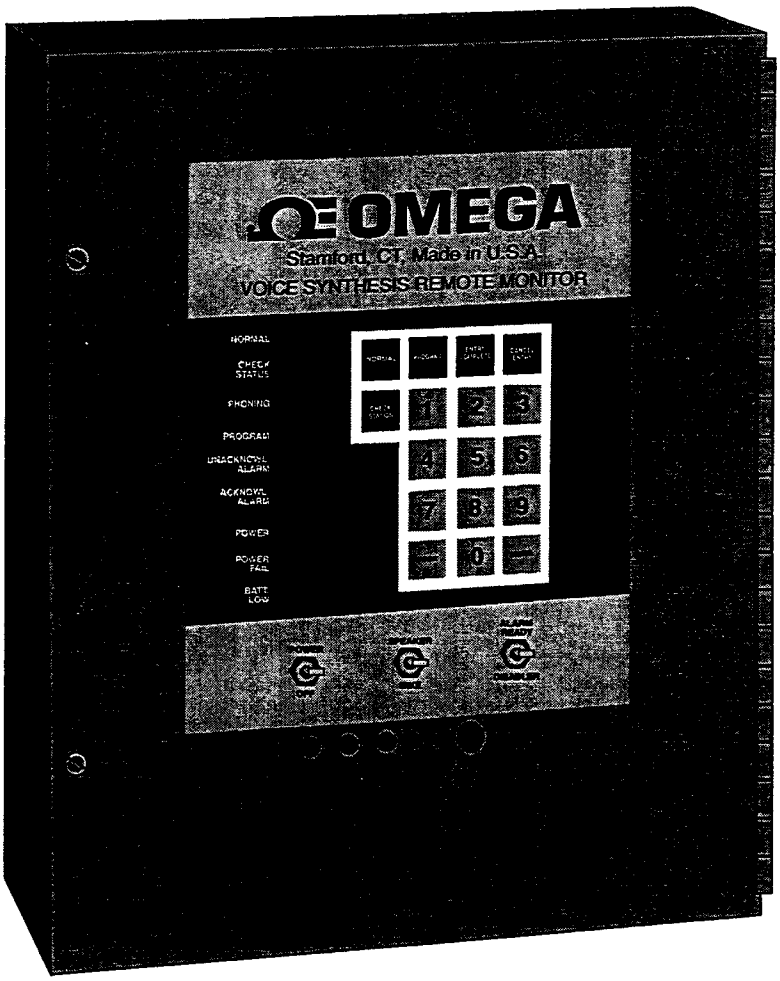
OMA Series

Automatic Dialing Remote Monitoring System

OMA-C4, -C8, -C16, -C24, -C32



OMEGA®

An OMEGA Technologies Company

Operator's Manual

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REMOTE MONITORING SYSTEM

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SECTION 1 INTRODUCTION

The OMEGA® OMA Series Monitor is an automatic dialing remote monitoring system that keeps you in touch with your distant facility. The OMA Series continuously monitors the inputs connected to the system and if an alarm condition occurs, it dials up to eight field programmable phone numbers and identifies the specific problem in plain English. When you want to receive a complete status report, you may dial it from any telephone allowing direct touch with a remote or unattended facility.

Easy to program, the voice synthesizer asks for input. All you do is enter up to eight dial out phone numbers. All other operating parameters, (alarm criteria, alarm and normal messages, alarm trip delay, etc.) are programmed, but may be altered from their default values to meet your needs.

The following parameters may be programmed over a wide range on the keyboard: alarm trip delay, time between alarm calls, alarm reset time, telephone answer response time, alarm criteria (alarm on open contacts, alarm on closed contacts or no alarm) run time meters on/off, tone/pulse dialing, number of message repeats. Non-volatile memory keeps your programming intact and a rechargeable gel cell battery keeps the system operating in the event of a power failure.

The OMA is easy to hook up; it operates on a standard telephone line, and will work with any telephone system and most paging systems.

Communication with called parties is via a highly intelligent voice synthesizer. Station identification, pulse alarm and normal messages from each channel are programmable from the approximately 200 or 400 word vocabulary. In addition, a built-in microphone permits a caller to listen to local sounds and to have a two-way conversation with personnel at the dealer site.

Models are available to monitor from 4 to 32 dry contacts (OMA-C4, OMA-C8, OMA-C16, OMA-C24, OMA-C32) plus a 120 Vac power source, and all models are provided with remote programming to allow the operator to call the unit and program a wide variety functions of the system. The information in this manual applies to all models except where otherwise noted.

SECTION 2 INSTALLATION

2.1 UNPACKING

Remove the Packing List and verify that you have received all equipment. If you have any questions about the shipment, please call the OMEGA Customer Service Department.

When you receive the shipment, inspect the container and equipment for any signs of damage. Note any evidence of rough handling in transit. Immediately report any damage to the shipping agent.

NOTE

The carrier will not honor any claims unless all shipping material is saved for their examination. After examining and removing contents, save packing material and carton in the event reshipment is necessary.

2.2 RAPID START INSTALLATION

The following instructions are meant for previous owners of automatic dialing remote monitoring systems. They can assist a knowledgeable owner in installing and starting the Monitor with a minimum of effort. There are many more operational variables to be considered in the installation, programming and use of the OMA Monitor than are listed below. If you are a new user we strongly recommend that you take the time to study this manual and familiarize yourself completely with the operation of the OMA.

For a rapid start in operating the OMA:

1. Plug the 120 Vac grounded power cord into a 120 Vac grounded power outlet. Refer to Section 2.4 for additional information.
2. Plug the RJ11C modular telephone cord connector into a standard RJ11C modular telephone jack.
3. Connect your 2-wire dry contact sensors to the appropriate connectors on the input terminal strip. Refer to Section 2.4 for additional information.
4. Turn the POWER SWITCH to the ON position. The POWER and NORMAL LEDs should come on, indicating that the OMA is receiving power. Refer to Section 4.6 for additional information.
5. Turn the SPEAKER/MIKE switch to the SPEAKER position. Then press the PROGRAM key and enter the first phone number using the numeric keyboard. When finished with the first phone number, press the ENTRY COMPLETE key and then press the NORMAL key. Refer to Sections 3.2 and 6.4 for additional information.
6. Turn the ALARM READY/DISABLE switch to the ALARM READY position. Refer to Section 4.5 for additional information.
7. If you are using normally closed dry contact inputs, the unit will now function with the standard default operating parameters. Refer to Section 3.1. See Section 3.4 for a list of all the default programming parameters.

2.3 LOCATION AND MOUNTING

- Choose a location within 5 feet of the RJ11C telephone jack so that the cord will reach the jack.
- For indoor installations, mount the metal enclosure to a flat surface.
- In outdoor installations, also provide an overhead shelter to protect against solar heat and precipitation.
- Guard against screws or other metal hardware falling into the circuitry. Inspect and remove any foreign material before applying power.

2.4 WIRING

Refer to Figure 2-1 for wiring connections for Models OMA-C4, -C8, and Figure 2-2 for wiring connections for Models OMA-C16, -C24, -C32.

1. Route the wiring for the dry contact signal inputs through the right bottom strain relief clamp. This clamp may be removed and replaced with conduit fittings if desired.
2. Connect one side of each dry insulated contact to the appropriate input terminal (numbered 1-4, 1-8, 1-16, 1-24 or 1-32, depending on model).
   Each channel that will be used to monitor a dry contact input has a corresponding number on the input terminal strip. Therefore, the first channel to announce a message is labeled number 1 and so on.
3. CONNECT THE COMMON RETURN OF ALL DRY CONTACT INPUTS TO THE TERMINAL(S) MARKED C .
4. CONNECT ANY UNUSED INPUTS TO THE TERMINAL(S) MARKED C SO THAT THEY WILL BE "CLOSED CIRCUIT" AND NOT REPORT AS ALARMS.
5. Route grounded 120 Vac wiring (capacity at least .025 KVA/25 VA) through the other strain relief clamp (also replaceable with conduit fittings) and connect it to the 3-point power terminal strip, following the adjacent markings.
6. Tighten the strain relief clamps, if used.
7. Plug telephone cord into the standard RJ11C telephone jack.

