

ALABAMA
Birmingham
Mobile
Montgomery

ALASKA
Anchorage
Fairbanks
Juneau

ARIZONA
Phoenix
Tucson

ARKANSAS
Little Rock

CALIFORNIA
Anaheim
Fresno
Los Angeles
Sacramento
San Diego
San Francisco
Santa Barbara
Riverside

COLORADO
Denver
Security

CONNECTICUT
Bridgeport
Hartford
New Haven

DISTRICT OF COLUMBIA
Washington

FLORIDA
Jacksonville
Miami
Orlando
Tampa

GEORGIA
Atlanta
Augusta
Columbus
Savannah

HAWAII
Honolulu

ILLINOIS
Chicago
Moline
Peoria
Rockford
Springfield

INDIANA
Evansville
Indianapolis
Muncie
South Bend
Terre Haute

IOWA
Cedar Rapids
Des Moines

KANSAS
Topeka
Wichita

KENTUCKY
Evansville
Lexington
Louisville
Paducah

LOUISIANA
Baton Rouge
Bossier
New Orleans
Shreveport

MAINE
Portland

MARYLAND
Baltimore
Hagerstown

MASSACHUSETTS
Boston
Fall River
Lowell
Springfield
Worcester

MICHIGAN
Detroit
Flint
Grand Rapids
Battle Creek
Lansing
Muskegon

MINNESOTA
Duluth
Minneapolis

MISSISSIPPI
Jackson
Meridian

MISSOURI
Kansas City
St. Louis

MONTANA
Billings
Great Falls

NEBRASKA
Omaha

NEVADA
Las Vegas

NEW JERSEY
Camden
Fair Lawn
Trenton
Union

NEW MEXICO
Albuquerque

NEW YORK
Albany
Buffalo
Catskill
Elmira
Hicksville
Jamestown
Poughkeepsie
Mt. Vernon
New York
Rochester
Syracuse
Utica

NO. CAROLINA
Asheville
Charlotte
Greensboro
Raleigh
Winston-Salem

NORTH DAKOTA
Fargo

OHIO
Akron
Canton
Cincinnati
Cleveland
Columbus
Dayton
Lima
Toledo
Youngstown

OKLAHOMA
Oklahoma City
Tulsa

OREGON
Portland

PENNSYLVANIA
Allentown
Bradford
Camp Hill
Erie
Media
Philadelphia
Pittsburgh
Scranton
Williamsport

RHODE ISLAND
Cranston

SO. CAROLINA
Charleston
Columbia
Florence
Greenville

SOUTH DAKOTA
Sioux Falls

TENNESSEE
Chattanooga
Kingsport
Knoxville
Memphis
Nashville

TEXAS
Amarillo
Austin
Beaumont
Corpus Christi
Dallas
El Paso
Fort Worth
Houston
Lubbock
Midland
San Antonio
Tyler
Waco

UTAH
Salt Lake City

VERMONT
Burlington

VIRGINIA
Roanoke
Richmond
Norfolk

WASHINGTON
Seattle
Spokane
Yakima

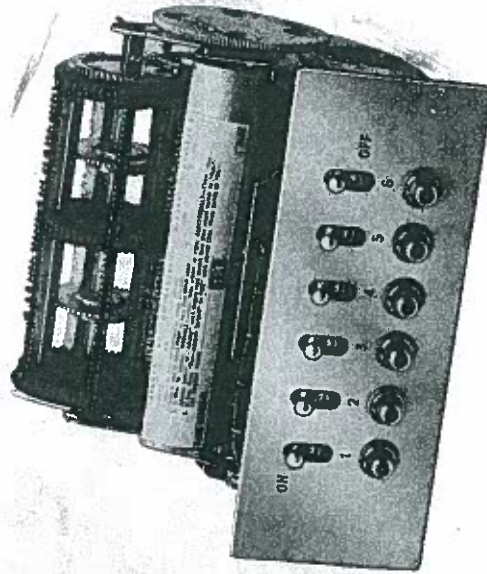
WEST VIRGINIA
Martinsburg
Huntington

WISCONSIN
Green Bay
Madison
Milwaukee

Customer's Instructions for the Operation and Care of the

PROGRAM MACHINE

Type 803



PROGRAM SETTING	Page
a. Preparing the Schedule	4
b. Preparation of Reading Bars	4
c. Insertion of Reading Bars into the Program Drum	7
d. Replacing Program Drum in Machine	9
SETTING INSTRUCTIONS	
a. Minute Impulse Machine	9
b. Synchronous Motor Machine	10
MAINTENANCE	10

Printed in USA
575-255

For additional information on this and other Simplex Time Equipment, call or write the Simplex branch office nearest you or Simplex Time Recorder Co., 24 South Lincoln Street, Gardner, Massachusetts.



