INSTRUCTION MANUAL

MODEL 3000P—9

PROGRAM TIMER

READ THOROUGHLY BEFORE OPERATING EQUIPMENT

ME> MONROE ELECTRONICS
LYNDONVILLE, NEW YORK 14098

Gould Part #
400703.51
8.4 volts   225 amps
Battery (Internal)

NO LONGER STOCK

can Modify unit to
take 2 external
9 volt battery

Audio/Video Switching & Control Products
716 765 2254 • 800 821 6001 • FAX 716 765 9330

M▶E MONROE ELECTRONICS, INC.

100 Housel Avenue, Lyndonville, NY 14098
Phone 716-765-2254 • Telex 75-6662 • FAX 716-765-9330

GENERAL INFORMATION

SCOPE:

The purpose of this manual is to facilitate the operation of the Monroe Electronics Program Timer, Model 3000P—9.

GENERAL DESCRIPTION:

The Model 3000P—9 Program Timer provides up to 18 daily or weekly fixed time or interval time programs to control four independent output relays.

Programs are entered using front panel pushbutton switches and displayed on a four-digit LED display and 20 LED indicators.

Fixed (specific) time programs are retained in memory and repeatedly executed. Interval (elapsed) time programs are automatically deleted from memory upon execution.

The clock is referenced to the power line frequency during normal operation and switches automatically to an internal quartz crystal reference during power interruptions. An integral battery and battery charging circuit operate the timer during these temporary power interruptions. The battery will operate the program timer for approximately eight hours.

Connections to the output relay contacts are made via rear panel barrier strip terminals.

SPECIFICATIONS:

Output Relays 1/4A, 30VDC

Power Requirement .... 110-120VAC, 1/4 A.

Mechanical:

Height	3.5 in. (8.9 cm)
Width	19.0 in. (48.3 cm)
Depth	2.7 in. (6.9 cm)

DESIGN AND SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE

INSTALLATION INSTRUCTIONS

OUTPUT RELAY CONNECTIONS:

The output relay connections are made at the rear panel barrier strip terminals.

FIGURE 1 illustrates the terminal assignments for these connections.

Arc suppression circuitry should be used to optimize the relay contact life when these relays are used to operate solenoids, relays or other inductive loads.

FIGURE 2 describes the use of arc suppression techniques.

Mount arc suppressors on or as close as possible to the terminals of the device (inductive load) being arc suppressed.
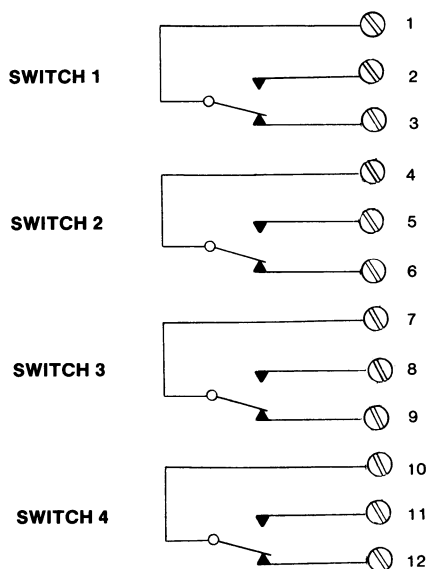

DC RELAY PROTECTION

AC RELAY PROTECTION
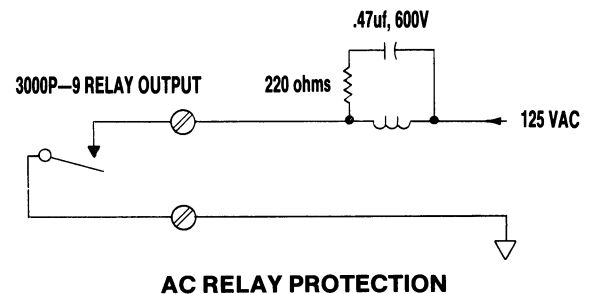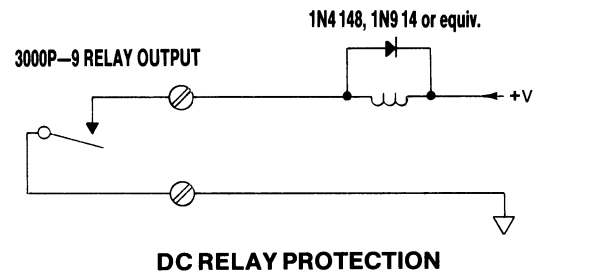

FIGURE 1
RELAY OUTPUTS

FIGURE 2
ARC SUPPRESSION TECHNIQUES

OPERATION

POWER-UP:

When the 3000P—9 is powered up, the internal clock is automatically initialized to 12:00 PM on Sunday with all switches OFF and no programs stored. If the AC signal is 60 Hz, the clock setting is displayed immediately, if the AC signal is 50 Hz, the CLK key must be pressed to start and display the clock. After power-up the clock setting may be changed to a new value at any time.

