

INSTRUCTION MANUAL

REMOTE CONTROL

MODEL 6005 S/N _____

P/N 1340126 (6005/100)

REVISION DATE 5/88

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DESCRIPTION

The Monroe Model 6005 Remote Control is a DTMF (Touch-Tone(R)) operated remote supervisory system capable of monitoring and controlling ON-OFF status of up to eight devices. A change in state of status is automatically reported over a standard dial-up telephone line. A standard telephone line or 2-wire audio channel may be used to transmit DTMF commands to and receive responses from the 6005. Standard features include:

- Integral FCC registered auto-answer telephone coupler.
- Integral primary and secondary telephone number autodialer.
- Automatic call reporting on status changes.
- Dual control inputs: auxiliary line and dial-up line.
- Local DTMF control input.
- User selectable multiple digit DTMF access code.
- Selectable telephone answer delay.
- Automatic lack-of-activity telephone disconnect.
- Non-volatile memory storage of programmed values.
- Programmable power-up default conditions.
- External audio monitor input
- Remotely activated test tone generator
- Monitoring and controlling on a real time basis

The Model 6005 Remote Control can be used with or without an automatic central reporting device. This feature permits the 6005 to be used in both attended and unattended supervisory monitoring applications.

Touch-Tone is a registered Trade Mark of AT&T.

SPECIFICATIONS

Relay outputs	8 SPST (Form A)
Relay contact current rating (DC)	2.0 A @ 30 VDC
Relay contact current rating (AC)	0.5 A @ 125 VAC
Status inputs	8
Status input open circuit voltage	+12V max; 4.3V min
Status input closed circuit voltage	0.7V and 3 ma. max
Status input protection	Up to 20V above common
Status input impedance	4.5 K ohms
Real-time clock accuracy	Better than 2 minutes/month
Timed events	maximum 59
Signaling method	DTMF
DTMF validation time	40 ms. min
DTMF interdigit time	40 ms. min 15 sec max
No-activity disconnect time	35 seconds
Monitor audio input	200 K ohm balanced
Telephone line type	PSTN subscriber dial-up
Telephone line audio output level	-9 dBm maximum
Telephone line jack type	RJ11
Telephone line ring frequency acceptance ...	16 Hz. minimum 63 Hz. maximum
Autodial memory	2 numbers, 16 digits each
Autodial retry rate	0.5 minute interval
Autodial retry maximum	15 times
Voltage requirements	117 VAC, +/-10%, 60 Hz. 230 VAC, +/-10%, 50Hz. (optional)
Fuse type	3AG 1A SLO BLO or equivalent
Power requirements	18 watts
Operating temperature	+5°C to +40°C
Physical Dimensions	10 in.H X 8.5 in.W X 2.6 in. D 25 cm H X 21 cm W X 7 cm D

INSTALLATION

Notice to User:

This product meets the registration requirements of the Federal Communications Commission Part 68 and approval has been granted for attachment of this device to the telephone network.

In the United States:

Model	3438
FCC Registration Number	AAK99W-72028-MD-E
Ringer Equivalence	1.7B

INFORMATION SUPPLIED TO THE CUSTOMER

In compliance with FCC part 68, Customer is Advised

EXHIBIT J

68.104 Standard Plugs and Jacks

Connection to the network must be through USOC type jack to be supplied by the telephone Company

68.106 Notification to the Telephone Company

Customers connecting terminal equipment to the telephone network shall, before such connection is made, give notice to the telephone company of the particular line(s) to which such connection is to be made and shall provide to the telephone company the FCC registration number and the ringer equivalence of the registered protective circuitry. Notice of final disconnect shall also be given.

68.108 Incident of Harm

Should terminal equipment cause harm to the telephone network, the telephone company shall, where practicable, notify the customer that temporary discontinuance of service may be required; however, where prior notice is not practicable, the telephone company may temporarily disconnect service forthwith, if such action is reasonable in the circumstances. The telephone company shall (1) promptly notify the customer of such temporary discontinuance, (2) afford the customer the opportunity to correct the situation which gave rise to the temporary discontinuance, and (3) inform the customer of his right to bring a complaint to the commission pursuant to the procedure set out in Subpart E of Part 68.

68.100 Changes in Telephone Company Facilities, Equipment, Operations or Procedures

The telephone company may make changes in its communications facilities, equipment, operations or procedures, where such

action is reasonably required in the operations of its business and is not inconsistent with the rules and regulations of Part 68. If such changes can be reasonably expected to render any customer's terminal equipment incompatible with the telephone company communications facilities, or require modification or alteration of such terminal equipment, or otherwise materially affect its use or performance, the customer shall be given adequate notice in writing, to allow the customer an opportunity to maintain uninterrupted service.

68.216 Repair of registered terminal equipment and registered protective circuitry shall be accomplished only by the manufacturer or assembler thereof or by their authorized agent... (this applies at any time during and after the warranty period).

68.218 (b) The grantee or its agent shall provide the user of the registered equipment the following:

(1) Instructions concerning installation, operation and repair procedures, where applicable.

(2) Instructions that registered terminal equipment of protective circuitry may not be used with party lines or coin telephone lines.

(3) Instructions that when trouble is experienced the customer shall disconnect the registered equipment from the telephone line to determine if the registered equipment is malfunctioning and that if the registered equipment is malfunctioning, the use of such equipment shall be discontinued until the problem has been corrected.

(4) Instructions that the user must give notice to the telephone company with the requirements of Section 68.106.

The customer will be advised by written instructions of any restrictive conditions under which the apparatus must be used. Such restrictions to include such as only with registered apparatus, or only with specific model numbers.

Grantee agrees to supply each purchaser with a copy of Exhibit J. In addition, grantee assumes responsibility for Quality Assurance in that all equipment manufactured continues to comply with Part 68 standards.

Indicated below is the connecting arrangement (jack) to be ordered from the telephone company. Shown is typical and other Subpart F, Part 68 jacks are available for specific uses.

U S O C
RJ11C or RJ11W

Telephone Connection:

The telephone connection is located on the main circuit board of the remote control at J1.

The remote control must be connected to the telephone network through standard (USOC) plugs, and jacks to be supplied by the telephone company.

A 6-foot long telephone cord is provided to connect the remote control to the telephone line.

WARNING: Do not connect Dial-up telephone line to programming jack (J14).

Barrier Strip Terminal Interconnections

All barrier strip terminal connections are intended to be dressed down the outside edges of the printed circuit board and exit through the cutouts at the bottom of the cover.

Output Relay Connections:

The 6005 permits ON-OFF control of up to eight devices; eight SPST (Form A) relays are provided for this purpose. The RELAY OUTPUTS are available at barrier strip TB3, terminals 1 through 16.

TABLE 2-1 (page 9) contains connection summary for Output Relays.

Status Input Connections:

Eight external devices can be monitored for ON-OFF status; these STATUS INPUTS are intended for use with relay contacts, 12 volt open collector logic or optically isolated outputs. They are available at barrier strip TB2, terminals 1 through 16.

TABLE 2-1 (page 9) contains connection summary of STATUS INPUTS.

The remaining connections are on barrier strip TB1, terminals 1 through 8:

+12VDC. at 50ma. on terminal 1
AUXILIARY LINE INPUT on terminals 2 and 3
AUDIO MONITOR OUTPUT on terminal 5
Call Back DISABLE INPUT on terminal 6
EXTERNAL AUDIO INPUT on terminals 7 and 8
CHASSIS GROUND on terminal 4

TABLE 2-1 (page 9) contains connection summary for TB1.

Auxiliary Line Input:

The auxiliary line input is intended for use with a standard 3 KHz. wire-pair. This input goes to the normally closed set of contacts of the hook switch relay and is coupled to the internal DTMF decoder whenever the telephone line input is not active.

When the auxiliary line is in use JUMPER J3 must be removed to disable DC BIAS on the auxiliary line.

Audio Monitor Output:

The audio monitor output provides a means of locally monitoring audio from the AUXILIARY LINE or TELEPHONE INPUTS and internal audio signals generated by the 6005.

Call Back Disable Input:

Grounding the call back disable input allows local inhibiting of status inputs which have been enabled in the program mode and enabled in the operating mode. This feature can be used to prevent autodial call back reporting of changes being made while the remote site is attended. NOTE: There is no command available to override the call back disable input.

External Audio Input:

An external audio input is available to route audio into either the telephone or auxiliary line on DTMF command. This high impedance input allows monitoring of external devices such as radio or microwave audio outputs, microphones or any baseband audio signals. A 3.5V rms signal will produce 0 dB to the telephone line with R26 and R32 fully clockwise.

Chassis Ground:

Chassis ground (frame of 6005) is located at the standoff stud next to the telephone line jack J1 (see FIGURE 1) this must be connected to earth ground to permit the internal voltage surge protection circuitry to function. Without this ground connection the 6005 is susceptible to damage from voltage surges on the telephone line input. Chassis ground is also connected to circuit common and may be used as the ground side of the AUDIO MONITOR OUTPUT and ALARM DISABLE INPUT. Also see APPENDIX F page 41.

+12V.D.C.:

CAUTION is advised when a connection is made to the +12V.D.C. terminal. Operation of the remote control may be affected if the current rating is exceeded at this terminal. The maximum current of this +12V.D.C. is 50 ma.. This connection has no independent current limit and a short will cause the 6005 to stop functioning.