SIMPLEX TIME RECORDER CO.
GARDNER, MASSACHUSETTS, U.S.A.
Succinctly in:
AUSTRALIA, CANADA
THE UNITED KINGDOM

Succinctly in:
AUSTRALIA, CANADA
THE UNITED KINGDOM
Succinctly in:
AUSTRALIA, CANADA
THE UNITED KINGDOM

WORLD-WIDE OFFICES & REPRESENTATIVES

THE STR type 803 Program Machine is a compact, versatile precision-engineered and manufactured drum type signal control mechanism which provides signal combinations for every minute of every day in a weekly period. It provides for a maximum of sixty different signals, any one of which may be programmed through one or all circuits and may be repeated daily if desired. Six signal circuits, each with its circuit push button and control switch, offer ample flexibility for many applications of this device. For each signal desired, a reading bar is prepared by snapping off pre-scored reading fingers as needed. The bar is then clipped into a reading bar drum.

The timekeeping of the machine is performed by timing cylinders which are advanced progressively by the drive mechanism. On each of the four timing cylinders (units of minutes, tens of minutes, hours, AM-PM and days) are cam projections. Their function is to indicate the machine time by raising the associated stop fingers and day switch control finger.

The timing cylinder assembly in the minute impulse type machine is advanced by means of a drive motor located in the base of the machine. The drive motor is under direct control of the master time control. Once each minute the master time control releases a pulse that causes the drive motor to advance the program machine one minute. During the 59th minute of each hour the master time control initiates an automatic comparison of the program machine and itself. Any variation is corrected by holding the unit to the

59th minute if it is fast, or rapidly advancing it to the 59th minute if it is slow. The range of automatic correction is from 10 minutes fast to 45 minutes slow.

The timing cylinder assembly in the synchronous motor type is driven continuously by the synchronous motor thus eliminating the need for a special drive motor. A duration contact is contained within the unit and is operated from cams on the motor shaft.

Each minute the reading bar drum rotates a reading bar toward the stop fingers. If the combination of fingers snapped off the reading bar agrees with the combination of stop fingers set up by the timing cylinders, the reading bar will move into the functioning position. If the two combinations are not the same, one or more stop fingers will engage one or more corresponding reading bar fingers and prevent drum movement. The drum will stay in that position until the stop finger combination set up by the timing cylinders matches that of the reading bar.

When the reading bar is in its functioning position, its circuit fingers close any or all of the six signal circuit control switches as needed. Also, its day fingers are compared with the day switch control fingers and, if they do not agree, the day switch is opened and no signal can sound. If the day switch control and reading bar fingers agree, the day switch remains closed and permits sounding of a signal. The daily control fingers do not affect the drum movement as do the stop fingers—their final effect is electrical.

Simplex



PROGRAM SETTING

Preparing the Schedule

The first step in preparing a complete set of signals is to determine the time of day and the days of the week the signals are to be sounded, and the signal circuits to be energized. Record this on a sheet of paper.

When a complete schedule has been prepared, transfer it to the schedule sheet for 803 program device (or one similar) provided with each machine. The vertical listing on the form is by slot number and represents the numbers inscribed on the right end of the program drum. The horizontal section on the form lists the signal times, the days the signal is to sound, and the circuits that are to be energized. This section represents the reading bar. Arrange the signal times in chronological sequence by AM-PM hours and minutes only, disregarding the days and circuits. To the right of the signal times and on the same horizontal line, place X marks in those squares representing the days a signal is to sound and in those squares representing the circuits that are not being energized. When the schedule is prepared, it is well to remember that noon is 12:00 PM and midnight is 12:00 AM. The vertical distribution of signal times will depend on whether the program machine is controlling the wired signals or electronically operated signals.

Wired Signals. Distribute the signals as evenly as practicable throughout the schedule sheet. The number of spaces between entries is of no consequence except that there should be no more spaces than there are minutes between signals. Figure 1 is a typical schedule sheet.