SETTING THE CLOCK:

A typical key sequence for setting the clock would be:

MON   WEEK   PM   5   0   0   CLK

which would start the clock at 5:00 PM on Monday.

The pattern for the key sequence is always the same. A day of the week is registered with the WEEK key, an AM or PM key is pressed and the desired time is entered, then the CLK key is pressed.

Because the clock is not actually started from the new value until the CLK key is pressed, the timer clock may easily be synchronized with another clock. The value of the clock will only be changed if the key sequence has been correct. Otherwise, the CLK key returns the display to the previous value of the clock, updated to the time the CLK key is pressed.

Errors in the key sequence may also be corrected before the CLK key is pressed. Correction procedures are explained in the ERRORS section of this manual.

PROGRAMMING THE TIMER:

FIXED TIME PROGRAMS:

Fixed-time programs change the state of a switch when the clock reaches a preset time. A typical key sequence for entering a fixed-time program would be:

1   SW   MON   WEEK   PM   5   1   0   ON

which would turn on switch number one on Monday at 5:10 PM. Keys 1, 2, 3, or 4 select the switch affected when followed by the SW key. The day and time are entered next, in the same order as the clock setting entry. The last key assigns a function to the program: ON, OFF, or 1 HR. ON or OFF turns the affected switch on or off at the programmed time. 1 HR causes the switch to be turned on at the time setting that has been entered, then turned off one hour later.

As the key sequence is entered, the digital readout and LED indicators display the program settings. The day of the week, time of day, switch number, and function of the program may remain on display without halting the operation of the timer. The clock runs and the switches are turned on or off regardless of the display status. Clock information may be redisplayed by pressing the CLK key.

If the next program is completely different from its predecessor, the above key sequence must be repeated in its entirety with the new parameters. If the switch affected and the day of the week are the same, a shortened key sequence suffices to store the program. An example of the shortened key sequence would be:

PM   5   1   5   OFF

If this sequence followed the above long sequence, output number one would be turned off at 5:15 PM on Monday. The shortened key sequence must follow the long one directly, without pressing the CLK key between programs. A succession of short sequences may follow each other, to program several actions of one switch on one day.

The EDAY key may be used in fixed-time programming in place of a day-of-the week key. Programming an action with the EDAY key causes that action to occur at the programmed time on every day of the week.

INTERVAL TIME PROGRAMS:

In an interval time program, the switch number, time interval (in hours and minutes) and function are entered. The function is performed after the time interval has passed. A typical interval program key would be:

3   SW   2   0   0   ON

In this case, switch number three would be turned on two hours after the ON key was pressed. Either the ON, OFF, or 1 HR functions may be used with in interval program. If 1 HR is used, the switch is turned on after the programmed interval, then turned off one hour later. As with fixed-time program, a shortened key sequence may be used for a succession of programs following one with the ordinary sequence, as long as the switch is the same. An example of the short sequence for interval programs would be:

2   0   1   OFF

Following the above entry, this sequence would turn switch three off two hours and one minute after the OFF key was pressed. The maximum time length for any interval is 11 hours, 59 minutes.
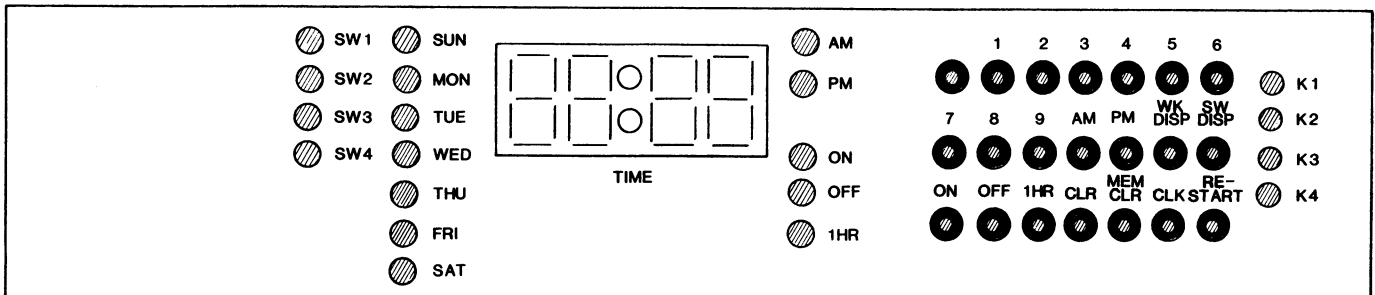
OVERLAPPING PROGRAMS:

Programs may be overlapped in time. When several functions are programmed to occur at the same time on the same day, all of them are ignored except the last one. For example, if the memory contained the following programs:

1	SW	MON	WEEK	AM	1	0	0	ON
1	SW	MON	WEEK	AM	1	0	0	OFF
1	SW	MON	WEEK	AM	1	0	0	ON

the result would be to turn on switch one on Monday at 1:00 AM. another example, the set of programs:

| 4 | SW | EDAY | WEEK | PM | 6 | 4 | 5 | ON |
| 4 | SW | SAT | WEEK | PM | 6 | 4 | 5 | OFF |

turns switch four on at 6:45 PM every day of the week except Saturday. Finally, the set of programs

| 2 | SW | FRI | WEEK | AM | 7 | 0 | 0 | 1 HR |
| 2 | SW | FRI | WEEK | AM | 7 | 3 | 0 | OFF |

would turn switch two off at 7:30 AM on Friday instead of 8:00 AM.

DIRECT SWITCH CONTROL:

A switch may be operated directly from the keyboard. A sample key sequence would be:

| | 2 | SW | 1HR |

In this case, the 1 HR function would be immediately executed on switch number two. This switch would be turned on as soon as the 1 HR key is pushed and turned off one hour later. Any of the three functions may be specified for any of the four switches in this manner. The direct manipulations are not stored in RAM as programs.

PROGRAM DISPLAY:

The programs stored in memory can be displayed by depressing the DISP keys twice. For example, the key sequence:

| | 1 | SW/DISP | SW/DISP |

displays the programs for switch number one. One program is displayed for every two times SW/DISP is pressed. The programs for a day of the week are displayed in the same way but using the WEEK/DISP key. A key sequence for Wednesday would be:

| | WED | WEEK/DISP | WEEK/DISP |

Programs entered with the EDAY are displayed using that key and the WEEK/DISP key. For example:

| | EDAY | WEEK/DISP | WEEK/DISP |

This key sequence only displays programs originally entered with EDAY. Programs entered on a specific day of the week must be displayed with the key corresponding to that day.

When a program is displayed, the digital readout shows the programmed time of the switch state change and the LED indicators show the day of the week, the number of the switch affected, and the function programmed. Both fixed-time and interval programs (before execution) can be displayed. When an interval program is shown, the display shows the programmed time of its execution, i.e. the time of day and day of the week corresponding to the end of the interval.

When programs using the 1 HR function are displayed, the display changes with the progress of the program execution. For example, the following key sequence would be used to turn switch three on for one hour on Friday at 10:00 AM.

| 3 | SW | FRI | WEEK | AM | 1 | 0 | 0 | 0 | 1 HR |

Before this program is executed, displaying it would show it as a 1 HR program. The LED's would indicate switch three, Friday. 10:00 AM, and 1 HR. Between 10:00 and 11:00 AM on Friday, however, when the switch is on, displaying the program shows the time when the switch is to be turned off. In this case the LED's would show switch three, Friday, 11:00 AM, and OFF. After this time, the program display returns to the 1 HR settings. Each time the switch state of a 1 HR program changes, the program display is updated to show the next change in the switch state.

PROGRAM DELETE:

The memory may be cleared entirely or selectively using the MEM CLR key. When pressed twice, this key clears everything stored in the RAM. The programs for an individual switch or day of the week may also be cleared without disturbing other stored programs.

| | 1 | SW | MEM CLR |

is an example of a key sequence for deleting all the programs for switch number one.

| | THU | WEEK | MEM CLR |

would delete the programs for Thursday. Programs stored specifically with the EDAY key are cleared using that key in place of a day of the week.