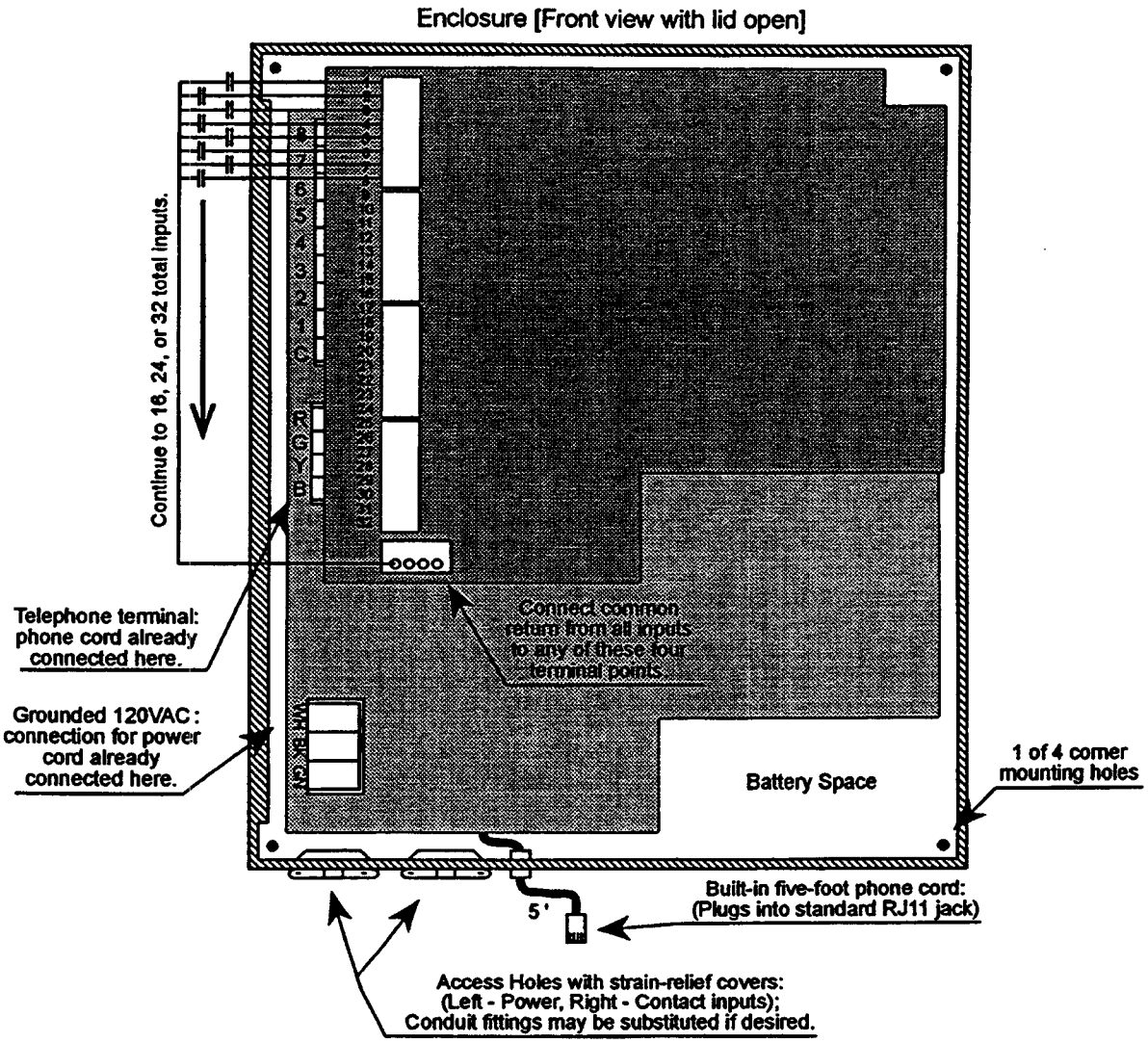

Figure 2-1. Electrical Connections for Models OMA-C4 & OMA-C8

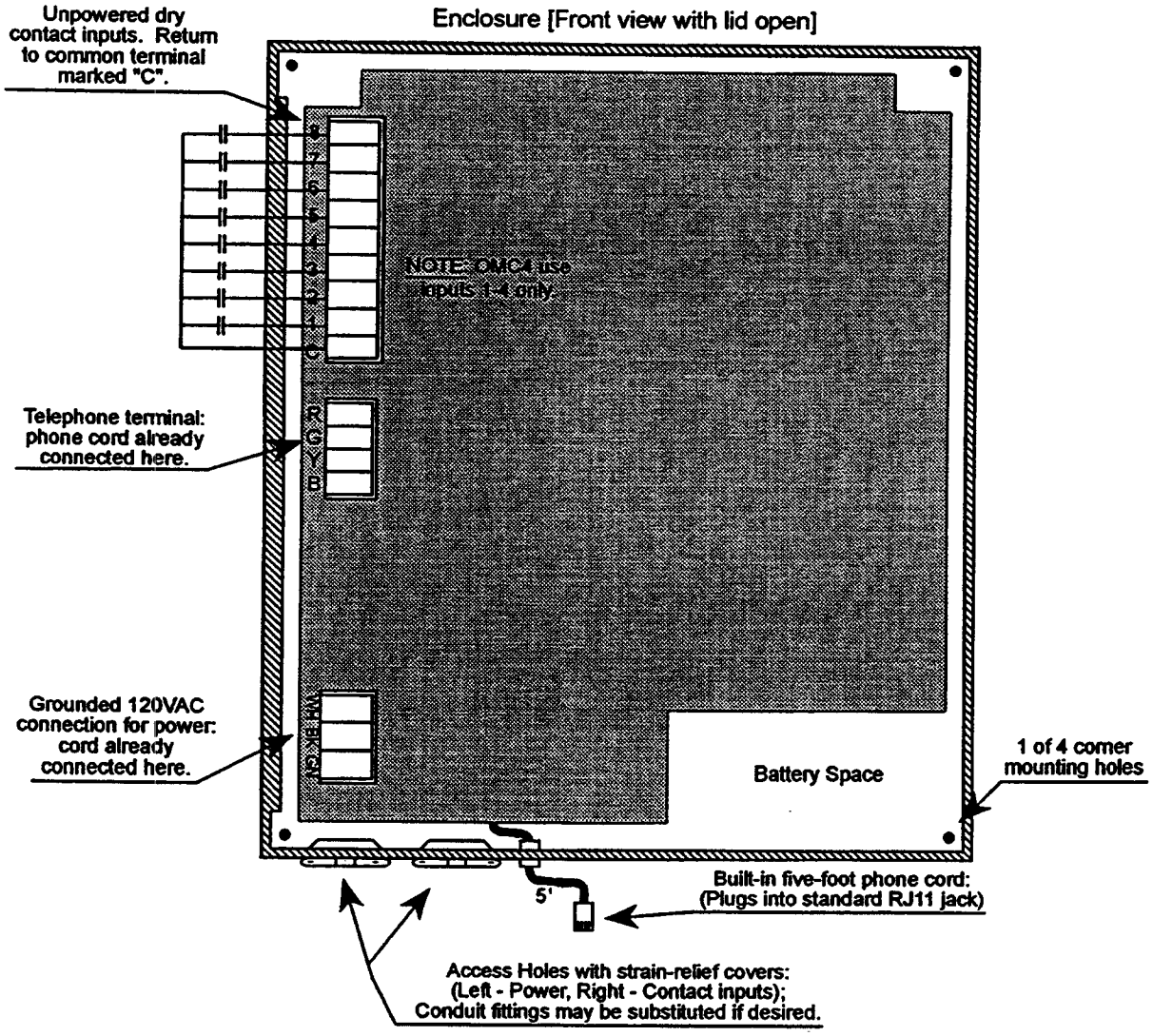

Figure 2-2. Electrical Connections for Models OMA-C16, OMA-C24 & OMA-C32

SECTION 3 PROGRAMMING

3.1 TURNING ON YOUR OMA MONITOR FOR THE FIRST TIME

Because no programming has been entered when you first turn on your OMA, it may function differently than you expect.

If there are any open circuits on the input channels, or if ac power is not connected, then there should already be an acknowledged alarm and the ACKNOWLEDGED ALARM LED will be on. This is because an open circuit is, until programmed otherwise, considered an alarm condition, and lack of ac power is an alarm condition, and because the initial (default) Alarm Response Time is 2 seconds. An Acknowledged Alarm occurs rather than an Unacknowledged Alarm because there are not yet any phone numbers; all the OMA Monitor can do with the alarm conditions is acknowledge itself (it can't dial out).

If there are any open circuits on the 4 inputs, it is not enough to enter phone numbers and simply acknowledge any alarms resulting from channel inputs with no connections; 1 hour (default value) after acknowledgement, the Alarm Reset timer will reactivate any acknowledged alarms. You must either strap any unused inputs to the C terminal(s) (see Section 2.4 WIRING), or program CLOSED CIRCUIT IS ALARM or NO ALARM for any such channels (see Section 3.3 for Models OMA-C16, -C24, -C32 and Section 3.4.10 for Models OMA-C4, -C8).

In the course of testing, you may wish to clear out an Acknowledged Alarm status, rather than waiting for the Alarm Reset Time (normally 1 hour) to elapse. This will allow you to immediately retrip an alarm and cause dialing to resume. To clear out any Acknowledged Alarm status:

1. Press 1, then press PROGRAM
   (the OMA will then ask you to enter a program code).
2. Press 8 5 0 ENTRY COMPLETE
   (the OMA will say "Alarm reset is off").
3. Press 8 5 1 ENTRY COMPLETE
   (the OMA will say "Alarm reset is on" and the ACKNOWLEDGED ALARM light will turn off).
4. Press NORMAL.

It is normal for the LOW BATTERY LED to be on for the first few hours after applying power because the charging circuit is replacing charge lost while sitting dormant, testing, etc.

3.2 PHONE NUMBER PROGRAMMING

The OMA Monitor dials in the conventional "rotary pulse" mode. All public telephone exchanges in the USA work with this dialing method and so normally no change to Touch Tone dialing is required.

With the power on, the NORMAL LED on, and the SPEAKER/MIKE switch set on SPEAKER, press the PROGRAM key. The PROGRAM LED will turn on, and the Monitor will say "PROGRAM. NO FIRST PHONE NUMBER, AND NO MORE PHONE NUMBERS ENTERED."

Enter the desired phone number on the keyboard one digit at a time, including any "1" prefix or area code necessary to complete the call.

When you have entered the last digit, press the ENTRY COMPLETE key. The OMA will recite back the phone number you have entered and then wait for you to press the PROGRAM key to advance to the next phone number. The OMA will then say, "NO SECOND PHONE NUMBER, AND NO MORE PHONE NUMBERS, ENTERED." Again enter the desired phone number, then press the ENTRY COMPLETE key. The Monitor will continue in this mode until you have entered all eight phone numbers. If you do not wish to program all eight phone numbers, simply hold down the PROGRAM key until it

advances to the next program item, STATION ID.

If you made an error while entering a replacement phone number, press the CANCEL ENTRY key and the previous entry will be reinstated, with the OMA Monitor waiting for a new entry. To completely erase a phone number, wait for the Monitor to recite the old number. Then, without entering any numbers, press the ENTRY COMPLETE key.