Electronically Controlled Signals. When a schedule of this type is prepared, it must be noted that in addition to controlling the sounding of the signals, the program machine controls the transmitter power relay. This is accomplished through circuit 1. Each scheduled signal must have a bar spaced one minute ahead of it to energize circuit 1 to warm up the filament in the transmitter tubes. Also, a pin is needed in circuit 1 on the bars programming the scheduled signals.

If push button operation is desired, follow the example schedule shown in Figure 2. Bars are placed in adjacent slots, with circuit 1 maintaining continuous operation of the transmitter power relay throughout the working day. When continuous filament heating is not desired, arrange the schedule sheet as described for wired systems, keeping in mind that an extra bar must be inserted in the adjacent slot one minute prior to all scheduled signals to energize circuit 1. A typical schedule sheet for this type of operation is illustrated in Figure 3. Using the schedule sheet as a guide, prepare the reading bars.

SCHEDULE SHEET FOR 803 PROGRAM DEVICE

SLOT NO.	SIGNAL TIME	DAY SIGNAL IS TO BE SOUNDED CIRCUITS BEING ENERGIZED														COMMENT
		S	M	T	W	T	F	S	1	2	3	4	5	6		
1	8:15	X	X	X	X	X	X	X			X	X		X		
2																
3																
4																
5	8:30	X	X	X	X	X	X	X			X			X		
6																
7																
8																
9	9:45	X	X	X	X	X	X	X			X	X		X		
10																
11																
12																
13	10:15	X	X	X	X	X	X	X			X			X	X	
14																
15																
16																
17	10:30	X	X	X	X	X	X	X			X			X		
18																
50																
51																
52																
53	3:30	X	X	X	X	X	X	X			X			X		
54																
55																
56																
57	4:00	X	X	X	X	X	X	X			X	X		X		
58																
59																
60																

Figure 1. Schedule Sheet for Wired Signals

SCHEDULE SHEET FOR 803 PROGRAM DEVICE

SLOT No.	SIGNAL TIME	DAY SIGNAL IS TO BE SOUNDED CIRCUITS BEING ENERGIZED							COMMENT
		S	M	T	W	T	F	S	
1	7:44								Power On
2	7:45		X	X	X	X			
3	8:00		X	X	X	X			
4	8:15		X	X	X	X			
5	8:30		X	X	X	X			
6	10:00		X	X	X	X			
7	10:09		X	X	X	X			
8	10:10		X	X	X	X			
9	12:00		X	X	X	X			
10	12:15		X	X	X	X			
11	12:30						X		
12	1:00		X	X	X	X			
13	1:15		X	X	X	X			
14	3:00		X	X	X	X			
15	3:09		X	X	X	X			
16	3:10		X	X	X	X			
17	5:00		X	X	X	X			
18	5:30		X	X	X	X			
19									Power Off
20									
21									
22									
23									
24									
25									
26									
58									
59									
60									

Figure 2. Schedule Sheet for Electronic Signals
with Push-Button Operation

SCHEDULE SHEET FOR 803 PROGRAM DEVICE

SLOT No.	SIGNAL TIME	DAY SIGNAL IS TO BE SOUNDED CIRCUITS BEING ENERGIZED							COMMENT
		S	M	T	W	T	F	S	
1	7:44								
2	7:45		X	X	X	X			
3									
4									
5	7:59								
6	8:00		X	X	X	X			
7									
8									
9	8:14								
10	8:15		X	X	X	X			
11									
12									
13	8:29								
14	8:30		X	X	X	X			
15									
16									
17	9:59								
18	10:00		X	X	X	X			
19									
20									
21	10:08								
22	10:09		X	X	X	X			
23	10:10		X	X	X	X			
24									
25									
57	5:29								
58	5:30								
59									
60									

Figure 3. Schedule Sheet for Electronic Signals
without Push-Button Operation



Figure 5. Operating Components

Replacing Program Drum in Machine

2. Verify each reading bar to make sure the correct fingers have been broken off.
3. Remove the program drum to insert the reading bars by releasing the two drum retaining latches (Figure 5). Never attempt to insert or remove reading bars while the program drum is still in the machine.

Insertion of Reading Bars into the Program Drum

1. Separate the AM bars from the PM bars. Arrange the AM bars by hours and minutes only; then arrange the PM bars by hours and minutes only. No consideration need be given to the days in sorting. Days are handled automatically by the machine.