Local Programming Jack:

The local programming jack (J14) is an alternative to telephone access programming. A standard telephone plugged into this jack will provide local programming and local control with no access code required. Responses are via the local programming jack (if the telephone line is not seized) or audio monitor out. JUMPER J3 must be installed to enable DC BIAS for a standard telephone plugged into JACK J14.

WARNING: Do not connect Dial-up telephone line to programming jack (J14).

Power Connections:

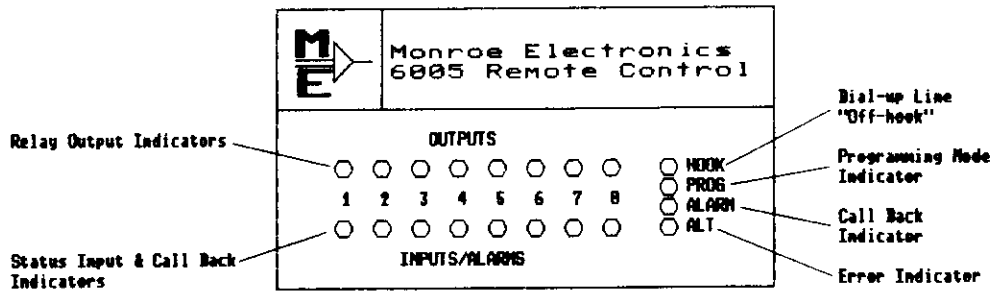
A.C.:

An A.C. input jack on the main circuit board provides connection for the UL/CSA approved transformer module for interfacing the remote control to the A.C. power line.

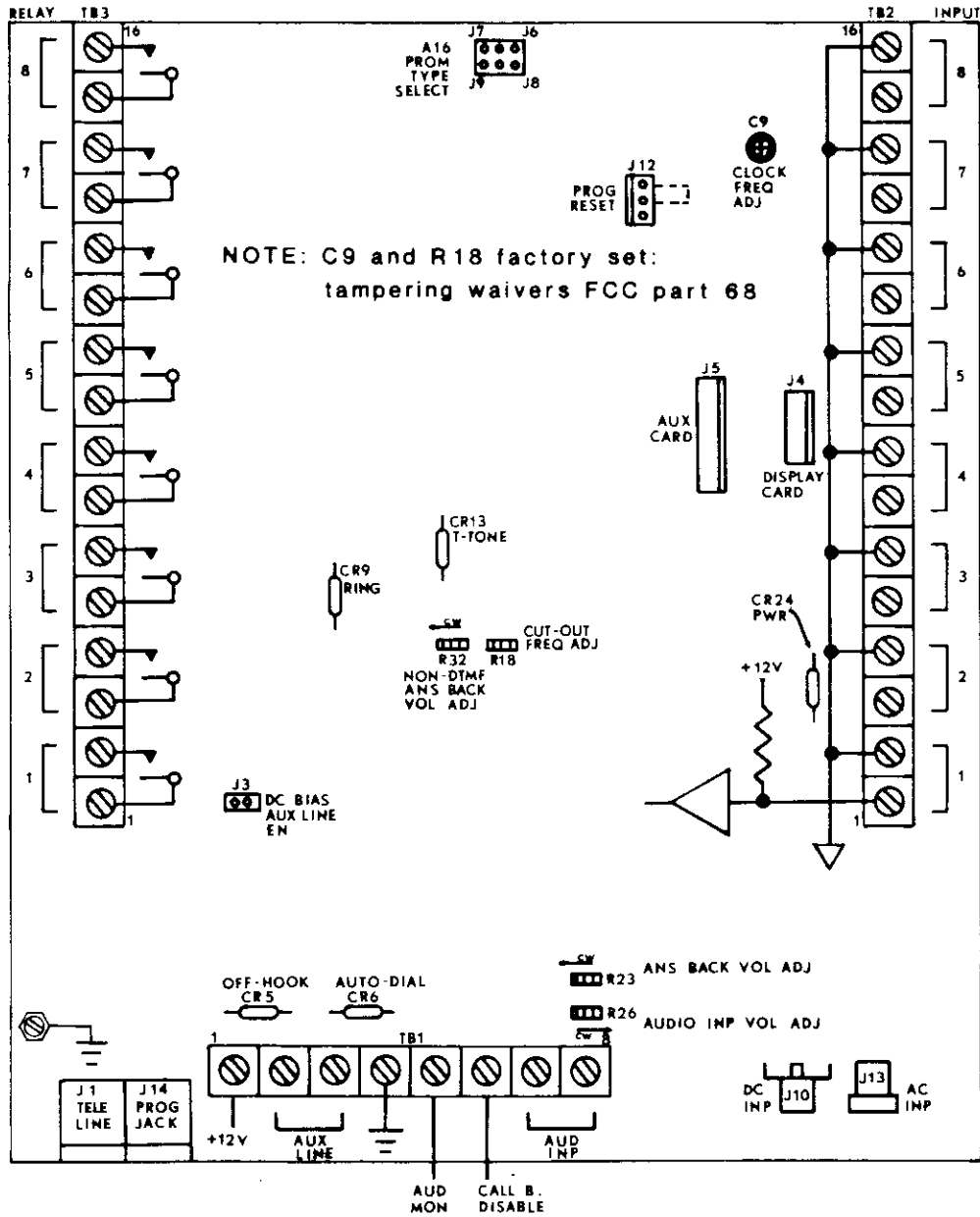
D.C.:

A D.C. input jack is provided for the optional Monroe Electronics Battery Backup System.

This system will maintain output status during a power interruption. Without battery backup the 6005 will keep time and maintain program and I/O status memory, but all relays will de-energize and no timed commands will be executed until power is restored.



Model 6005 Front Panel Indicators



MODEL 6005
MAIN CIRCUIT BOARD ASSEMBLY

FIGURE 1

TABLE 2-1

INSTALLATION CONNECTION SUMMARY

Function	Barrier Strip	Terminal Number	Normal State	Ref. to page #
+12VDC @ 50ma.	TB1	1	12V +/-10%	6
Auxiliary line connection	TB1	2 and 3		5
Chassis ground	TB1	4		6
Audio monitor output	TB1	5		6
Audio monitor output ground	TB1	4		6
Call Back disable input	TB1	6	HI	6
Call Back disable ground	TB1	4		6
External audio input	TB1	7 and 8 shield 4		6
Status input number 1	TB2	1	HI	5
Status input number 1 ground	TB2	2		
Status input number 2	TB2	3	HI	5
Status input number 2 ground	TB2	4		
Status input number 3	TB2	5	HI	5
Status input number 3 ground	TB2	6		
Status input number 4	TB2	7	HI	5
Status input number 4 ground	TB2	8		
Status input number 5	TB2	9	HI	5
Status input number 5 ground	TB2	10		
Status input number 6	TB2	11	HI	5
Status input number 6 ground	TB2	12		
Status input number 7	TB2	13	HI	5
Status input number 7 ground	TB2	14		
Status input number 8	TB2	15	HI	5
Status input number 8 ground	TB2	16		
Relay output number 1	TB3	1 and 2	OPEN	5
Relay output number 2	TB3	3 and 4	OPEN	5
Relay output number 3	TB3	5 and 6	OPEN	5
Relay output number 4	TB3	7 and 8	OPEN	5
Relay output number 5	TB3	9 and 10	OPEN	5
Relay output number 6	TB3	11 and 12	OPEN	5
Relay output number 7	TB3	13 and 14	OPEN	5
Relay output number 8	TB3	15 and 16	OPEN	5

INITIAL SETUP

The Monroe Model 6005 Remote Control is shipped from the factory programmed as shown:

No Access Code
Answer on 2 Rings
Relays:
- Open
- Independent
- Latching
Input Call Back Disabled

----- WARNING -----

It is good practice while in the PROGRAM MODE to keep a written list of each item programmed (see p.36-p.38). This practice is especially important where you do not have a Model 6006 Central Controller or other device capable of decoding the output of the 6005 program memory transmitted in response to 92-99 commands. A written record of programmed options and codes is MOST important when the access code is being entered. Once the access code has been entered, and security access enabled, this code MUST be sent prior to gaining access to the 6005.

If an unknown access code is enabled for both the telephone line and the auxiliary input the 6005 will remain unusable until the access code is change by using the local programming jack or the internal memory jumper is installed to reset the memory.

PROGRAMMING HOOK UP

PROGRAMMING ACCESS METHODS:

- Remote via dial-up telephone line
- Local via non dial-up telephone line
- Local via auxiliary line TB1 terminals 2 and 3

Remote Via Dial-up Telephone Line:

The initial programming instructions below may be entered by plugging the modular plug supplied into the telephone line jack (J1) and connecting the other end into any modular telephone jack. After dialing the telephone number from any Touch-Tone telephone the Model 6005 will answer after two rings and respond with a two second long 1000 Hz. tone. Upon hearing this tone use the Touch-Tone keypad to enter the DTMF digits "000*". The 6005 will respond with five short tones and the program light (located on the 6005 cover) will turn on, indicating that it is ready to accept the programming commands described.

WARNING: Do not connect dial-up telephone line to programming jack (J14).