If you wish to check the phone numbers you have programmed, press the NORMAL MODE key, and then the PROGRAM key. Each time you press the PROGRAM key it will say the next phone number in sequence; "THE FIRST PHONE NUMBER IS XXX", "THE SECOND PHONE NUMBER IS XXX", until all eight phone numbers have been recited.

3.2.1 To Program a Delay in Dialing

Sometimes it is necessary to program a delay in dialing - for example, to wait one or more seconds after dialing a 9 (to get an outside line) before dialing the rest of the number.

To program a delay when entering phone numbers, press the MINUS key. Each time you press the key, the OMA says, "DELAY" and a 1 second delay is inserted. For example, pressing the key 4 times inserts a 4-second delay.

3.2.2 Programming Touch Tone Dialing

From normal mode, enter sequential programming mode by pressing the PROGRAM key. Let the OMA make its initial speech about the first phone number. Then press the POINT key. If the OMA was in pulse dialing mode, it will now say "TOUCH TONE DIAL MODE." You may alternate between Touch Tone dialing mode and pulse dialing mode each time you press the POINT key. This applies only to the first phone number. You may then perform additional programming by pressing the PROGRAM key, or press the NORMAL key to exit the programming mode. All dialing will now be Touch Tone dialing.

3.2.3 Programming Standard Pulse Dialing

To change back to pulse dialing mode, press the PROGRAM key and let the OMA make its initial speech about the first phone number. Then press the POINT key. The Monitor says, "PULSE DIAL MODE." All dialing will now be conventional pulse dialing.

3.2.4 Alarm Call Grouping (Models OMA-C16, -C24, -C32 Only)

Alarm Call Grouping allows field programming of each channel so that an alarm on a given channel will cause only a selected set of phone numbers to be called, rather than the entire list of up to 8 phone numbers. It allows certain input channels to be designated. For example, some channels could be designated electrical alarms and others mechanical alarms. Electrical alarms would then cause electrical personnel to be called, while mechanical alarms would cause mechanical personnel to be called. YOU MAY DISREGARD THIS SECTION IF YOU DO NOT WISH TO ESTABLISH SPECIAL ALARM CALL GROUPS FOR THE DIAL OUT FUNCTION.

To understand how alarm call grouping works, it is best to first review and understand the following points:

1. THE MAXIMUM TOTAL NUMBER OF PHONE NUMBERS REMAINS 8. Each phone number group is a subset of the entire list.
2. UP TO EIGHT DIFFERENT GROUPS MAY BE ESTABLISHED. Most applications will use only two or three groups.
3. EACH CHANNEL CAN BE LINKED TO ONLY ONE PHONE NUMBER GROUP. If it seems that you need to link a given channel to more than one group, simply establish an additional group that includes the numbers from both of the other groups.
4. ONCE ANY ALARM CALL GROUPING (PHONE NUMBER SET) PROGRAMMING HAS BEEN IMPLEMENTED, ANY CHANNEL NOT LINKED TO A SET WILL NOT CAUSE ANY ALARM CALLS. FURTHER, ANY PHONE NUMBERS NOT ASSIGNED TO A GROUP (PHONE NUMBER SET) WILL NEVER BE

CALLED. If you have done some programming but have left it incomplete, an appropriate warning message will be given when you call the unit or when you do a Check Status from the front panel.

5. IN CASE OF SIMULTANEOUS ALARMS INVOLVING MORE THAN ONE GROUP, PERSONS RECEIVING A CALL WILL HEAR ONLY ABOUT UNACKNOWLEDGED ALARMS ASSOCIATED WITH THEIR GROUP, EXCEPT IMMEDIATELY AFTER THEY ACKNOWLEDGE THEIR OWN ALARMS. Thus, if there is both an electrical alarm and a mechanical alarm, any alarms not linked to the phone number currently being called will not be mentioned in the report until after the listener acknowledges his own alarms (by pressing a Touch Tone "9"). In our example, the electrician would get a call with the unacknowledged electrical alarms spoken. Then, when he acknowledges his alarms with a Touch Tone "9", the voice would go on to state the mechanical alarms before hanging up and beginning to call the mechanical personnel on the mechanical phone number group. The mechanical personnel would hear only about the mechanical alarms. Upon acknowledgement, the person acknowledging would not hear about the electrical alarms, since no unacknowledged electrical alarms would exist at that time. Neither person could acknowledge the alarms meant for the other person. The exception is that if any person issues any Touch Tone response to the "beep" other than a "9" to simply acknowledge his alarms (e.g., a "1" for Over-The-Phone Programming), he will thereby acknowledge all alarms. Except for power failure alarms, only unacknowledged alarms are mentioned during callouts.

6. ACKNOWLEDGEMENT IS BY PHONE NUMBER GROUP. Thus, in the example in Step 5, when the electrician acknowledges the alarm call, he will be acknowledging only those alarms which are linked to the group that is responsible for calling him at that time. The unit will still go on and call numbers in the other group(s), since they will not have been acknowledged when the electrician acknowledged his alarm. This also means that if there are multiple alarms and two phone number groups are involved, and the electrician's number is included in both groups, then he will be called again after having acknowledged the first time. A separate acknowledgment is required for each group involved.

7. IN THE CASE OF SIMULTANEOUS ALARMS, CALLS ARE PLACED WITH ONE PASS THROUGH EACH INVOLVED PHONE NUMBER GROUP IN SUCCESSION. For example, if there is simultaneously an electrical alarm on Channel 1 and a mechanical alarm on Channel 2, the unit will call each number on the electrical phone number group once in succession and then go on to call each number on the mechanical phone number list once. If the electrical group still has not acknowledged, it will then be called again, etc. In this example, it is assumed that the electrical group was assigned the lower group number. In the case of simultaneous alarms involving more than one group, the lowest group number will always be called first and then the next higher number group, etc.

8. THE BUILT-IN POWER FAILURE ALARM WILL AUTOMATICALLY BE LINKED TO ALL PHONE NUMBER GROUPS WHICH HAVE BEEN ESTABLISHED. Thus, if ac power to the OMA is interrupted, the phone numbers in the lowest group will be called first. Only one acknowledgement is needed, not one for each group.

The following example will show you how to program for Alarm Call Grouping. The information shown follows the format on the worksheets on the following pages. You should fill in a blank worksheet before attempting to program for Alarm Call Grouping. It is important to keep a copy of your worksheet accessible for future reference.

GROUP #:	TYPE (e.g., fire, etc.):	PHONE NUMBERS IN GROUP:
1	Electrical	658-1000, 777-1111
2	Mechanical	428-1000, 777-1111
3	Electrical & Mechanical	658-1000, 428-1000, 777-1111
4	Fire	653-1100, 777-1111

In this example, 777-1111 is the number of an overall supervisor who would be called only if the person at the prior number did not acknowledge the alarm.

CHANNEL #:	NATURE OF ALARM:	GROUP #:
Channel 1	Electrical	1
Channel 2	Electrical	1
Channel 3	Mechanical	2
Channel 4	Electrical & Mechanical	3
Channel 5	Fire	4

OVERALL PHONE NUMBER LIST:	GROUP NUMBERS:	
First Phone Number	658-1000	1,2
Second Phone Number	777-1111	1, 2, 3, 4
Third Phone Number	428-1000	2
Fourth Phone Number	653-1100	

In this example, the actual programming would be entered as follows. It is important to have first read and understood Section 3.6 on Coded Programming. To prepare for Coded Programming, starting with the NORMAL light on, press "1" and then press PROGRAM on the front panel keyboard. Then enter:

A. LINK CHANNELS TO PHONE NUMBER GROUPS:

01	6	1	ENTRY COMPLETE (Links Channel 1 to Group 1)
02	6	1	EC (Links Channel 2 to Group 1)
03	6	2	EC (Links Channel 3 to Group 2)
04	6	3	EC (Links Channel 4 to Group 3)
05	6	4	EC (Links Channel 5 to Group 4)

(You will hear appropriate warning messages during this step, since you are linking channels to phone number groups (sets) which have not yet been programmed.)

Note that these instructions refer to phone number groups. The OMA calls them sets; the terms are interchangeable.

B. ENTER THE OVERALL PHONE NUMBER LIST:

71	6581000	EC (Makes 658-1000 the first phone #)
72	7771111	EC (Makes 777-1111 the second phone #)
73	4281000	EC (Makes 428-1000 the third phone #)
74	6531100	EC (Makes 653-1100 the fourth phone #)

Note that Step B corresponds exactly to ordinary phone number entry, done when Alarm Call Grouping is not used.

C. DESIGNATE WHICH GROUP(S) EACH PHONE NUMBER IS ON:

71	01	EC	(Includes the first phone # in Group 1)
71	02	EC	(Includes the first phone # in Group 2)
72	01	EC	(Includes the second phone # in Group 1)
72	02	EC	(Includes the second phone # in Group 2)
72	03	EC	(Includes the second phone # in Group 3)
72	04	EC	(Includes the second phone # in Group 4)
73	02	EC	(Includes the third phone # in Group 2)
74	04	EC	(Includes the fourth phone # in Group 4)

All three stages (A, B and C) above must be completed for Alarm Call Grouping to work, except that you may have already entered your phone numbers (Step B). Now press CHECK STATUS and verify that there are no programming error messages.

SPECIAL NOTE

You may remove all Alarm Call Grouping (Phone Number Set) programming by entering 70 EC (ENTRY COMPLETE). This special code 70 can be useful if you become uncertain of the programming status and wish to have a fresh start.

It is possible to remove a phone number from a group (set) that it has previously been included in. For example, to delete the second phone number from Group 4, enter 72 POINT 04. Also, to unlink a channel, link it to phone set "0".