The DAYS label is on the left end of the bar, and beneath it are seven fingers labeled, respectively, S, M, T, W, T, F, S representing the days of the week. By breaking off fingers M, T, T, and F, the bar is prepared for sounding the signal on Monday, Tuesday, Thursday, and Friday, and for suppressing the signal on Wednesday, Saturday, and Sunday.

To the right of the day section, but separated from it by the Cir 2

4. Insert the reading bars in the drum so that the slot number indicated on the *right* side of the drum corresponds to the slot number on the schedule sheet for any particular bar. To insert the reading bar in the drum the right end of the bar is placed in the slot on the right end of the drum. The left end is then lowered into the corresponding slot in the left end of the drum and pressed down until the latching slot of the spring disc snaps over the end of the bar.

To remove a reading bar, the

It should be noted that the numbers on the left end of the drum are advanced ten positions from those on the right end of the drum and are used when replacing the drum. The number opposite the indicator (left end) indicates the slot containing the reading bar that is in operating position.

Set the program machine to the correct time. Locate on the schedule sheet, or from observing the reading bars in the drum, the first signal to be sounded following the time to which the program machine is set. Also note the number of the slot (right end of drum) in

which the corresponding reading bar is filed. Insert the drum in the machine so that the indicator is pointing to the slot number behind the one containing the desired bar. For example, if slot 25 contained the bar which would sound the next signal, insert the drum in the machine so that the indicator is pointing to slot 24. This will put the bar for the next scheduled signal in the pre-functioning position where it will remain until the correct combination of stop fingers and reading fingers allows the drum to advance.

SETTING INSTRUCTIONS

THE TIME indicated by the program machine can be determined by observing the relationship between adjacent stop fingers in the stop finger guide comb. In each section of the guide comb (DAYS, AM-PM, HOURS, TENS, MINUTES) one of the stop fingers will be in the raised position and will be higher in the comb than the adjacent fingers. The time is read from the numbers on the casting that correspond to the stop fingers that are in the raised position (Figure 6).

Minute Impulse Machine

The following procedure should be used for setting the machine to the correct time. If it is less than 45 minutes slow, the master time

control will correct it automatically. If immediate correction is desired or if the unit is more than 45 minutes slow, or 10 minutes fast, it may be set manually using one of the following procedures:

Setting Unit Ahead

1. Set the impulse run-advance switch to the ADVANCE position. The program drum will advance one minute every two seconds. When the program machine indicates the correct time, set the switch to the RUN position.

2. Rotate the setting disc slowly in a counter-clockwise direction until the program machine indicates the correct time. The unit will advance one minute each time the drum-drive cam follower falls off the lobe of the ten-lobe cam located at the right end of the timing-cylinder assembly (Figure 6).

Setting Unit Behind

1. If the program machine has been accidentally set fast or if it is desired to stop it for a daylight saving time change, set the impulse run-advance switch to the OFF position. When the correct time coincides with the time indicated by the program machine, set the switch to the RUN position.

Synchronous Motor Machine

This program machine must be manually set to the correct time using the following procedure:

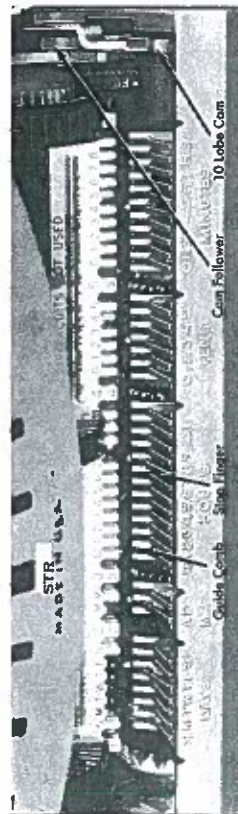


Figure 6. Stop Fingers and Guide Comb

Setting Unit Ahead. Immediately after the program drum advances, set the power off-on switch to the OFF position. Turn the knurled setting knob (protruding from the bottom of the machine) slowly to the left until the program machine is one or two minutes ahead of the correct time. When the correct time coincides with the time indicated by the program machine, set the power off-on switch to the ON position.

Setting Unit Behind. Immediately after the program drum advances, set the power OFF-ON switch to the OFF position. When the correct time coincides with the

time indicated by the program machine, set the switch to the ON position.

MAINTENANCE

TO OBTAIN best results from this mechanism, a periodic inspection by an STR Customer Engineer is recommended. Contact the nearest STR office for service or information.

NOTE: This folder is valuable. It should be filed in a convenient place to insure easy access to the operation information necessary for continuous satisfactory operation of this equipment.