Local Via Non Dial-up Telephone Line:

As an alternative to telephone access programming, the Model 6005

Remote Control may be programmed locally using a standard telephone plugged into PROG. JACK (J14). Responses will not be heard via the local program jack if the telephone line is seized. Jumper J3 must be installed to enable DC BIAS at JACK J14 and No access code is required. Press any digit for attention, a 2 SECOND 1 KHZ. tone should be returned. If audio feedback is not heard (telephone line seized) wait until the 6005 hangs up (35 seconds) then try again. Then enter the four digit DTMF command, "000*". The unit responds with a series of 5 beeps and the program light (located on the 6005 cover) is turned on. You must wait at least two seconds or until the acknowledge beep is heard (MAXIMUM WAIT 2 SECONDS) between each command (NOT each digit) entered.

Local Via Auxiliary Line TB1 Terminals 2 and 3:

As an alternative to remote or local telephone programming the 6005 Remote Control may be programmed locally using a DTMF generator connected to TB1 terminals 2 and 3. Jumper J3 must be removed to disable DC bias and ensure 600 ohm termination. All other conditions will be the same as the local via non dial-up telephone line described above on this page.

PROGRAMMING

Upon receipt of the five tone bursts in response to the "000*" command, any of the programming commands described in table 3-1 may be entered. Each valid command is acknowledged by a single short tone burst, or an error by multiple tone bursts and blinking of the ALT LED (ON THE 6005 COVER). To exit the PROGRAMMING MODE and return to the OPERATING MODE enter the "000#" command.

Table 3-1 (page 16-19) contains a complete listing of the program commands. Commands permit the selection of the following options:

LATCHING OR MOMENTARY RELAY OPERATION:

Each output relay can be individually programmed to either latch or momentarily close upon receipt of its command. Latching operation permits closing the relay with the ON command (see table 4-1); the relay will then remain closed until its OFF command is received. In the momentary mode a relay will respond to its command by closing for the duration of the last command tone burst and then opening again.

INDEPENDENT OR 1 OF X OPERATION:

Each output relay can be programmed to operate independently or in conjunction with any of the other seven relays. In the independent mode a relay output can receive an ON command without affecting the status of any other relay. In the 1 of X mode a relay receiving an ON command will cause any other latched relay also programmed for 1 of X operation to unlatch; ONLY ONE relay (the last commanded) of those programmed for 1 of X operation will operate at a given time. Relays programmed for 1 of X operation will not affect relays programmed for independent operation. 1 of X momentary relays will deenergize all others

in the 1 of X group, operate, then release.

CALL ENABLE OR DISABLE:

Each individual input may be programmed to cause autodialing upon detecting a change in input status or to only respond when interrogated. For a input to initiate a call back upon detecting a change of input status it must be enabled in the program mode. The 6005's inputs default to disabled for call back until they are enabled in the operating command mode (even if enabled in the program mode). This requires a input to be enabled in both the program mode and the operating mode before a call back can be initiated.

POWER-UP DEFAULT:

During a power failure the 6005 retains the last programmed and selected conditions; when power is returned the 6005 automatically returns all outputs to this status and ignores call enabled inputs that may have changed as a result of the power loss. Because this mode of operation may not be desirable in all cases the 6005 may be programmed to respond in a different manner upon returning from a power loss condition.

Power-up default commands may be programmed for each relay output and for each status input. Each output may be commanded to automatically go to a latched (closed) or unlatched (open) condition when returning from a power loss. Relays programmed to be momentary will remain latched until commanded to operate or open. Each input may be programmed to expect a high (off) or low (on) input when power is restored.

Further programming may leave all relay outputs open and ignore input changes for 30 seconds following power restoration then go to the power on configuration. This feature is intended to permit other devices affected by the power loss to return to their normal state independent of the 6005.

SITE IDENTIFICATION NUMBER:

This number is a two digit (11 through 88) tone position identification returned by the 6005 in response to interrogation by a DTMF central or in response to the "91" command. Any two digit number may be programmed containing no 0's or 9's.

The response consists of two sets of eight tones one set for each of the two digits. One tone in each set will be higher than the other seven and the position of this high tone within the set indicates the digit. For example site 37 would return the following tones:

First Digit = LO LO HI LO SHORT PAUSE LO LO LO LO
LONG PAUSE

Second Digit = LO LO LO LO SHORT PAUSE LO LO HI LO

The site identification number may also be used in call back reporting. If the 6005 is programmed (55*) to do so it will send its site identification number in DTMF on a call back alert.

PRIMARY AND SECONDARY TELEPHONE NUMBER:

The Model 6005 accepts up to two 16-digit telephone numbers to be autodialed upon detection of a change of state in inputs. The internal 10 pulse-per-second autodialer will dial the primary number, wait 35 seconds; if not acknowledged, disconnect, wait 35 seconds and then dial the secondary number; if not properly acknowledged at this number the 6005 will continue to alternately dial the primary and secondary number for a total of fifteen tries each. After fifteen tries with no acknowledgment the autodialer will not continue dialing but will retain the change of status. The next time the 6005 is accessed it will respond with the call back condition warble tone or ID number (determined by programming) to indicate that an unacknowledged call back has occurred. If this call back is ignored the 6005 will, upon disconnect, begin the entire autodialing sequence again, dialing each of the two numbers fifteen times.

Where two autodial telephone numbers are not required, simply program the secondary number with the same primary number or with 42#.

RINGS TO ANSWER:

The 6005 provides presetting the number of rings before the remote control will "answer" an incoming telephone call. Any two digit number 01 through 15 may be programmed. The 6005 will answer on two rings if not programmed otherwise.

ACCESS CODE PROGRAMMING:

To provide security against access by unauthorized persons the Model 6005 features a programmable multi-digit DTMF access code. It is recommended that the access code not be enabled for the auxiliary input unless this input will be used and will require the security provided by the access code.

If an unknown access code is enabled for both the telephone line and the auxiliary input the 6005 will remain unusable until the access code is changed by using the local programming jack or the internal memory jumper is installed to reset the memory.

REAL TIME CLOCK:

The 6005 contains a real-time clock, which provides programming on a 24 hour clock format.

Only in the programming mode (000*) may the real time clock be set. A single tone burst response at the completion of the time/date sequence verifies acceptance of the sequence. If a series of five short tones, indicating an error, are received the sequence has not been accepted, and the complete sequence must be entered again to receive a valid command.

Programming commands for setting time and date:

45 19 YR MO DY HR MN
OR
45 YR MO DY HR MN #

YR=year (00-99)
MO=month (01-12)
DY=day (01-31)
HR=hour (00-23)
MN=minute (00-59)

Note: The real-time clock must be set before programming timed commands.

Timed Commands:

Any valid four digit command may be executed on a real-time basis. The general format of a timed command is a time entry as shown above followed by a four digit command and "#" to terminate the entry. The 6005 has a maximum programming capability of 59 single function timed commands, however, commands which occur at the same time may be strung one after the other without re-entering the time-date. This way the 6005 will contain fewer command times, and may therefore perform more actual commands.

Three single tone bursts will be sent while entering timed commands. These single tone bursts will occur (1) at the end of valid time, (2) at the end of a valid four digit command, and (3) after the "#" digit is sent to terminate the command entries. If at any time five short tones, indicating an error, are received the last digit(s) entered were not valid. By entering the correct digit(s) the sequence can be continued without starting the sequence from the beginning.

Consult TABLE 3-1 (page 18) for programming timed commands.

INPUT PRIORITY PROGRAMMING

Where both the telephone and the auxiliary line inputs to the Model 6005 are being used the input priority must be selected. Either telephone or auxiliary line inputs can have priority.

Selection of auxiliary line input priority programs the 6005 to ignore the telephone ring if any commands are in process. When auxiliary line access is complete the telephone input will again become active and will respond to an incoming call.

Selection of the telephone input priority programs the 6005 to signal disconnect with 3 high pitched beeps and then disconnect from the auxiliary line when accessed from the telephone input; any commands in process through the auxiliary line input will be automatically cleared. During telephone access the 6005 can-

not respond to access attempts from the auxiliary line. Upon disconnect the auxiliary line input will again become active.

----- NOTE -----
While in the programming mode the 6005 will respond only to the input from which it was originally accessed. Programmed priority does not affect operation in the programming mode.

Memory Reset:

To reset the memory on the 6005 remove power from the unit. Place a jumper as shown in FIGURE 1 and power up the unit. Remove power from the unit and remove the jumper. Power up the 6005 and reprogram.

TABLE 3-1
PROGRAMMING COMMANDS

Function	Command	Comments	Ref. to page #
Program relay	10X*	Momentary mode	11
" "	10X#	Latching mode	11
" "	11X*	1 of X mode	11
" "	11X#	Independent mode	11
Relay default	12X*	Close on power-up	12
" "	12X#	Open on power-up	12
Relay Power On	13X*	Last output condition	
Disable	13X#	Programmed condition at power-up	
Call Back enable	30X*	Call Back enable at input	12
Call Back disable	30X#	Call Back disable at input	12
Input high default	32X*	Expect high at power-up	12
Input low default	32X#	Expect low at power-up	12
Input power on	33X*	Ignore deviation from programmed defaults	
report disable	33X#	Report on deviation from programmed default values	

X = 1 through 8; corresponds to each individual input or output.