These programming steps are manageable if you:

1. Become familiar with Coded Programming (Section 3.6).
2. Plan your grouping set up with the aid of the attached user's work sheet. This worksheet aids in the organization and programming process, and is also valuable for later documented reference.

ALARM CALL GROUPING PROGRAMMING WORKSHEET

Fill in this worksheet before attempting to program Alarm Call Grouping. Keep a copy accessible for future reference.

GROUP #:	TYPE (i.e. fire, etc.):	PHONE NUMBERS IN GROUP:
1		
2		
3		
4		
5		
6		
7		

You may establish as few as two or as many as seven groups.

CHANNEL #:	NATURE OF ALARM:	GROUP #:
1		
2		
3		
4		
5		
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OVERALL PHONE NUMBER LIST:	GROUP NUMBERS:
First Phone Number:	
Second Phone Number:	
Third Phone Number:	
Four Phone Number:	
Fifth Phone Number:	
Sixth Phone Number:	
Seventh Phone Number:	
Eighth Phone Number:	

3.3 ALARM CRITERIA PROGRAMMING (MODELS OMA-C16, OMA-C24 & OMA-C32)

NOTE

For Models OMA-C4, -C8 Open/Closed Circuit Alarm Criteria, refer to Section 3.4.9. Note that the Alarm Criteria for the OMA-C4,-C8 Models can be programmed by either the Sequential or the Coded Programming. Alarm Criteria for Models OMA-C16, -C24, -C32 can only be programmed by Coded Programming.

The default alarm condition for the OMA is OPEN CIRCUIT IS ALARM CONDITION. If you are using alarm signal inputs other than OPEN CIRCUIT IS ALARM CONDITION, you will need to program the individual inputs for their specific alarm criteria.

To program alarm criteria, from the NORMAL mode, press "1" and then press PROGRAM. Then enter the two digit code for the channel number you are going to change (i.e., 0 1 for Channel number 1).

1 for read/set criteria and meters, followed by one of the following:

1 to set Open Circuit is Alarm

2 to set Closed Circuit is Alarm

3 to set NO Alarm Condition

4 to set Run Time Meter On

After selecting an alarm criteria, press ENTRY COMPLETE. See Section 3.6 for examples of Coded Programming Operation.

If you select NO ALARM CONDITION for a channel, that channel will not trip the alarm regardless of its input status. Also, closed circuit will be spoken as "ON" and an open circuit will be spoken as "OFF".

3.3.1 Total Run Time Meter (Models OMA-C16, -C24, -C32)

NOTE

Refer to Section 3.4.10, for Total Run Time Meter, Models OMA-4, -8.

As an alternative to programming an input for an alarm condition, you may program that input to accumulate the amount of time that the set of contacts attached to it have been closed. Any channel so programmed will, during a message report, speak of the input status as "OFF" (when its inputs are open) or "ON" (when its inputs are closed) and then give the total number of hours (up to 9999.9 hours) that its input contacts have been closed. Any channel programmed to monitor total run time will not activate an alarm regardless of input status. If you wish to get a run time total and also an alarm, then the input contacts need to be connected to two channels, one for alarm, one for run time meter.

To program an input for Run Time Meter, from the NORMAL mode, press 1 then PROGRAM. Enter the two digits for the channel number, then press 1 4 ENTRY COMPLETE to set Run Time Meter On.

To turn off (deactivate) a Run Time Meter, in the PROGRAM mode activate any other alarm criteria for that channel.

To reset a specific Run Time Total to zero, in the program mode enter the two digit channel code, then press 1 9 ENTRY COMPLETE for Run Time Meter Reset.

Note that the Run Time Meter function is only available on the last 8 Channels. Therefore, any inputs for which you plan to use the Run Time Meter function must be assigned to and connected to any of the last 8 channels.

3.3.2 Instant Alarm Criteria Setting (Models OMA-C16, -C24, -C32)

If a number of your input channels will be left unconnected or will normally open ("closed circuit is alarm"), those channels will have to have their Alarm Criteria so programmed. A rapid shortcut to doing this is as follows:

From the NORMAL mode, press "1", then press PROGRAM , then enter 6 9 ENTRY COMPLETE. This special program code, 69, automatically establishes the current inputs as the normal alarm criteria settings. Note that you may still individually program any of the channels for "NO ALARM" before or after entering this special code; this operation does not change any channels that were set for "NO ALARM" or for "RUN TIME METER".

3.4 GUIDED SEQUENTIAL PROGRAMMING

In many cases, the only thing you will need to program is the alarm dialout phone numbers, and also the alarm criteria for any channels that are to have an open circuit without alarming. However, the OMA allows you to optionally alter a number of operating parameters from their standard "default" values. Refer to Table 3-1. The following operating parameters control the overall functioning of the OMA and cannot be altered for a specific channel.

In general, press the PROGRAM key to advance to the next programmable function. To rapidly advance through the programmable functions, hold down the PROGRAM key until you reach the desired function.

Numerical program entries must be followed by pressing the ENTRY COMPLETE key; otherwise, your new entry will not be stored in memory. If you make an error, press the CANCEL ENTRY key, then enter the correct value followed by pressing ENTRY COMPLETE key.

Section 3.4.1, FLOW DIAGRAM FOR SEQUENTIAL PROGRAMMING ITEMS FOR MODELS OMA-C4 & OMA-C8 and Section 3.4.2, FLOW DIAGRAM FOR SEQUENTIAL PROGRAMMING ITEMS FOR MODELS OMA-C16, OMA-C24 & OMA-C32 are provided to assist you in determining which "default" parameters you will need to change, if any. For any items that you need to change from their "default" values, it is recommended that you write in pencil next to that programmable function what the new programmed value will be.

TABLE 3-1
CHANGING OPERATING PARAMETERS FROM DEFAULT VALUE

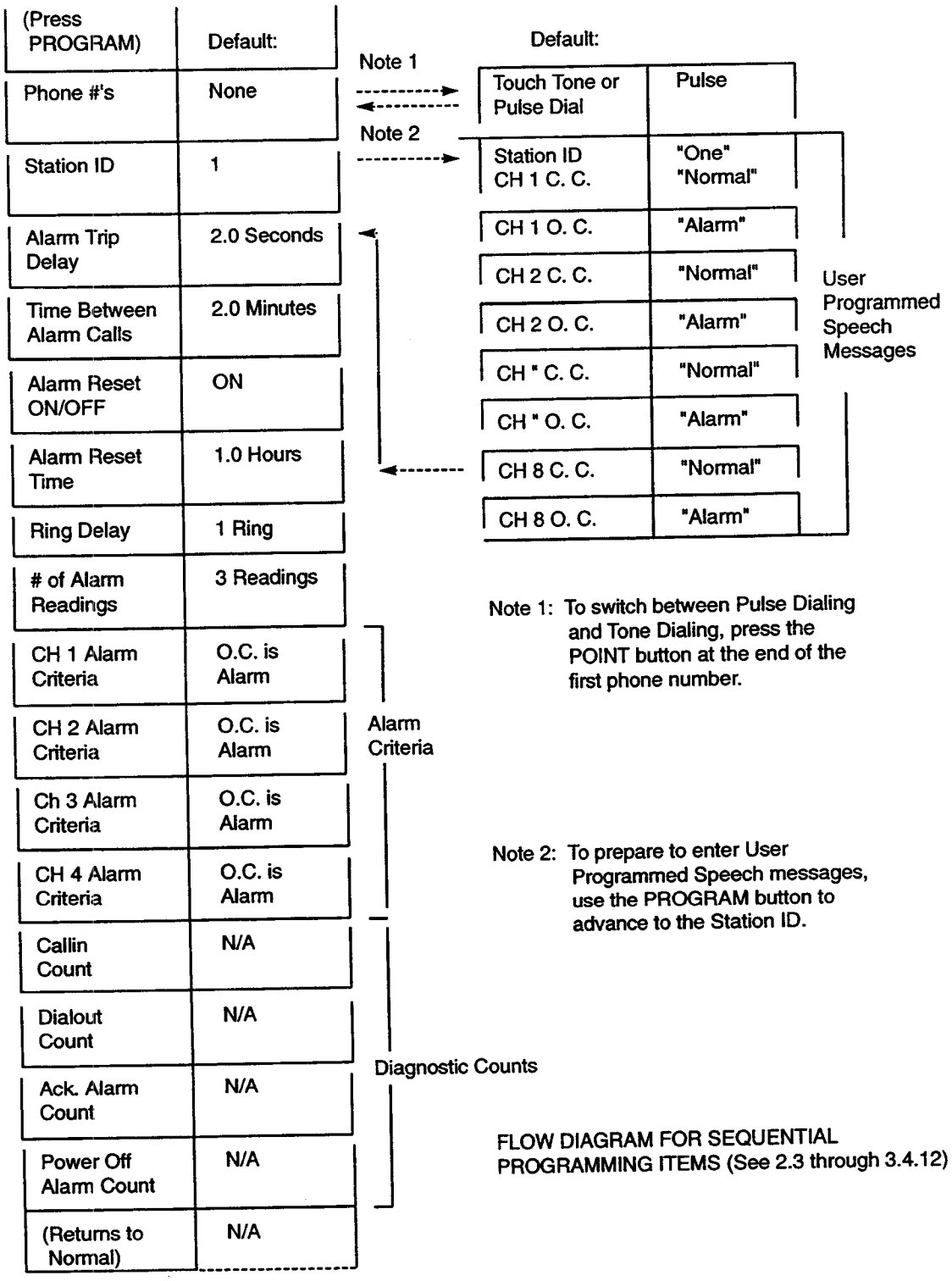
OPERATING PARAMETER	DEFAULT VALUE	OPTIONAL PROGRAMMING RANGE
Station ID#	1	Up to 16 digits. You may wish to program the OMA's own telephone number as its ID number.
Alarm Trip Delay (including power failure alarm)	2.0 seconds	0.1 to 999.9 seconds
Time Between Alarm Calls	2.0 minutes	0.1 to 99.9 minutes
Alarm Reset ON/OFF	ON	OFF
Alarm Reset Time	1.0 hour	0.1 to 99.9 hours
Ring Delay (delay before unit answers incoming calls)	1 ring	1 to 20 rings
# of Alarm Readings (# of Alarm Message Repeats)	3 Readings	1 to 20 readings
Channel Alarm Criteria	Open circuit is Alarm	Open Circuit is Alarm, Closed Circuit is Alarm, No Alarm Condition, Run Time Meter. (Sequential Programming of Alarm Criteria, Models OMAC4/C8 only; Alarm Criteria for Models OMAC16/C24/C32 must be programmed by Coded Programming.)