ERRORS:

The usual error indication is 99:99 on the display. This occurs if the key sequence is incorrect or if a program is attempted with an invalid time. The timer will convert times from the 24-hour system to 12-hour times for both clock setting and programming. The 12-hour time is found by subtracting 12 hours from a 24-hour time. If a 24-hour time, e.g. 22:10 is entered, it will be accepted as its 12-hour analog, 10:10, but the AM/PM selection is not affected by this conversion. Time values incorrect in both the 12-hour and 24-hour systems result in the 99:99 error indication.

The time conversion also holds true in interval programs and for this reason, the interval length is limited to 11 hours, 59 minutes. Intervals up to 23 hours, 59 minutes will be accepted but corrected to 12-hour timelengths. Again, interval programs incorrect in both systems will produce 99:99 on the display. The indication of 88:88 on the display occurs if an attempt is made to store more than 18 programs.

During program input, errors may be corrected by several methods. Depressing the CLK key will display the current clock setting and erase program or change of clock attempts that have not yet been stored, i.e. before keys ON, OFF, 1 HR, or MEM CLR are pressed. The CLK key clears the display, and may therefore be used to clear errors before a program is stored. When more than four digits are entered from the keyboard, the left-most digit is rolled off the display. Only the digits shown on the display when a key sequence is completed will be stored.

RETURN POLICIES AND PROCEDURES

Factory Repair:

Return authorizations are not required for factory repair work.

Material returned to the factory for repair should be accompanied by a description of the problem as well as the name and telephone number of a person to contact in case we wish to consult with the customer about the repair. Legible billing and shipping addresses should also be included.

Material returned to the factory for warranty repair must be accompanied by a copy of a dated invoice or bill of sale which serves as a proof of purchase for the material.

Repairs will be returned promptly. Repairs are normally returned to the customer by UPS within ten working days after they are received by Monroe Electronics, Inc. Return (to the customer) UPS charges will be paid by Monroe Electronics on warranty work. Return (to the customer) UPS charges will be prepaid and added to invoices for out-of-warranty repair work.

Expedited Factory Repair:

All material returned to the factory by air or by an overnight service will be expedited.

Expedited factory repairs will be returned to the customer by the same mode of transportation by which the material was returned to the factory for repair (i.e. material returned to the factory by an overnight service will be returned to the customer by an overnight service).

NOTE: Return (to the customer) transportation expenses for expedited factory repairs will always be at the expense of the customer regardless of the warranty status of the equipment.

Factory Repairs to Modified Equipment:

Material returned to the factory for repair which has been modified will not be tested unless the nature and purpose of the modification is understood by us and does not render the equipment untestable at our repair facility.

We will reserve the right to deny service to any modified equipment which is returned to the factory for repair regardless of the warranty status of the equipment.

WARRANTY

Monroe Electronics, Inc. warrants to the Owners, each instrument and sub-assembly manufactured by them to be free from defects in material and workmanship for a period of one year after shipment from the factory. This warranty is applicable to the original purchaser only.

Liability under this warranty is limited to service, adjustment or replacement of defective parts (other than tubes, fuses or batteries) on any instrument or sub-assembly returned to the factory for this purpose, transportation charges prepaid.

This warranty does not apply to instruments or sub-assemblies subjected to abuse, abnormal operating conditions, or unauthorized repair or modification.

Since Monroe Electronics, Inc. has no control over conditions of use, no warranty is made or implied as to the suitability of our product for the customer's intended use.