X = 9; corresponds to all (group) inputs or all (group) outputs.

TABLE 3-1
PROGRAMMING COMMANDS
(continued)

Function	Command	Comments	Ref. to page #
Site identification number	40 XX	XX can be any number 11 through 88 which has no 0's or 9's.	12
Primary telephone number	41 XXXXXXXXXXXXXXXX #	Up to 16 digits. Use "*" for 300ms pause.	13
Secondary telephone number	42 XXXXXXXXXXXXXXXX #	As above. If second number not used then enter "42#".	13
Number of rings to answer	43 XX	Any number 01 to 15.	13
DTMF access code	44 XXXX	Any number. Must be four digits.	13
Set time and date	45 19 YR MO DY HR MN OR 45 YR MO DY HR MN #	YR=year (00-99) MO=month (01-12) DY=day (01-31) HR=hour (00-23) MN=minute (00-59)	13

TABLE 3-1
PROGRAMMING COMMANDS
(continued)

Function	Command	Comments	Ref. to page #
Store timed commands	46 YZ MO DY HR MN CMDS #	<p>**=every occurrence (in any 2-digit position; Ex. YZ,MO,etc.)</p> <p>Z=* for this day only</p> <p>Z=# for except this day</p> <p>CMDS=4-digit commands</p> <p>Y=0 tuesday & thursday</p> <p>Y=1 sunday</p> <p>Y=2 monday</p> <p>Y=3 tuesday</p> <p>Y=4 wednesday</p> <p>Y=5 thursday</p> <p>Y=6 friday</p> <p>Y=7 saturday</p> <p>Y=8 weekends</p> <p>Y=9 monday, wednesday, and friday</p> <p>Y=* every day</p>	14
Erase timed commands	47 YZ MO DY HR MN	Prevents execution of commands at entered time/date. (Must be entered exactly as the timed command was stored). Marks the first time/date match in memory for deletion.	
Validate	48	removes outdated & de- letion marked timed commands from storage	
Erase all	49	remove all timed com- mands from storage	
Timed enable	54 * 54 #	enable all timed commands disable all timed commands	

TABLE 3-1
PROGRAMMING COMMANDS
(continued)

Function	Command	Comments	Ref. to page #
Call alert	55 *	ID # sent on call alert (DTMF)	
	55 #	normal call alert	
Enable power-up delay	50 *	Leaves all relays open and disables all inputs for 30 seconds after power is applied to 6005.	
Disable power-up delay	50 #	Goes immediately to programmed condition on power-up.	
Require access code from telephone line	51 *	The access code programmed by the "44XX XX#" code must be used from the telephone line.	
Eliminate access code requirement from the telephone line	51 #	The access code programmed by the "44XX XX#" code is not required from the telephone line.	
Require access code from the auxiliary port	52 *	The access code programmed by the "44XX XX#" code must be used to access from the auxiliary port.	
Eliminate access code requirement from the auxiliary port	52 #	The access code programmed by the "44XX XX#" code is not required from the auxiliary port.	
Auxiliary port has access priority	53 *	Telephone input will not "answer" if the auxiliary port is receiving commands.	14
Telephone line has priority	53 #	Incoming call will clear any commands in process after signaling the auxiliary that it is answering the phone.	14
Exit program mode	000 #	Returns to operating mode.	

OPERATION

Operational Test:

After installation and programming the Model 6005 Remote Control may be tested for proper operation by following the procedure outlined below:

ACTION	RESPONSE
Dial the 6005 telephone number.	The 6005 will "answer" after the preset number of rings (two rings if not programmed) and respond with a single 2-second tone burst if access code is not required or with two multiple tone bursts if an access code is required.
If an access code has been programmed, enter this code after the tone burst stops. If no access code has been programmed proceed to the next step.	The 6005 will respond with a single tone burst indicating that it has accepted the code or a multiple tone burst if it did not receive a valid code. After receiving a second invalid access code the 6005 will disconnect, requiring that the telephone connection be re-established.
The 6005 is now ready to accept control commands. Send the two digit command "50."	The 6005 will respond by transmitting a series of eight tone bursts. The first tone indicates the status of relay output number 1, the second tone the status of relay output 2, etc. A high pitched tone indicates a latched relay, low tone indicates an unlatched or momentary relay.
Send the command "60."	The 6005 will again respond with a series of eight tones indicating the status of inputs 1 through 8. A low pitched tone indicates a grounded (low) input; a high tone indicates an open (high) input.

ACTION

RESPONSE

Now send the command "101*" to
close relay number 1.

The 6005 responds with a high
pitched tone indicating that
relay number 1 has been
switched ON.

Send the "50" relay output
status code again.

This time the 6005 responds by
again sending a series of
eight tone bursts. The first
tone in the sequence of eight
will be a high pitched tone
indicating that relay number
one is ON. The remaining
seven tones should be low
tones indicating that these
relay outputs are OFF.

Send the "90" disconnect code
or wait 35 seconds without
sending any DTMF code.

The 6005 will disconnect from
the telephone line.

If any of the eight status
inputs were enabled for call
back reporting and the
autodial telephone numbers
have been programmed the
autodial feature may be test-
ed by changing the status of
any enabled input. Locate the
desired input on barrier
strip TB2. Refer to table
2-1 and figure 2-1 for the
location of the status input
terminals. Now ground or un-
ground (change status of)
this input.

The 6005 responds by auto-
matically dialing the number
programmed as the "primary"
telephone number. The 6005
will let this number ring
approximately 35 seconds
before hanging up. IF
the line has not been answer-
ed the 6005 waits 35 seconds
and dials the "secondary"
telephone number. If there
is still no answer the 6005
waits 35 seconds and again
dials the "primary" telephone
number. This process will
continue for a total of 15
calls to each of the two
programmed telephone numbers.

Answer the incoming call at
either the primary or
secondary telephone location.

The 6005 will be transmitting
status call warble tones
or DTMF (ID number) indicat-
ing that a call back condi-
tion exists.

ACTION

RESPONSE

Respond to the call back tone by sending any of the following DTMF commands: 91, 92 or 93. Failure to transmit one of these three commands will cause the 6005 to immediately disconnect.

The call back tone stops and the 6005 responds to "91" with station ID. If the "92" or "93" codes are received, the 6005 goes into a high-speed DTMF mode until disconnect and respond to "92" with a full status report or in response to "93" transmits the contents of the program memory (program commands).

If the last command was 92 or 93 send "2" to proceed.

If the last command was 92 the 6005 responds with DTMF "6" to signal command termination. If it was 93 the rest of the contents of program memory is sent and the 6005 waits for another "2" so that the command may terminate.

Send the command "67" requesting a call back status report. The "67" command MUST be sent BEFORE the call can be acknowledged by the "6*" command below.

The 6005 responds by sending a series of eight tones indicating the call back status of the eight inputs. A high pitched tone indicates a call back condition a low tone indicates a no call back condition.

After making note of the reported input call back status acknowledge by sending the "6*" command.

The 6005 responds with a single tone burst indicating that it has received the acknowledgment. The 6005 will dial again upon disconnect if the "6*" command is not received.

ACTION

After acknowledging the call wait approximately 35 seconds before sending any DTMF digits.

RESPONSE

After approximately 25 seconds the 6005 sends a short tone burst once every few seconds signaling that disconnect is about to occur. If no further DTMF activity is received the 6005 will automatically disconnect from the telephone line. Transmitting any DTMF digit before the 6005 disconnects will extend the time-out time by another 35 seconds.

TABLE 4-1
CONTROL CODES

Code	Function	
000*	Enter program mode	000# Exit program mode
101*	Operate relay output 1	101# Unlatch relay output 1
102*	Operate relay output 2	102# Unlatch relay output 2
103*	Operate relay output 3	103# Unlatch relay output 3
104*	Operate relay output 4	104# Unlatch relay output 4
105*	Operate relay output 5	105# Unlatch relay output 5
106*	Operate relay output 6	106# Unlatch relay output 6
107*	Operate relay output 7	107# Unlatch relay output 7
108*	Operate relay output 8	108# Unlatch relay output 8
109*	Operate ALL outputs	109# Unlatch ALL outputs
301*	Call enable input 1	301# Call disable input 1
302*	Call enable input 2	302# Call disable input 2
303*	Call enable input 3	303# Call disable input 3
304*	Call enable input 4	304# Call disable input 4
305*	Call enable input 5	305# Call disable input 5
306*	Call enable input 6	306# Call disable input 6
307*	Call enable input 7	307# Call disable input 7
308*	Call enable input 8	308# Call disable input 8
309*	Call enable ALL inputs	309# Call disable ALL inputs

NOTE: THE CALL ENABLE INPUT CODES 301* THROUGH 309* WILL ONLY FUNCTION IF THE CORRESPONDING INPUT HAS NOT BEEN DISABLED IN THE PROGRAM MODE.

- 50 Send relay output status report.
- 60 Send digital input status report.
- 64 Send digital first call back status report.
- 67 Send digital input call back status report.
- 6* Acknowledge the call back report.