To change the programmable functions shown in Table 3-1, wait for the OMA to recite the default value, for example "ALARM TRIP DELAY IS 2.0 SECONDS." Enter the desired value on the keyboard, then press the ENTRY COMPLETE key. The OMA will recite back the new entry, then wait for you to advance to the next programmable function.

To change the value back to the default value, or any other value, enter the desired value and ENTRY COMPLETE. The OMA Monitor will recite back the new value.

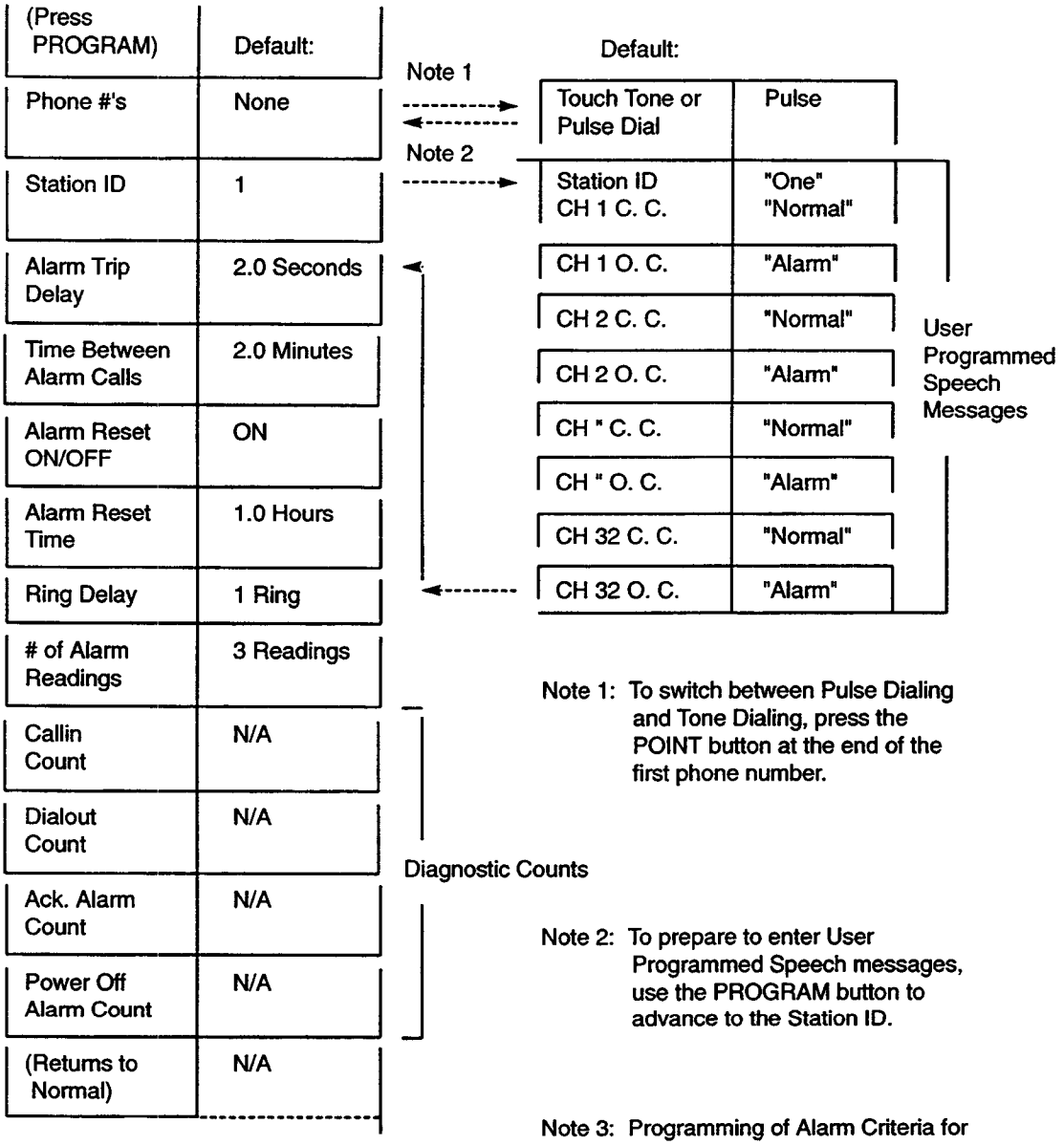
If the value you want to change is ON/OFF, as in ALARM RESET, press ENTRY COMPLETE for ON and CANCEL ENTRY for OFF.

3.4.1 Flow Diagram For Sequential Programming Items for Models OMA-C4 & OMA-C8



FLOW DIAGRAM FOR SEQUENTIAL PROGRAMMING ITEMS (See 2.3 through 3.4.12)

3.4.2 Flow Diagram For Sequential Programming Items for Models OMA-C16 OMA-C24 & OMA-C32



3.4.3 Station ID

The Station ID message is the first thing the user hears when either receiving a call or calling into the OMA.

The default message is "This is Station 1." You may alter this message in one of the following two ways:

1. If you will only need the OMA to identify itself by a number (such as the phone number you use to call it), when programming the unit press the PROGRAM ADVANCE key while in the NORMAL mode and the OMA will say "This is Station 1." Enter in the new desired value and press the ENTRY COMPLETE key.
2. You may optionally create your own custom Station ID message by using the FPS 200 (OMA-C4,-C8) or FPS 400 (OMA-C16, -C24, -C32) word list. For a complete explanation on creating messages using the FPS 200 and FPS 400 word lists, refer to Section 3.5, FIELD PROGRAMMABLE SPEECH.

3.4.4 Alarm Trip Delay

The Alarm Trip Delay function is one of several global functions on the OMA. When the Trip Delay Time is set, it then becomes the same for all alarm inputs as well as the internally sensed power failure alarm.

The Alarm Trip Delay Time interval is the amount of time the OMA will let elapse before it recognizes the change in the status of the input. Once the time interval has elapsed, the OMA then goes into its alarm call out dialing routine.

In most cases an extremely short (i.e., .1 seconds) alarm trip delay should be avoided because of the potential for frequent false alarms caused by momentary violations of the programmed alarm criteria. Extremely long alarm trip delays also may cause the OMA to miss a valid alarm since the input violation may clear itself before the alarm trip delay's elapsed time has occurred.

To program the Alarm Trip Delay Time interval, press the PROGRAM ADVANCE key after programming the Station ID and the OMA will say "Alarm Trip Delay is x.x seconds." Enter the new desired value and press the ENTRY COMPLETE key.

3.4.5 Time Between Alarm Calls

The Time Between Alarm Calls function is the amount of time the OMA will wait after the completion of any phone call before it makes its next call.

If the person receiving the phone call from the OMA is using a rotary pulse telephone without a hand held generator, they must call the OMA back to acknowledge the alarm call. If an extremely short (i.e., 1 minute) Time Between Alarm Calls is programmed, there may not be enough time for that person to return the call before the OMA makes its next call. If an extremely long (i.e., 99 minutes) time interval is programmed, the OMA may not notify personnel rapidly enough.

To program the Time Between Alarm Call time interval, press the program advance key after programming the Alarm Trip Delay and the OMA will say "Time Between Alarm Calls is x.x minutes." Enter the new desired value and press the ENTRY COMPLETE key.

3.4.6 Alarm Reset On/Off

The Alarm Reset function controls the re-arming of an input after an alarm has been acknowledged on that input.

If the Alarm Reset is ON when an alarm is acknowledged, then that input will re-arm after the Alarm Reset Time has elapsed. During this countdown period, the Acknowledged Alarm Channel(s) are unable to retrip the alarm, regardless of their input condition. However, new alarm conditions on other channels will cause a new alarm.

If the Alarm Reset is programmed OFF when an alarm is acknowledged, then that input will not be re-armed. Alarms which have been acknowledged while the Alarm Reset is OFF can only be re-armed (cleared) by turning Alarm Reset ON (pressing ENTRY COMPLETE when the OMA says "Alarm Reset is Off").

Alarms may be manually reset in several ways. Individual channels are manually reset (re-armed) whenever their alarm criteria is changed to some other criteria. For instance, if a channel is set to alarm on "open circuit", changing the criteria to "closed circuit" and back to "open circuit" will reset the channel. The easiest way to manually reset alarms is to start with the NORMAL light on, and Press: 1 PROGRAM , 8, 5, 0, 8, 5, 1, NORMAL.

All channels which are not set to "no alarm" will be manually reset when any of the following programmable features are changed:

ALARM RESET turned "off" then "on" again

ALARM TRIP DELAY changed to any new value

ALARM RESET TIME changed to any new value

3.4.7 Alarm Reset Time

The Alarm Reset Time function is a global function governing the amount of time an input channel will wait after acknowledgement before it can next go into alarm. As discussed in Section 3.4.6, if the Alarm Reset is programmed OFF, then the OMA will ignore the Alarm Reset Time.