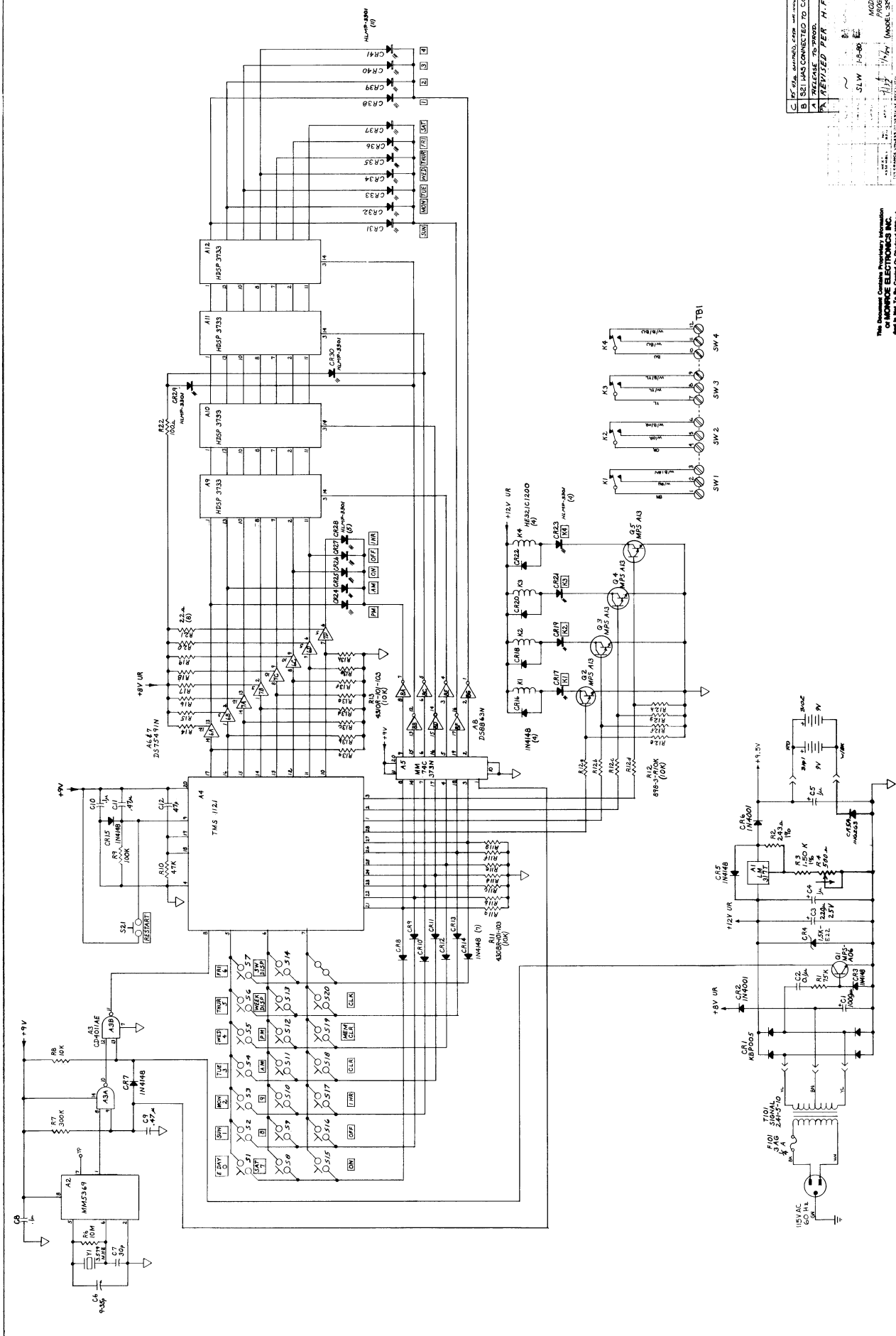**THE WARRANTY SET FORTH IN THIS ARTICLE IS EXCLU-SIVE AND IN LIEU OF ALL OTHER WARRANTIES AND**
REPRESENTATIONS, EXPRESS, IMPLIED OR STATUTORY INCLUDING, BUT NOT LIMITED TO THE IMPLIED WAR-RANTIES OF MERCHANTABILITY AND FITNESS. Except for obligations expressly undertaken by Monroe Electronics, in this Warranty, Owner hereby waives and releases all rights, claims and remedies with respect to any and all warranties, express, implied or statutory (including without limitation, the implied warranties of merchantability and fitness,) and including but without being limited to any obligation of Monroe Electronics with respect to incidental or consequential damages, or damages for loss of use. No agreement or understanding varying or extending the warranty will be binding upon Monroe Electronics unless in writing signed by a duly authorized representative of Monroe Electronics.

In the event of a breach of the foregoing warranty, the liability of Monroe Electronics shall be limited to repairing or replacing the non-conforming goods and/or defective work, and in accordance with the foregoing, Monroe Electronics shall not be liable for any other damages, either direct or consequential.

20 PLACES

TYP 2 PLACES

TYP 18 PLACES

TO BE INSTALLED ON
CIRCUIT SIDE AFTER
WAVE SOLDER.