TABLE 4-1
CONTROL CODES
(continued)

Code	Function
70	Select 15 second audio monitor cut through.
71	Select 30 second audio monitor cut through.
72	Select 60 second audio monitor cut through.
73	Select 120 second audio monitor cut through.
74	Select 240 second audio monitor cut through.
7*	Select 255 second audio monitor cut through with termination, during a sampling period that occurs every ten seconds, on receiving any DTMF digit.
80	Select 15 second 1000 Hz. test tone.
81	Select 30 second 1000 Hz. test tone.
82	Select 60 second 1000 Hz. test tone.
83	Select 120 second 1000 Hz. test tone.
84	Select 240 second 1000 Hz. test tone.
8*	Select 255 second 1000 Hz. test tone with termination, during a sampling period which occurs every ten seconds, on receiving any DTMF digit.
90	Disconnect from the telephone line.
91	Request station ID number.
92	Switch to high speed DTMF mode and send full status report.
93	Switch to high speed DTMF mode and send contents of program file.
94	Switch to high speed DTMF mode and load contents of program file.
95	Switch to high speed DTMF mode and send timed command data.
96	Switch to high speed DTMF mode and load timed command data.

NOTE: COMMANDS 92 through 96 ARE INTENDED FOR USE WITH A DTMF CENTRAL REPORTING DEVICE. THE RESPONSE IS A HIGH SPEED DTMF TONE BURST STRING NOT A HIGH-LOW TONE RESPONSE.

GLOSSARY

CALL BACK- To report (by autodialing) a change of state of a input.

CMDS- Valid four digit command.

DISABLE- Inhibit operation of a function.

ENABLE- Allow operation of a function.

INDEPENDENT- Any number of relays open or closed at a time.

INPUT STATUS- Condition of each input in relation to ground.

LATCHING- Relay on with one code, relay off with another code.

MOMENTARY- Relay closure for the duration of the last digit.

OUTPUT STATUS- Condition of each output (closed or open).

1 OF X- Only one relay of a defined group (X) closed at a time
(momentary or latching).

APPENDIX A
PROGRAMMING EXAMPLES

RELAYS	Example 1, page 28
CALL ENABLE/DISABLE	Example 2, page 28
ENABLE POWER-UP RELAY DEFAULT	Example 3, page 28
RELAY DEFAULT	Example 4, page 28
ENABLE POWER-UP ALARM DEFAULT	Example 5, page 28
INPUT HI/LOW DEFAULT	Example 6, page 29
SITE IDENTIFICATION	Example 7, page 29
PRIMARY TELEPHONE NUMBER	Example 8, page 29
SECONDARY TELEPHONE NUMBER	Example 9, page 29
RINGS TO ANSWER	Example 10, page 29
ACCESS CODE	Example 11, page 29
REAL TIME CLOCK	Example 12, page 29
TIMED COMMANDS STORED	Example 13, page 30
TIMED COMMANDS ERASED	Example 14, page 30
TIMED COMMANDS ENABLE/DISABLE	Example 15, page 31
POWER-UP DELAY ENABLE/DISABLE	Example 16, page 31
ACCESS CODE FROM TELEPHONE LINE	Example 17, page 31
AUXILIARY PORT ACCESS PRIORITY	Example 18, page 31

PROGRAMMING EXAMPLES

Enter program mode: 000*

Example 1:

Program relays 1 through 8 in the independent and latching modes.

	RESPONSE	COMMENTS
ENTER: 109#	1 low tone	all relays latching
ENTER: 119#	1 low tone	all relays indep.

Example 2:

Call enable input 3.

	RESPONSE	COMMENTS
ENTER: 309#	1 low tone	call disable all inputs.
ENTER: 303*	1 hi tone	call enable input 3 only.

Example 3:

Enable relay power-up defaults.

	RESPONSE	COMMENTS
ENTER: 139*	1 low tone	all relays will assume programmed condition on power-up.

Example 4:

Force relays 1,2,3 to close on power-up.

	RESPONSE	COMMENTS
ENTER: 129#	1 low tone	all relays open on power-up.
ENTER: 121*	1 hi tone	relay 1 close on power-up.
ENTER: 122*	1 hi tone	relay 2 close on power-up.
ENTER: 123*	1 hi tone	relay 3 close on power-up.

Example 5:

Enable inputs power-up default check.

	RESPONSE	COMMENTS
ENTER: 339*	1 low tone	call report on deviation from programmed defaults.

PROGRAMMING EXAMPLES
(continued)

Example 6:

Expect input 3 to be high.

	RESPONSE	COMMENTS
ENTER: 329#	1 low tone	expect all inputs to be low at power-up.
ENTER: 323*	1 hi tone	expect input 3 high at power-up.

Example 7:

Site identification number = 61

	RESPONSE	COMMENTS
ENTER: 4061	1 hi tone	site number = 61

Example 8:

Primary telephone number 716-765-2254 with two 300 ms. pauses.

	RESPONSE	COMMENTS
ENTER: 41716*765*2254#	1 hi tone	716-765-2254

Example 9:

No secondary telephone number.

	RESPONSE	COMMENTS
ENTER: 42#	1 hi tone	no number programmed

Example 10:

Answer on 4 rings.

	RESPONSE	COMMENTS
ENTER: 4304	1 hi tone	4 rings before answer

Example 11:

DTMF access code of 5252

	RESPONSE	COMMENTS
ENTER: 445252	1 hi tone	access code 5252

Example 12:

Set time and date to: May 12, 1986; 13:24 hrs.

	RESPONSE	COMMENTS
ENTER: 458605121324#	1 hi tone	May 12, 1986; 13:24
	OR	
ENTER: 45198605121324	1 hi tone	May 12, 1986; 13:24

PROGRAMMING EXAMPLES
(continued)

Example 13:

- A. Store timed commands as shown:
- close relays 6 and 8 weekdays at 08:15 hrs.
- open relays 6 and 8 weekdays at 17:15 hrs.

	RESPONSE	COMMENTS
ENTER: 468#***0815	1 hi tone	time stored
ENTER: 106*	1 hi tone	relay 6 on at 08:15
ENTER: 108*	1 hi tone	relay 8 on at 08:15
ENTER: #	1 hi tone	complete command string stored
ENTER: 468#***1715	1 hi tone	time stored
ENTER: 106#	1 hi tone	relay 6 off at 17:15
ENTER: 108#	1 hi tone	relay 8 off at 17:15
ENTER: #	1 hi tone	complete command string stored

- B. Store timed commands as shown:
- call disable at input 3 on May 15, 1986 at 12:00 hrs.
- call enable at input 3 on May 15, 1986 at 13:00 hrs.

	RESPONSE	COMMENTS
ENTER: 465*05151200	1 hi tone	time stored
ENTER: 303#	1 hi tone	call disable at in- put 3 at 12:00
ENTER: #	1 hi tone	complete command string stored
ENTER: 465*05151300	1 hi tone	time stored
ENTER: 303*	1 hi tone	call enable at in- put 3 at 13:00
ENTER: #	1 hi tone	complete command string stored

Example 14:

- Erase timed commands as shown:
- call disable at input 3 on May 15, 1986 at 12:00 hrs.

	RESPONSE	COMMENTS
ENTER: 475*05151200	1 hi tone	time marked for non-execution and later removal by a "48" command.

PROGRAMMING EXAMPLES

(continued)

Example 15:

Enable timed commands

	RESPONSE	COMMENTS
ENTER: 54*	1 hi tone	timed commands enabled

Example 16:

Enable power-up delay

	RESPONSE	COMMENTS
ENTER: 50*	1 hi tone	leaves all relays open and disables all inputs for 30 seconds after power is applied to 6005.

Example 17:

Require access code from telephone line

	RESPONSE	COMMENTS
ENTER: 51*	1 hi tone	5252 (access code) must be used from the telephone line.

Example 18:

Auxiliary port has access priority

	RESPONSE	COMMENTS
ENTER: 53*	1 hi tone	telephone input will not "answer" if the auxiliary port is receiving commands.

Exit program mode: 000#

returns to operating mode.

APPENDIX B
 ERRORS DURING PROGRAMMING

If a series of five short tones, indicating an error, are received the digit(s) entered was not valid. When the 6005 indicates an error the complete string command need not be re-entered, only the digit(s).

Example 1:

Set time and date to May 12, 1986; 13:24 hrs.

May 12, 1986; 13:24 = 458605121324#

	RESPONSE	COMMENTS
ENTER: 45		setting time/date
ENTER: 86		year (1986)
ENTER: 15	5 tones	invalid month
RE-ENTER: 05		month (may)
ENTER: 12		day of month (12)
ENTER: 13		hour (13)
ENTER: 24		minutes (24)
ENTER: #	1 hi tone	complete command string stored.

Example 2:

Store timed commands as shown:

- close relays 6 and 8 weekdays at 08:15 hrs.

relays 6,8, weekdays at 08:15: = 468#***0815106*108**

	RESPONSE	COMMENTS
ENTER: 46		loading timed commands
ENTER: 8#		every weekday
ENTER: **		every month
ENTER: **		every day
ENTER: 08		hour (08:00 am)
ENTER: 15	1 hi tone	minutes (15)
ENTER: 106*	1 hi tone	relay 6 on at 08:15
ENTER: 208*	5 tones	2 invalid digit
RE-ENTER: 108*	1 hi tone	relay 8 on at 08:15
ENTER: #	1 hi tone	complete command string stored.