At the end of the reset countdown, the channel(s) that have alarmed are re-armed, so that if the alarm condition still exists or later recurs on these inputs, a new alarm will be activated.

If an extremely short (i.e., .1 hour) Alarm Reset Time interval is programmed, you may cause frequent nuisance alarm calls. If the existing alarm condition has not been corrected before the input has re-armed itself, then the OMA will go into alarm again causing a new phone call. If an extremely long (i.e, 99.9 hours) Alarm Reset Time interval is selected, then the acknowledged alarm may miss other valid alarm conditions on that channel while counting down to reset.

3.4.8 Ring Delay

The Ring Delay function controls how many times the OMA will let the phone ring on an incoming call before answering the call.

When the OMA is on an extension telephone line, you will need to program the Ring Delay to a value high enough so as not to interfere with personnel answering the phone.

To program Ring Delay function, press the PROGRAM ADVANCE key after programming Autocall Time and the OMA will say "Ring Delay set for x rings." Enter the new desired value and press the ENTRY COMPLETE key.

3.4.9 Number of Alarm Readings

The Number of Alarm Readings function controls how many times the OMA will repeat the active messages.

During Alarm Call Outs, the OMA accesses the telephone line, begins dialing a telephone number, then pauses briefly before beginning to replay the activated message(s). The OMA will cause the phone it is calling to ring for as long as it is still repeating the message(s) or the phone is answered, whichever comes first.

Number of Alarm Readings should be set to a number high enough to allow adequate time for the party being called to answer the phone and hear at least one full message repetition.

To program the Number of Alarm Readings, press the PROGRAM ADVANCE key after programming the Ring Delay function, and the OMA will say "Number of alarm readings set for x." Enter the new desired value and press the ENTRY COMPLETE key.

You may notice that for short message lengths and few channels in alarm, the OMA may seem to give more than the programmed number of alarm repetitions. This is because the OMA imposes a minimum speaking time of 30 seconds, thus providing a reasonable time in which to answer the phone and hear at least one complete alarm message.

3.4.10 Open/Closed Circuit Alarm Criteria (Model OMA-C4 & OMA-C8)

The OMA-C4, -C8 will next allow you to program open or closed circuit alarm criteria for each channel. The standard default is OPEN CIRCUIT. The OMA-C4, -C8 will speak as follows, "OPEN CIRCUIT FOR CHANNEL 1." To change to a closed circuit alarm, press the CLOSED CIRCUIT IS ALARM key, followed by ENTRY COMPLETE. The OMA-C4, -C8 will recite back the new alarm condition for that channel. To change back to open circuit alarm, press OPEN CIRCUIT IS ALARM, followed by ENTRY COMPLETE. If you press the NO ALARM key, followed by the ENTRY COMPLETE key, that channel will not trip the alarm regardless of its input status. Also, a closed circuit input for that channel will be spoken as "ON" and an open circuit input will be spoken as "OFF", unless you have entered the User Programmable Speech message (see Section 3.5).

3.4.11 Total Run Time (Models OMA-C4 & O MA-C8)

Referring to Section 3.4.10, if you press the "1" key instead of CLOSED CIRCUIT or OPEN CIRCUIT or NO ALARM key and then press the ENTRY COMPLETE key, the OMA-C4, -C8 will say "NO ALARM CONDITION FOR CHANNEL 1. RUN TIME METER IS NOW ON." Any channel so programmed will, during a message report, speak the input status as "OFF" or "ON" (unless you have programmed it for other speech; see Section 3.5) and then give the total number of hours (up to 9999.9 hours) that its input contacts have been closed. Any channel programmed to monitor total run time will not activate an alarm regardless of input status. If you wish to get a run time total and also an alarm, then the input contacts need to be connected to two channels, one for alarm, one for run time total.

To reset a specific run time total back to zero, in the PROGRAM mode after all the criteria settings are spoken, the run times will be spoken. Press the CANCEL ENTRY key after the channel run-time is spoken.

To turn off (deactivate) a run time meter, in the PROGRAM mode for Alarm Criteria, press the NO ALARM or CLOSED CIRCUIT or OPEN CIRCUIT key; then press the ENTRY COMPLETE key.

3.4.12 Diagnostic Recall

The next portion of the programming mode is the diagnostic recall, a cumulative count of past activity which can be useful in troubleshooting, etc. The count for each item starts at 0 and may be reset to 0 by pressing the CANCEL ENTRY key after the item count is spoken. These functions are not programmable and once they are reset no other value can be entered.

The OMA Monitor in turn gives the cumulative count (up to 999) for the following activity items:

Call In Count

Dial Out Count

Acknowledged Alarm Count

Power Off Alarm Count

Press the PROGRAM key once to advance to the next item. Once you have advanced the program to the Power Off Alarm Count, by pressing the PROGRAM key again, the OMA will return to the NORMAL MODE.

3.5 FIELD PROGRAMMABLE SPEECH

THERE IS NO NEED TO PROGRAM THE SPEECH IF YOU ARE SATISFIED WITH THE DEFAULT SPEECH AS DESCRIBED IN PARAGRAPH 4.1 CALL IN.

Standard default speech will be affected by any alteration of the ALARM CRITERIA (see Section 3.3 for Models OMA-C16, -C24, -C32 and Section 3.4.9 for Models OMA-C4, -C8). For example, changing a channel's ALARM CRITERIA from "OPEN CIRCUIT IS ALARM" to "CLOSED CIRCUIT IS ALARM" will change its default open circuit speech from "ALARM" to "NORMAL". Changing the ALARM CRITERIA to "NO ALARM" will change its default open circuit speech to "OFF".

However, if you program speech for a channel, then its speech is tied directly to its input contact status and is not affected by ALARM CRITERIA settings. If you have ordered Factory Custom Speech strings, then those strings will appear as the default speech and will not be affected by changes in ALARM CRITERIA.

3.5.1 Programming Speech Messages

1. DECIDE WHAT SPEECH MESSAGES YOU WANT and then fill out the enclosed worksheets (see 3.5.6) to facilitate speech code entry. Select words and their 3-digit codes from the FPS 209 Vocabulary List (Models OMA-C4 and OMA-C8, see Section 3.5.4) or from the FPS 400 Vocabulary List (Models OMA-C16, OMA-C24 and OMA-C32, see Section 3.5.5)
2. ENTER THE SPEECH CODES. At the end of Station ID speech in the PROGRAM Mode, press the POINT key. This invokes the Speech Programming mode. The OMA says, "ID PROGRAM IS: THIS IS STATION (N)." (N is 1 unless a different number has been programmed).

If you wish to change the Station ID message, enter the 3-digit code for the first word. The OMA speaks the word as soon as you have entered the code. To accept the word, wait until the word has been completely spoken, then press the ENTRY COMPLETE key. The OMA incorporates the word and then speaks the whole speech string which at this point consists of just your first word.

Now enter the second 3-digit code. The OMA then speaks that word. Press the ENTRY COMPLETE key and the OMA recites the entire speech string which at this point consists of two words.

In a similar fashion, continue to build up your STATION ID speech string until it is complete. As you enter each new word, wait for the new word to be recited completely, and then press the ENTRY COMPLETE key. Then move on to the next speech programming item by pressing the PROGRAM key. Each speech string may be up to 15 words long. If you enter an invalid code, then the OMA will add a 40 msec pause.

If you make an error in entering a complete or partial speech code, you may press the CANCEL ENTRY key. The OMA recites the entire speech string, but with the last word or partial code erased. You may then enter a new code to continue building your speech string.

If you continue to press the CANCEL ENTRY key, the OMA keeps reciting the speech string, each time erasing one more word.

If you wish to erase the entire string at once, press the MINUS key after you hear the speech you want to erase. This will erase only the speech string you are currently programming and will not affect any other programmed speech messages. The original default speech is restored. You may then either build a new speech string or move on to the next speech programming item by pressing the PROGRAM key.

3.5.2 Speech Programming Summary

To enter the Speech Programming Mode:	In the PROGRAM mode, after STATION ID speech is recited, press the POINT key.
To enter a word:	Enter the 3-digit code corresponding to that word.
To accept the word:	Press the ENTRY COMPLETE key after the new word has been recited.
To erase the last word:	Press the CANCEL ENTRY key.
To erase entire string: (Restores default speech)	Press the MINUS key.
To move on to next speech programming item:	Press the PROGRAM key.
To review the programmed speech for the current message without altering it:	Press any single NUMBER key and then press the CANCEL ENTRY key.
To exit Speech Programming Mode:	Hold down the PROGRAM key to advance through speech programming items and then to the next regular programming item. Or, press the NORMAL key to exit the PROGRAM mode entirely.

The sequence of Speech Programming items is:

STATION ID
CHANNEL 1 CLOSED CIRCUIT SPEECH
CHANNEL 1 OPEN CIRCUIT SPEECH
CHANNEL 2 CLOSED CIRCUIT SPEECH
CHANNEL 2 OPEN CIRCUIT SPEECH
CHANNEL 3 CLOSED CIRCUIT SPEECH
CHANNEL 3 OPEN CIRCUIT SPEECH
CHANNEL 4 CLOSED CIRCUIT SPEECH
CHANNEL 4 OPEN CIRCUIT SPEECH
EXIT TO NEXT REGULAR PROGRAMMING ITEM

3.5.3 Alarm Messages

The OMA Monitor will report messages according to the input contact state immediately before the message begins. For example, suppose channel 3 trips the alarm because of a low water tank level. The alarm message might be, "SOUTH WATER TANK LEVEL IS TOO LOW." However if you get an alarm call saying "SOUTH WATER TANK LEVEL IS OK, NOW NORMAL" you will know that the tank level was too low long enough to trip the alarm, but has since returned to normal. If this occurs, the channel is still considered to be an alarm condition and will need to be acknowledged and will still be subject to the ALARM RESET TIME before being re-armed.

