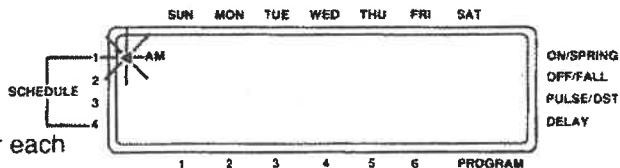


Figure 14
LCD Display After
Depressing SCHED Key

- The display prompts once for each of the four schedules. You must depress [YES] or [NO] in response to each prompt.

Note: If you depress the [NO] key in response to all four prompts, all schedules will be inactive (timed commands will never occur).

APPENDIX A

HOW TO USE THE 6400 PROGRAM LAYOUT SHEETS

6400 PROGRAM LAYOUT SHEET (FORM M 1364)

Notes

1. A copy of the 6400 Program Layout Sheet (Form M 1364) can be found on pages 14 and 15 of this manual.
 - Copies of Form M 1364 are available through your local Simplex Representative.
2. If you do not presently have copies of the Program Layout Sheet, make copies of pages 14 and 15 before proceeding.
3. The 6400 Program Layout Sheet(s) allow whoever is programming your 6400 to see its current timed-command program at a glance. So, after programming the unit, attach the filled-out program sheet(s) to this manual for future reference.
4. Most of the program sheet is to be used for recording "timed" commands (the very bottom of each sheet is to be used for recording "delay" events).

To Fill Out the "Timed" Event Portion of the Sheet

- A. If you are **entering an entirely new** timed-command program:
 1. Write, in chronological order and on as many program sheets as are required, all the information applicable to each entry you are going to make.
 2. Using the program sheet(s) as a reference, enter the timed-event program into your 6400.
 - Except for the day-of-the-week selection (which prompts for a Monday through Friday selection first), the boxes on each program sheet line are laid out in the order that prompts appear.
 3. Review the entire timed-event program to make sure it agrees with the program sheet(s).
- B. If you are **adding a few** events to your 6400's program:
 1. At the end of the last sheet describing your 6400's current timed-event program, write the information applicable to each entry you are going to add.
 2. Using the now-filled-in lines as a reference, enter the new timed events into your 6400.
 3. Review the entire timed-event program and, on as many program sheets as required, record all events currently in your 6400.

C. If you are **deleting a few** events from your 6400's program:

1. From the applicable program sheet(s), cross out the timed events which are to be deleted.
2. Put the 6400 in its REVIEW mode. Then scroll through the timed-event program (being sure to delete each crossed-out command as it appears).

D. If you are **changing a few** events in your 6400's program:

1. In each line which applies to a to-be-changed event entry, (a) erase the information which will no longer apply and (b) write in the new information.
2. Put the 6400 in its REVIEW mode. Then scroll through the timed event program — being sure to delete each to-be-changed event as it appears).
3. Put the 6400 in its PROGRAM mode, and enter the new (changed) events.
4. Review the entire timed-event program to make sure it agrees with the program sheet's information.

To Fill Out the "Delay" Event Portion of the Sheet

1. In as many "CIRCUIT" boxes as are required, write the number of a circuit which is to contain a "delay" event.
2. If a circuit is to provide an ON event, put an X in the circuit's "ON" box. Otherwise, put an X in its "PULSE" box.

Note: An OFF event is possible when using "Delay" event programming to program a manual override address for a remote coded relay (Circuit 1).

3. Write all of the time information associated with that event (Hrs, Mins and [if applicable] Secs) in the circuit's "DURATION" and (if necessary) "PULSE DURATION" boxes.
4. Using the program sheet as a reference, enter the event(s) into your 6400.

6400 CODED AND DUAL CODED PROGRAM LAYOUT SHEET (FORM M 1367)

A copy of the 6400 Coded and Dual Coded Program Layout Sheet (Form M 1367) can be found on pages 16 and 17 of this manual.

- Copies of Form M 1367 are available through your local Simplex Representative.

Use Form M 1367 in accordance with the procedure given on pages 11 and 12 for Form M 1364 except for the following:

- There are no pulse type events available when operating coded or dual coded relays.
- Complete the "Timed" event portion of the layout sheet (Form M 1367) as follows:

1. Ensure that you have extra copies of the layout sheet.
2. Enter events one at a time on the sheet.
3. Combine like events (same time, schedule, and address) into one line entry. Leave all other events as separate line entries. See Figures 15 and 16.

NOTE: Events that share the same time and schedule but not the same address must not be combined into one line entry.

4. Copy all completed entries onto a blank layout sheet.

6400 CODED AND DUAL CODED PROGRAM LAYOUT SHEET

PAGE _____ OF _____

Simplex

USE THE 6400 CODED AND DUAL CODED PROGRAM LAYOUT SHEET WHEN CIRCUIT #1 IS TO OPERATE CODED OR DUAL CODED RELAYS.

NAME _____ LOCATION - USE _____
 LOCATION _____ SCHEDULE _____
 ADDRESS _____
 PROGRAMMER _____ DATE _____

TIMED COMMAND PROGRAM (AUTOMATIC CONTROL)

TIME HR · MIN · SEC	AM PM	DAY OF WEEK							SCHEDULE				CIRCUIT	ADDRESSES										CONTROL		NOTE			
		S	M	T	W	T	F	S	1	2	3	4		1	2	3	4	5	6	7	8	9	10	ON	OFF				
3 : 59		X										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
3 : 59			X									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
3 : 59				X								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
3 : 59					X							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
3 : 59							X					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
3 : 59								X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		

COMBINE →

SEPARATE LINE ENTRY →

Figure 15
Form M 1367 After
Entering Events Separately

TIME HR · MIN · SEC	AM PM	DAY OF WEEK							SCHEDULE				CIRCUIT	ADDRESSES										CONTROL		NOTE			
		S	M	T	W	T	F	S	1	2	3	4		1	2	3	4	5	6	7	8	9	10	ON	OFF				
3 : 59		X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
3 : 59								X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		

Figure 16
Form M 1367 After
Combining Events

THE FOLLOWING PROGRAM LAYOUT SHEETS ON PAGES 14-17 ARE FOR PHOTO COPY USE ONLY. CONTACT YOUR LOCAL SIMPLEX REPRESENTATIVE FOR ENOUGH PROGRAM LAYOUT SHEETS TO FIT YOUR REQUIREMENTS.



 **Simplex**

MC6-41-100

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