APPENDIX C
ADJUSTMENTS, JUMPER LOCATIONS, AND INDICATORS

Figure 2 illustrates the locations of all adjustments, jumpers, and indicators.

ADJUSTMENTS

Answer Back Level:

R23 permits the user to adjust the audio level which is transmitted by the remote control. This potentiometer should be set for the desired audio listening level.

Tone Answer Back Level:

R32 permits the user to adjust the tone answer back (non-DTMF) level which is transmitted by the remote control. This potentiometer should be set for the desired audio listening level at the operating station.

Audio Input Level:

R26 permits the user to adjust the audio level for the audio input on barrier strip TB1 terminals 7 and 8. This potentiometer should be set for the desired audio listening level at the operating station.

NOTE: The Answer Back Level and the Tone Answer Back Level adjustment should be made prior to adjustment for the Audio Input Level.

NOTE: All other adjustments are factory sealed; tampering may alter operation or void certification of this unit.

JUMPERS

		OPEN	INSTALLED
J3	DC bias on auxiliary line	DISABLED	ENABLED
J12	PROGRAM RESET		RESET

Jumper location for part number of A16 is shown below:

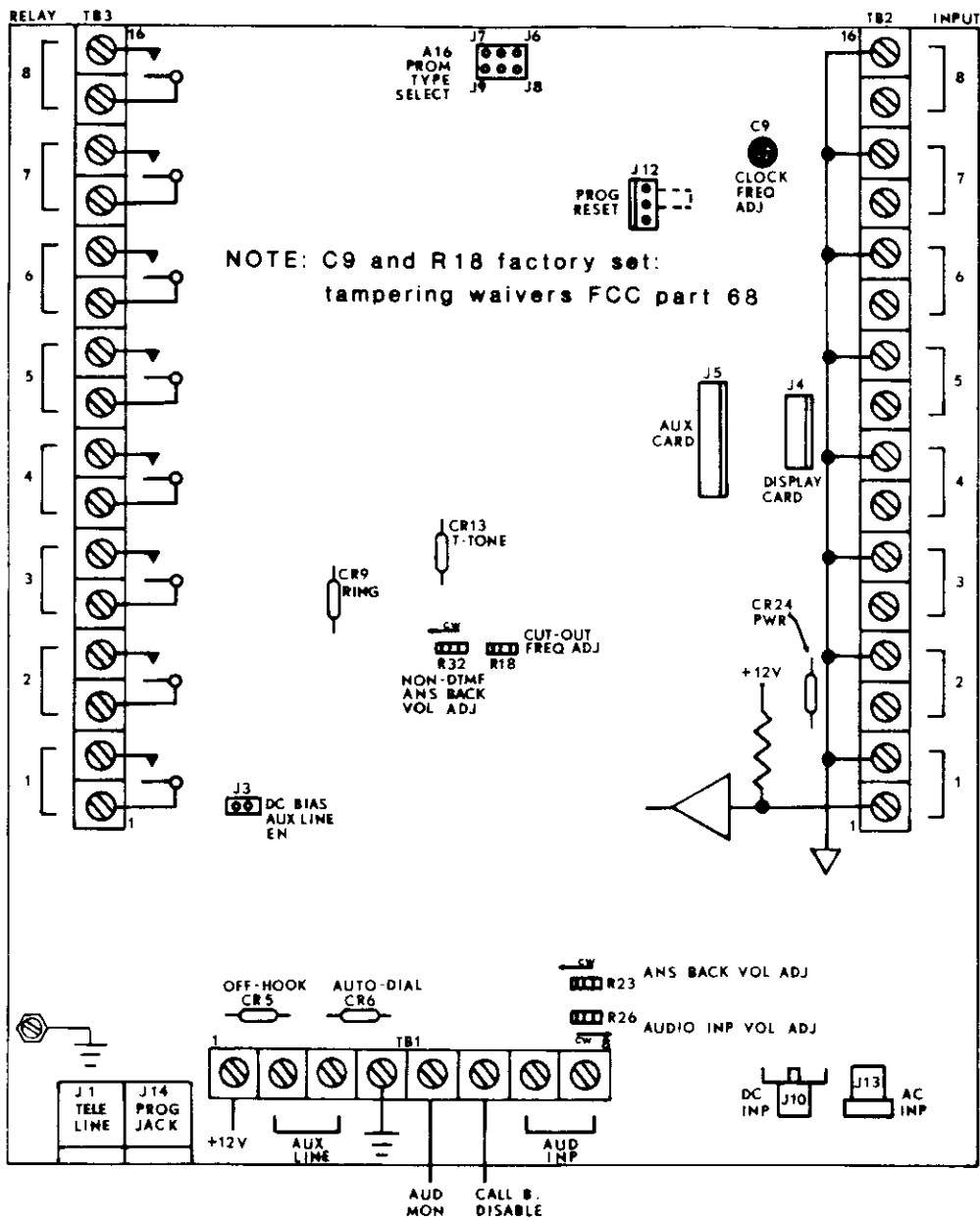
A16 PROM TYPE	JUMPERS			
	J6	J7	J8	J9
2732	X	X	0	1
2764	0	1	1	0
27128	0	1	1	0
27256	1	0	1	0

1= Installed 0= Omit X= Don't care

LED INDICATORS:

Light emitting diodes on the main circuit board provide the user with system status information. When illuminated, the indicators indicate a ON state. These indicators function as follows:

OFF-HOOK SWITCH INDICATOR = CR5
AUTO DIAL INDICATOR = CR6
RING INDICATOR = CR9
T-T INDICATOR = CR13
POWER INDICATOR = CR24



MODEL 6005
JUMPERS & ADJUSTMENTS
FIGURE 2

SITE # _____

PROGRAMMING TABLE

FUNCTION	COMMAND	COMMENTS
RELAY MOM./LAT.	10__ --	-----
	10__ --	-----
	10__ --	-----
	10__ --	-----
	10__ --	-----
RELAY INDEP./ 1 of X.	11__ --	-----
	11__ --	-----
	11__ --	-----
	11__ --	-----
	11__ --	-----
RELAY DEFAULT	12__ --	-----
	12__ --	-----
	12__ --	-----
	12__ --	-----
	12__ --	-----
RELAY POWER ON DISABLE	13__ --	-----
	13__ --	-----
	13__ --	-----
	13__ --	-----
	13__ --	-----
CALL EN./DIS.	30__ --	-----
	30__ --	-----
	30__ --	-----
	30__ --	-----
	30__ --	-----
INPUT DEFAULT	32__ --	-----
	32__ --	-----
	32__ --	-----
	32__ --	-----
	32__ --	-----
INPUT POWER ON REPORT DISABLE	33__ --	-----
	33__ --	-----
	33__ --	-----
	33__ --	-----
	33__ --	-----

SITE # _____

PROGRAMMING TABLE

FUNCTION	COMMAND	COMMENTS
SITE ID. #	40__ __	-----
PRIMARY TELEPHONE #	41__ __	# -----
SECONDARY TELEPHONE #	42__ __	# -----
RINGS TO ANSWER	43__ __	-----
DTMF ACCESS CODE	44__ __	-----
TIME AND DATE	4519__ __	-----
	45__ __	# -----
POWER-UP DELAY EN./DIS.	50__ __	-----
TELEPHONE ACCESS CODE	51__ __	-----
AUX. PORT ACCESS CODE	52__ __	-----
PRIORITY TELE./AUX. PORT	53__ __	-----
TIMED ENABLE	54__ __	-----
CALL ALERT	55__ __	-----

APPENDIX D
DUMPS

Data is transferred most significant nibble of most significant byte first.

FULL STATUS STRING CODE 92

Site Identification Number	Input Status Change	First Input Status Change	Input Status	Input Configuration	Relay Status	Analog Status Change	First Analog Status Change	Analog Configuration	CRC Word
----------------------------	---------------------	---------------------------	--------------	---------------------	--------------	----------------------	----------------------------	----------------------	----------

└────────── OR FF's ─────────┘

CLOCK STRING CODE 93 OR 94

Site Identification Number	Year	Month	Day	Hour	Minute	CRC Word
----------------------------	------	-------	-----	------	--------	----------

PROGRAMMED PARAMETERS STRING CODE 93 OR 94

Relay Momentary	Relay Independent	Relay Power-up Defaults	Relay Power-up Enable	Input Power-up Enable	Input Power-up Defaults	Input Enable	Number Of Rings	Access Code	Analog Enable	CRC Word
-----------------	-------------------	-------------------------	-----------------------	-----------------------	-------------------------	--------------	-----------------	-------------	---------------	----------

└── OR FF ──┘

PHONE NUMBER STRING CODE 93 OR 94

1,2,3, (Primary Number)	16	1,2,3, (Secondary Number)	N F F F	CRC Word
-------------------------	----	---------------------------	---------	----------

TIMED COMMAND DATA STRING CODE 95 OR 96

FF	Weekday	Pattern	Month	Day	Hour	Minute	Command	FF	CRC Word
----	---------	---------	-------	-----	------	--------	---------	----	----------

Respond with touch-tone "2" to request next data string or to terminate command.

Respond with touch-tone "3" to request retransmission of last data string.