Once you acknowledge the alarm, the word "ACKNOWLEDGED" will be automatically appended to the message for that channel regardless of its input contact status, and that channel will be unable to re-trip the alarm, until its ALARM RESET period has timed out.

3.5.4 User Programmable Speech Vocabulary List (Models OMA-C4, -C8, -C16, -C24, -C32)

IF YOU DON'T FIND ALL THE WORDS YOU WANT ON THIS LIST: Be creative. Often there are alternate words that can be chosen to convey the same meaning. Sometimes you can combine words (safe-t for safety). Or, you can spell out special words or abbreviations (A-L-T for alternator). See Section 9 for Speech Programming Worksheets.

VOCABULARY LIST

CODE	WORD	CODE	WORD	CODE	WORD
000	0	046	d	092	fuel
001	1	047	danger	093	full
002	2	048	data	094	g
003	3	049	date	095	gallon
004	4	050	degree	096	goodbye
005	5	051	delay	097	*ground*
006	6	052	dial	098	h
007	7	053	*diesel*	099	has
008	8	054	disabled	100	high
009	9	055	door	101	hours
010	a	056	down	102	hundred
011	access	057	*drive*	103	i
012	acknowledged	058	dry	104	in
013	air	059	DTMF 0	105	intrusion
014	alarm	060	DTMF 1	106	is
015	alert	061	DTMF 2	107	it
016	all	062	DTMF 3	108	j
017	and	063	DTMF 4	109	k
018	are	064	DTMF 5	110	l
019	*area*	065	DTMF 6	111	lake
020	at	066	DTMF 7	112	leak
021	auto	067	DTMF 8	113	*left*
022	b	068	DTMF 9	114	level
023	bad	069	e	115	lift
024	battery	070	east	116	*light*
025	bearing	071	eighth	117	limit
026	been	072	electric	118	line
027	between	073	emergency	119	listen
028	booster	074	empty	120	local
029	*building*	075	enter	121	low
030	by	076	entered	122	lower
031	c	077	equipment	123	m
032	call	078	er (suffix)	124	main
033	caution	079	exceeded	125	meter
034	channel	080	*explosive*	126	million
035	check	081	f	127	minus
036	chlorine	082	failure	128	minutes
037	circuit	083	fault	129	mode
038	clear	084	feet	130	monitor
039	closed	085	fifth	131	more
040	code	086	fire	132	motor
041	communication	087	first	133	n
042	compressor	088	flooded	134	no
043	condition	089	flow	135	normal
044	control	090	for	136	north
045	count	091	fourth	137	not

CODE	WORD
138	now
139	number
140	o
141	off
142	on
143	open
144	out
145	over
146	p
147	percent
148	personnel
149	phase
150	phone
151	plant
152	point
153	police
154	power
155	present
156	pressure
157	program
158	pulse
159	pump
160	put
161	q
162	r
163	reading
164	ready
165	remote
166	reservoir
167	reset
168	*right*
169	ring
170	room
171	run
172	s
173	safe
174	second
175	security
176	set
177	seventh
178	sewage
179	side
180	silence 40 msec
181	silence 80 msec
182	silence 160 msec
183	silence 320 msec
184	site
185	sixth
186	smoke
187	south

CODE	WORD
188	*speed*
189	ss (plural sound)
190	standby
191	station
192	supervisor
193	supply
194	switch
195	system
196	t
197	tank
198	temperature
199	test
200	the
201	third
202	this
203	thousand
204	time
205	to
206	tone (the word)
207	total
208	touch
209	tower
210	treatment
211	trip
212	u
213	unit
214	up
215	upper
216	v
217	valve
218	vault
219	voltage
220	w
221	warning
222	waste
223	water
224	well
225	west
226	wet
227	x
228	y
229	z
230	400 Hz Tone
231	DTMF *
232	DTMF #

See Section 9 for Speech Programming Worksheets.

3.6 CODED PROGRAMMING

CODED PROGRAMMING is provided as an important alternative to the SEQUENTIAL PROGRAMMING method described previously in Section 3.3. WITH THE OMA YOU ARE FREE TO USE EITHER PROGRAMMING METHOD AT ANY TIME (EXCEPT FOR ALARM CRITERIA PROGRAMMING WITH MODELS OMA-C16, -C24, -C32.)

The advantage of CODED PROGRAMMING is that, by entering specific codes, you can immediately read or program specific items without having to go through the sequential list of programming items.

The advantage of the previously described SEQUENTIAL PROGRAMMING is that the OMA's voice automatically guides you through the list of critical programming items without need for you to refer to the Function Codes listed in Section 3.6.2.

To perform CODED PROGRAMMING at the keyboard:

1. Press the 1 key and then press PROGRAM. (The normal lights should be on before you attempt this.) The PROGRAM light will begin to blink, indicating that you are in CODED PROGRAM MODE.
2. Referring to the Function Codes listed in Section 3.6.2, enter the appropriate Function Code, and subcode (if any).
3. If you want to simply read a status or existing program setting, press ENTRY COMPLETE and the voice will speak the reading you have requested.
4. If you wish to alter a programming item, enter the desired new program setting or value after the Function Code (and subcode if any) before pressing ENTRY COMPLETE. The voice will speak back your new program setting.
5. If you make an error before completing an entry, press CANCEL ENTRY and then re-enter starting with the Function Code.
6. When your programming or reading operations are completed, press NORMAL.

3.6.1 Examples of Coded Programming Operation

First, press the 1 key and then the PROGRAM key as described in Step 1 of Section 3.6. Then, for example:

To read the status of Channel 3:	Press 03 ENTRY COMPLETE.
To read Channel 3's Alarm Criteria setting:	Press 03 1 2 ENTRY COMPLETE
To change Channel 3's Alarm Criteria to "Closed Circuit Is Alarm":	Press 03 1 2 ENTRY COMPLETE.

Always be sure to include any leading 0s. In the above examples, using 3 in place of 03 would not work.

3.6.2 Function Codes For Coded Programming

FUNCTION	FUNCTION CODE	COMMENTS
Channel 1	01	For Function Code (Channel #) entries 01 to 32, the following subcodes are to be entered after the channel #, to select the desired operation for the selected channel. SUBCODES 4 THROUGH 0 ARE NOT PRESENTLY IMPLEMENTED.
Channel 2	02	
Channel 3	03	
Channel 4	04	
Channel 5	05	
Channel 6	06	
Channel 7	07	
Channel 8	08	
•	•	Subcode Operation
•	•	(none) Reads status for this chan.
•	•	1 Read/set criteria & meters
•	•	2 Read/set RSP (analog)
•	•	
•	•	FOR SUBCODE 1 (read/set criteria and Run Time Meters), the following parameters may optionally be entered after SUBCODE 1 to alter (rather than just read) the programmed setting. Refer to the example above.
•	•	
•	•	
•	•	
•	•	
•	•	
•	•	
•	•	
•	•	
•	•	
•	•	
•	•	
Channel 32	32	1 Set Open Circuit is Alarm
		2 Set Closed Circuit is Alarm
		3 Set No Alarm
		4 Set Run Time Meter On, Reset Mode 1
		9 Clear Meter to 0 reading
Instant Alarm Criteria Setting	69	Models 0MA-C16,-C24,-C32: automatically establishes the current inputs as the normal Alarm Criteria setting.
Alarm Call Grouping Reset	70	Models OMA-C16,-C24,-C32: deletes all Alarm Call Grouping programming.

FUNCTION	FUNCTION CODE	COMMENTS
First Phone #	71	To erase a phone number, press POINT after selecting the number then ENTRY COMPLETE
Second Phone #	72	
Third Phone #	73	
•	•	
Eighth Phone #	78	
Dial Mode Toggle	81	Switches between Pulse and Tone Dialing.
Station ID	82	Any FPS speech must be programmed via sequential programming. See para. 3.4.
Alarm Trip Delay	83	
Time Between Calls	84	
Alarm Reset On/off	85	1=ON 0=OFF
Alarm Reset time	86	
Ring Delay	89	
# of Alarm Readings	90	Spoken as "Alarm Readings set for n times."
Call in Count	91	See Note 1
Dialout Count	92	See Note 1
Ack Alarm Count	93	See Note 1
Pwr off Count	94	See Note 1
Access Code	98	See Note 2

Note 1: Counts may be cleared to zero by including a zero after the function code. (However, counts may not be cleared by over-the-phone programming.)

Note 2: Access code may not be read out or changed by over-the phone programming.

3.6.3 Remote (Over-The-Phone) Programming

The REMOTE PROGRAMMING function allows you to selectively read channel statuses, and to selectively read and alter most programming items from any Touch Tone phone (or any non-Touch Tone phone, by using a portable tone generator).

When on the phone to the OMA Monitor, during an alarm call or an inquiry call, the OMA message will begin with a beep; The beep will be repeated at the end of each message repeat. This beep is the cue to optionally enter a single "menu choice" tone command. (Units configured with 8-, 16-, or 24-channel expansion boards will also give a tone prompt at which you can respond when an inquiry call is placed to the unit.)

The menu choices for the initial single tone command are:

Touch Tone 3:	ALARM CHANNEL READOUT: Gives report of all channels in acknowledged or unacknowledged alarm.
Touch Tone 2:	REMOTE READING MODE: Allows reading (but not programming) of most status and programming items listed under CODED PROGRAMMING (see Section 3.6). No access code is required, since this mode does not allow programming changes. This mode provides extra convenience and safety when you only want to check existing programming.
Touch Tone 1:	REMOTE PROGRAMMING MODE: Same as above, except allows you to both read and alter programming.
Touch Tone 9:	Acknowledges alarm. Standard on all OMA Monitors.
Touch Tone 0:	Gives automatic readout of basic programming items. Standard on all OMA Monitors.