FLAGS (low true)

- Bit 7 - Access number from telephone line required
- Bit 6 - Access number from auxiliary line required
- Bit 5 - Telephone priority over auxiliary line
- Bit 4 - Relay power-up default enable
- Bit 3 - Input power-up default enable
- Bit 2 - Timed commands enabled
- Bit 1 - Delay initialization by 35 seconds
- Bit 0 - Analog card present (93)
 - Site Identification number alert (94)

FOR TIMED COMMAND DUMP:

Weekday Pattern:

- Bit 0 = Saturday
 - Bit 1 = Sunday
 - Bit 2 = Monday
 - Bit 3 = Tuesday
 - Bit 4 = Wednesday
 - Bit 5 = Thursday
 - Bit 6 = Friday
 - Bit 7 = Delete
- 80 = marked for deletion
FF = end of command string
7F in any location = every occurrence

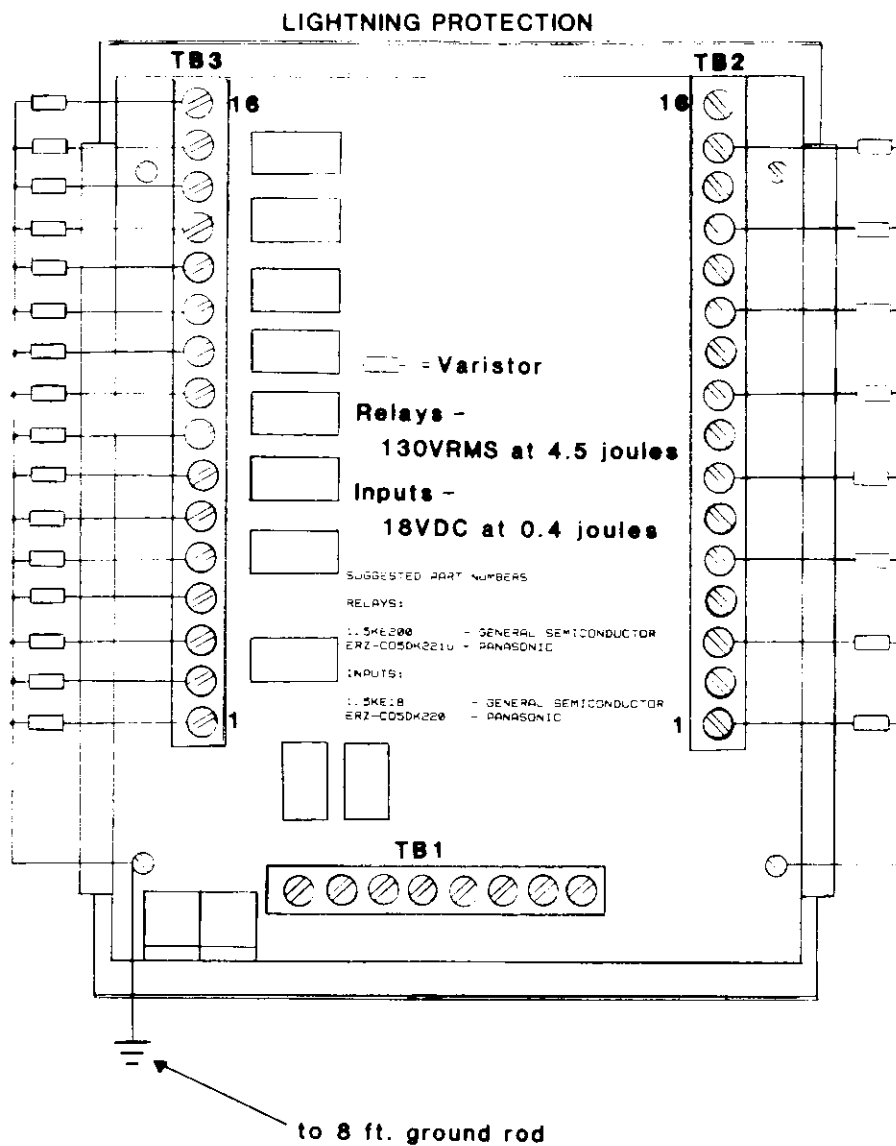
APPENDIX E
DTMF STATUS REPORTING FORMAT

DTMF DIGIT	1	2	3	4	5	6	7	8	9	0	*	#	A	B	C	D
DEC. VALUE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	0
HEX. VALUE	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	0

APPENDIX F LIGHTNING PROTECTION

For lightning protection connect the Model 6005 mounting frame (standoff stud next to the telephone line jack J1) to a 8 foot copper grounding rod or equivalent through the 16 ga. green wire provided for proper protection.

Spark gaps are provided on the trace side of the circuit board for all output and input connections. If the 6005 is being installed where lightning strikes are very probable, varistors should be installed as shown in figure 3 to ensure maximum protection against lightning strikes.



MANUAL REVISIONS

Revision date 2/87 RLP:

Following pages revised for J3 (DC BIAS) and terminology of leased line changed to auxiliary line for silk screen change starting with S/N 145.

Pages:1,5,6,8,9,10,12,14,18,20,21,25,29,31,33,35,36.

Revision date 5/87 RLP:

Following pages revised for grounding stud and ground wire provided.

Pages:6,41,Figure 1

Revision date 5/88 RLP:

Fuse type added to Specifications

Following pages revised for difference between program enabling a call back and command (operating) enabling a call back.

Pages:6, 10, 12, 14

Memory Reset added on page 15.

MODEL 6005 CONDENSED COMMAND TABLE

OPERATION	RESPONSE	OK J BEEP	PROGRAM MODE	ENTER PROGRAM MODE	RESPONSE
		ERROR 5 BEEPS		EXIT PROGRAM MODE	5 BEEPS
RELAY	10XY	X= RELAY NUMBER (1-8) 9=ALL Y= # ENERGIZE RELAY X Y= # UNLATCH RELAY X	RELAY MON./LATCH	X=RELAY (1-8) 9=ALL Y= # MOMENTARY OPERATION Y= # LATCHING OPERATION X=RELAY (1-8) 9=ALL	1 BEEP
RELAY STATUS	50	RELAY STATUS REPORT	RELAY NO 2/INDEP.	Y= # 1 OF X Y= # INDEPENDENT	1 BEEP
INPUT	30XY	X= INPUT NUMBER (1-8) 9=ALL Y= # ENABLE CALL BACK X Y= # DISABLE CALL BACK X (ENABLE CANNOT OVERRIDE PROGRAM)	RELAY POWER DEFAULT	X=RELAY (1-8) 9=ALL Y= # CLOSE ON POWER UP Y= # OPEN ON POWER UP	1 BEEP
INPUT STATUS	60	INPUT STATUS REPORT	RELAY POWER ON DISABIF	X=RELAY (1-8) 9=ALL Y= # LAST OUTPUT CONDITION Y= # PRG. COND. @ PWR. UP	1 BEEP
INPUT FIRST CALL B.	64	REPORT FIRST CALL BACK	INPUT CALL BACK	X=INPUT (1-8) 9=ALL Y= # ENABLE INPUT CALL BACK Y= # DISABLE INPUT CALL BACK	1 BEEP
INPUT CALL B.	67	REPORT CALL BACK STATUS	ANALOG CALL BACK	X=ANALOG (1-8) 9=ALL Y= # ENABLE ANALOG CALL BACK Y= # DISABLE ANALOG CALL B.	1 BEEP
ANALOG CALL B.	31XY	X= ANALOG NUMBER (1-8) 9=ALL Y= # ENABLE CALL BACK X Y= # DISABLE CALL BACK X (ENABLE CANNOT OVERRIDE PROGRAM)	PWR. ON INP. DEFAULT	X=INPUT (1-8) 9=ALL Y= # INPUT DEFAULT OPEN Y= # INPUT DEFAULT CLOSED	1 BEEP
ANALOG LIMITS	61	ANALOG LIMIT STATUS	PWR. ON INPUT CALL CALL DEFAULT	X=INPUT (1-8) 9=ALL Y= # IGNORE DEVIATION FROM PROGRAM DEFAULT	1 BEEP
ANALOG FIRST CALL B.	65	REPORT FIRST CALL BACK	CALL BACK ON DEVIATION FROM PRG. DEFAULT VAL.	Y= # CALL BACK ON DEVIATION FROM PRG. DEFAULT VAL.	1 BEEP
ANALOG CALL B.	68	ANALOG CALL BACK STATUS	SITE ID NUMBER	XX= 11 THROUGH 58	1 BEEP
ACKNOWLEDGE	6*	ACKNOWLEDGE REPORTED CALL BACK	TELE. NUMBER 1	41XXXXXXXXXXXXXXXXX# X=0-9 * =PAUSE	1 BEEP
AUDIO MONITOR	7X	X= (0-4) * LOCAL AUDIO TO TELE. X= 0 15 SECOND DURATION X= 1 30 SECOND DURATION X= 2 60 SECOND DURATION X= 3 120 SECOND DURATION X= 4 240 SECOND DURATION X= * 255 SECOND SAMPLE ITONE	TELE. NUMBER 2	42XXXXXXXXXXXXXXXXX# X=0-9 * =PAUSE 42# FOR NO SECOND NUMBER	1 BEEP
AUDIO GENERATOR	8X	X= (0-4) * 1KHZ. TONE GENERATOR SAME AS AUDIO MONITOR	NUMBER OF RINGS	43XY XX=01-15 RINGS BEFORE ANS.	1 BEEP
			ACCT. CODE	44XXXX XXXX= ANY 4 DIGITS	1 BEEP
			TIME DATE SET	45XY XY XY XY XY# OR 46XXXX XY XY XY XY	1 BEEP
			TIME COMMAND STORE	47YZ XY XY XY XY C=CMDS= # FAH VALID COMMAND	1 BEEP
			TIME COMMAND ERASE	47YZ XY XY XY XY XY	1 BEEP
			VAL/HALT	48 REMOVE DELETED & ERASE TIMED CMDS. FROM STORAGE	1 BEEP
			ALL SAUCE	49 REMOVE ALL TIMED CMDS. STORED	1 BEEP
			POWER ON DELAY	50* DELAY CALL BACK FOR 30 SEC. 1 BEEP 50# NO DELAY FOR CALL BACK	1 BEEP
			ACCESS CODE	51* TELEPHONE ACCESS CODE 1 BEEP 51# NO TELEPHONE ACCESS CODE 52* AUXILIARY INP. ACCESS CODE 1 BEEP 52# NO AUXILIARY INP. ACC. CODE	1 BEEP
			PRIORITY	53* AUXILIARY INP. HAS PRIORITY 1 BEEP 53# TELEPHONE HAS PRIORITY	1 BEEP
			TIMED ENABLE	54* ENABLE TIMED COMMANDS 1 BEEP 54# DISABLE TIMED COMMANDS	1 BEEP
			CALL BACK FORMAT	55* CALL BACK ALERT= ID (DTMF) 1 BEEP 55# NORMAL CALL BACK ALERT	1 BEEP

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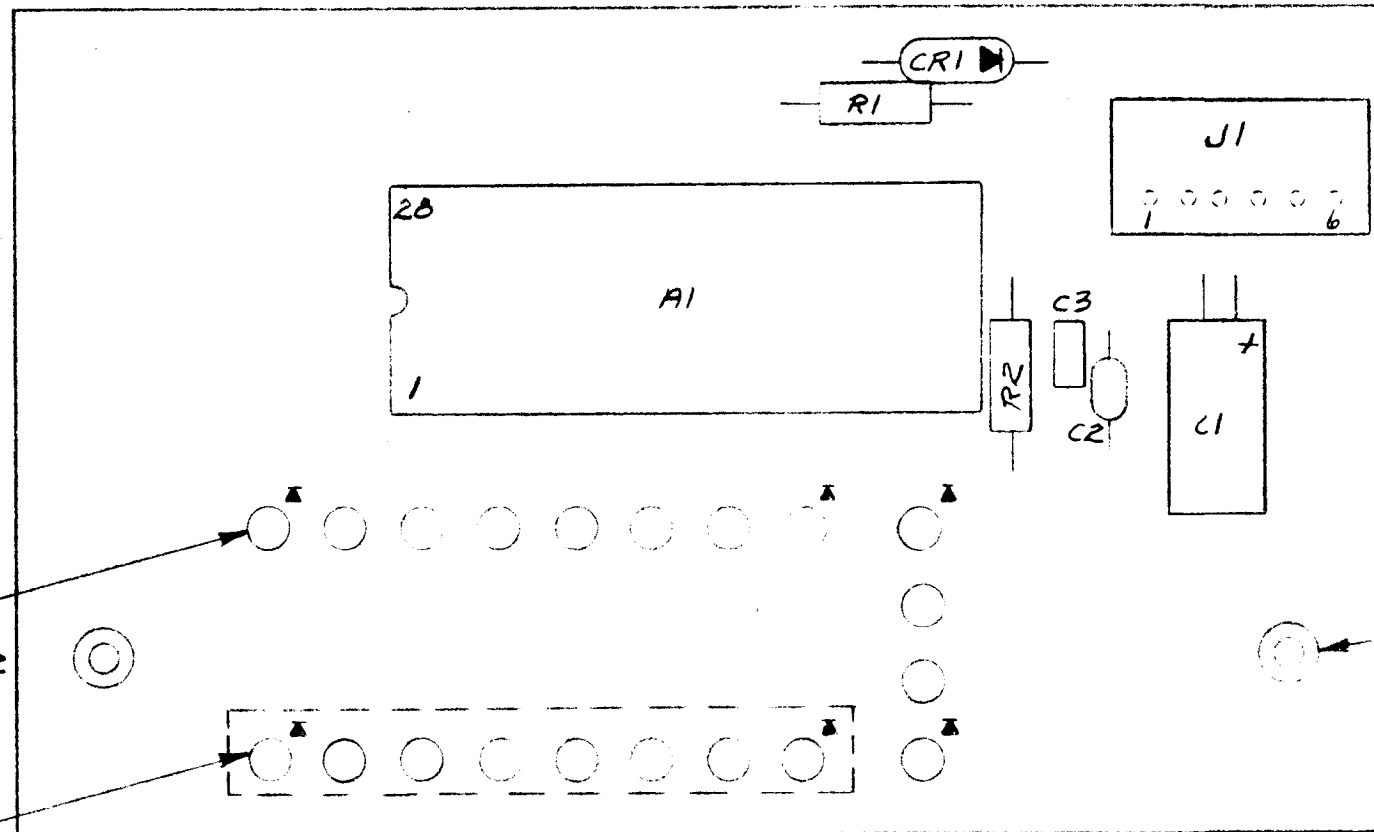
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NOTE:

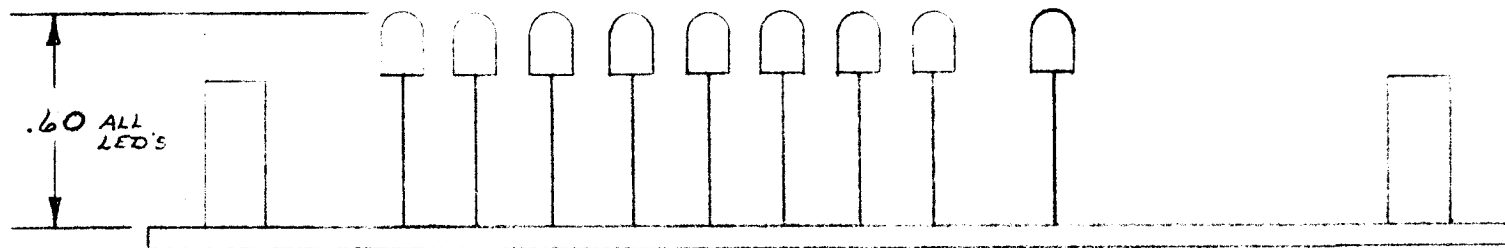
1. MAX. COMPONENT HEIGHT TO BE .30 EXCEPT LEDS & STANDOFFS.



CATHODE (10) (SHORT LEAD) TYP. 12 TO THE TOP

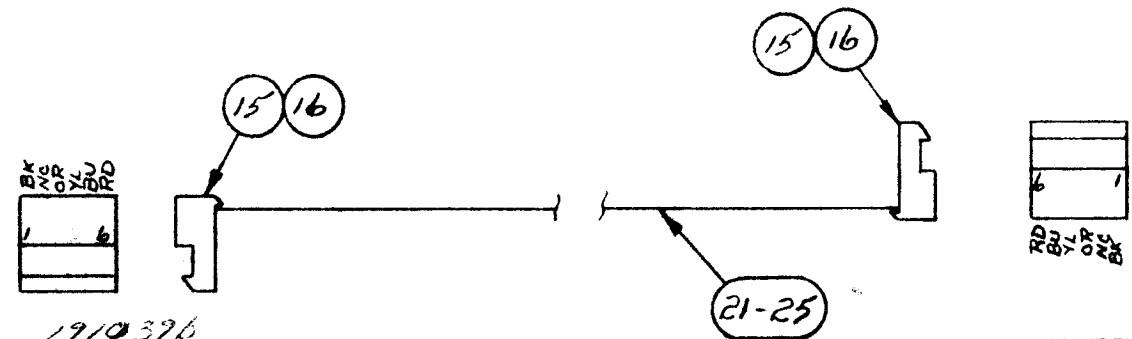
CATHODE (9) (SHORT LEAD) TYP. 8 TO THE TOP

(19) MOUNTED TOP SIDE TYP. 2



LED HEIGHT WAS .55" TPM 5-1-87
 CLARIFY DWG TPM 8-18-86

3439A/22
 SMT. 1 of 3



CABLE ASSY SCALE 1:1

		LOC.	LET.	REVISIONS		DATE
		SCALE	2:1	DATE	MONROE ELECTRONICS, INC. LYNDONVILLE, NEW YORK	
		DRAWN	JN	5/21/86		
		CH'KD.				
NEXT ASSEMBLY	NO. REQ.	APP'D.		5/28/86	MODEL 3439A 6005 DISPLAY BOARD	
TOLERANCE UNLESS OTHERWISE SPECIFIED: TWO PLACE DECIMAL ± .020 THREE PLACE DECIMAL ± .008 FRACTIONAL ± 1/64 ANGULAR ± 15'						3439A/22 SMT. 1 of 3
MATERIAL						

1919396