These five choices basically reflect and conveniently support five different agendas that a user might have over the phone. If you enter no tone command, the OMA will give its normal automatic voice report.

REMOTE PROGRAM MODE requires that you enter an access code if you have previously established one at the OMA panel. If you want the protection of an access code, refer to Section 3.6 on CODED PROGRAMMING and enter an access code of your choice, up to 6 digits long, using Function Code 98 at the panel. The access code cannot be read or altered over the phone.

3.6.3.1 Performing Remote Reading or Remote Programming Over The Phone

To perform remote reading or remote programming over the phone, press a Touch Tone "2" (for reading only) or "1" (for both programming and reading) at the sound of the beep. Enter the access code if the voice requests it. Then issue Function Codes and other entries as described under 3.6 CODED PROGRAMMING.

The buttons available on a Touch Tone telephone are somewhat different than those on the OMA front panel. Therefore, when reading or programming over the phone, the Touch Tone " * " and " # " are used as follows:

*	=	Decimal Point
**	=	CANCEL ENTRY
#	=	Minus
##	=	ENTRY COMPLETE
## With no prior function code	=	END PHONE CALL or change phone call mode at sound of beep

If you are programming new values or settings over the phone, just as with CODED PROGRAMMING done at the OMA keyboard, follow the function code (and subcode if any) with the new setting or value entry, and then press ## for ENTRY COMPLETE.

For example, to set channel 3's alarm criteria to Closed Circuit Is Alarm, you would enter: 03 1 2 ##.

Be sure to include the 0 in 03. The OMA always interprets the first two digits as the function code.

In all cases, be sure to press the tone buttons long enough for them to properly register; avoid brief "pecks" of the buttons. Note that some phone devices issue only a very brief tone even if you hold the button down for a longer time. In such cases, you may need to issue a tone twice in rapid succession. The voice response will reveal if this is necessary.

To end the phone call, press ## without any prior Function Code. The OMA will beep, then wait a moment, then say "Goodbye" and terminate the phone call. The beep is your cue to optionally enter an appropriate Touch Tone "menu choice" digit (as described above) to enter another mode and continue the call rather than ending it.

For example, if you are in REMOTE READING mode and decide that you do want to alter a programming item, you can press ## (as to end the call), wait for the beep and then press a Touch Tone "1". This will put you in REMOTE PROGRAM mode rather than ending the call. You may now alter programming as desired after entering the access code if required.

Note that if there is a substantial sound level near the OMA, the OMA's microphone may pick up enough sound to interfere with the reception of your tone commands. In this event, you will need to leave the SPEAKER/MICROPHONE switch in the SPEAKER position.

SECTION 4 OPERATION

4.1 CALL IN

The OMA will ordinarily be in the NORMAL mode as indicated by the corresponding LED. You may call it at any time from any telephone to hear a status report on all channels.

For any channel that had gone into alarm status, calling the OMA will acknowledge the alarm. If your particular call is acknowledging an alarm not already acknowledged, the verbal report will so indicate. If the ac power is off, or has been off since the last acknowledge, the verbal report will so indicate.

If the SPEAKER/MIKE switch has been left in the MIKE position, you will hear the sounds picked up by the microphone, particularly during a 20 second "speech silence" period at the end of the call, when the OMA says, "NOW LISTEN."

Assuming you have not entered Field Programmable Speech messages (3.5 FIELD PROGRAMMABLE SPEECH) the standard default speech format for channel status (where X equals the number of the channel) reporting is as follows:

CHANNEL CONDITION	OMA SAYS
Normal:	"Channel X Normal"
Violation of alarm criteria for this channel, but not yet long enough to trip alarm:	"Channel X Alert"
Alarm tripped, but not yet acknowledged:	"Channel X Alarm"
Alarm tripped, not yet acknowledged, but input returned to normal:	"Channel X Alarm Now Normal"
Alarm acknowledged: Acknowledged"	"Channel X Alarm"
Alarm acknowledged, but input returned to normal:	"Channel X Alarm — Now Normal — Acknowledged"
Power off:	"Power Is Off"
Power has been off, but is now on:	"Power Is On"

For any channel programmed for "NO ALARM", a closed contact input will be reported as "ON" and an open contact input will be reported as "OFF", unless you have entered the FIELD PROGRAMMABLE SPEECH for that channel (3.5 FIELD PROGRAMMABLE SPEECH).

Power on/off status will be mentioned only if ac power is off or has been off since the power fail alarm was last rearmed.

4.1.1 Talk Through

If someone is at the OMA location, you can have a 2-way conversation by having that person manipulate the SPEAKER/MIKE switch. When field personnel observe that the CHECK STATUS and PHONING LEDs are illuminated, this indicates an incoming phone call in case the speaker is off. Manipulating the SPEAKER/MIKE switch during a call will silence the OMA speech and continued manipulation at least once every 20 seconds extends the phone call until 20 seconds after switch manipulation ceases. There is a 3 second delay before you can speak when flipping the switch to the mike position.

4.1.2 Remote Programming Readout

Any time you are calling or being called by the OMA, you may check the user-entered programming by pressing a Touch Tone 0 at the sound of the tone. The OMA will respond by saying "PROGRAM". Then you will hear the entire programming sequence: phone numbers, optional special programming and diagnostic counts.

4.2 ALARM CALL OUTS

When the OMA detects alarm conditions continuously for a time period greater than the programmed Alarm Response Time, (default 2.0 seconds), the OMA goes into an alarm state unless the ALARM switch is set to the DISABLED position (in which case the alarm self-acknowledges).

In the unacknowledged active alarm state, the OMA dials each number in sequence, repeating the alarm information and then hanging up and waiting for the time between alarm calls as programmed (default 2.0 minutes) before calling the next number on the list.

During alarm call outs, messages are given only for channels in alarm.

After dialing the last number, the OMA goes back to the first number, repeating the sequence endlessly until the alarm is acknowledged.

4.2.1 Interrupting Alarm Callouts

You can prematurely interrupt the speech message of any alarm callout by manipulating the SPEAKER/MIKE switch as described in Section 4.1.2. Before or during dialout, you can interrupt dialing by flipping the ALARM READY/DISABLE switch to DISABLE. This will also automatically acknowledge the unacknowledged alarm(s) that were causing the dialout.

4.3 ACKNOWLEDGING THE ALARM

The alarm can be acknowledged while receiving an alarm call by pressing a Touch Tone 9 at the sound of the tone. The OMA will say, "Alarm is Acknowledged. Goodbye."

Alternatively, the alarm can be acknowledged by calling the OMA back between alarm calls. The verbal report will indicate you are acknowledging an alarm.

At the OMA, alarms may be acknowledged by temporarily flipping the alarm switch to the DISABLE position, or by pressing the CHECK STATUS key, until the UNACKNOWLEDGED ALARM LED goes off and the ACKNOWLEDGED ALARM LED turns on.

Acknowledgment begins the ALARM RESET countdown period (default 1.0 hour). See the description under Section 3.4 SEQUENTIAL PROGRAMMING. Note that the channel(s) acknowledged will be unable to trip the alarm again until their alarm reset period has elapsed.

4.4 SPEAKER/MIKE SWITCH

If this switch is left in the MIKE position, the OMA's local speaker is turned off and its microphone turned on. At the end of any call, the OMA will say "NOW LISTEN" and the speech will be turned off for a 20 second clear listening period before the OMA ends the call.

4.5 ALARM READY/DISABLE SWITCH

If this switch is left in the DISABLE position, the OMA will not be able to place any outgoing calls when it goes into an alarm state. In this case the OMA will mention that the alarm switch is disabled whenever you place a call to the OMA. Any alarms that are detected with the switch in this position automatically become acknowledged alarms. Therefore, any channels that have gone into alarm with the switch in the DISABLE position cannot again cause dialout, even after the switch is returned to the READY position, until the Alarm Reset Timer has timed out.

4.6 LED INDICATORS

The POWER LED indicates ac power is present. If ac power fails, the power LED turns off and the red POWER FAIL LED turns on.

The LOW BATTERY LED turns on whenever the battery is being discharged, and also whenever it is receiving charge current beyond the residual float charge rate. Therefore, it is normal for this LED to operate during an ac power failure, and also after power is restored for a period of up to 24 hours depending on how deeply the battery was discharged.

The PHONING LED indicates that an outgoing or incoming phone call is in progress. Blinking indicates pulse dialing.

The NORMAL LED indicates the normal operating state of the OMA. The OMA will not accept any programming when the NORMAL LED is on.

The CHECK STATUS LED operates whenever you press the CHECK STATUS key, and also during a telephone call in.

The PROGRAM LED operates when the OMA is in the PROGRAM mode. This occurs whenever you have pressed the PROGRAM key, and also during an over-the-phone program readout.

The UNACKNOWLEDGED ALARM LED indicates there is one or more unacknowledged alarm conditions.

The ACKNOWLEDGED ALARM LED indicates there is one or more alarm conditions which have been acknowledged but whose alarm reset timeout period has not expired.

SECTION 5 TROUBLESHOOTING

The OMA does not frequently require service.

If you experience problems, first be sure that you clearly understand how the unit is designed to operate. Confusion about this is the most frequent cause of problems. See particularly Section 3.1 TURNING ON YOUR OMA FOR THE FIRST TIME. If the unit is calling out unexpectedly, it is probably because unused inputs have not been strapped to the "C" terminal(s), causing an open circuit alarm condition.

Also, consider whether the problem might be a defective phone line. You can test the phone line and jack by temporarily plugging a working modular telephone into the RJ11 phone jack normally occupied by the OMA.

Verify that 120 Vac power is reaching the unit and that the fuse is not blown. USE CAUTION. THIS IS 120 VAC CIRCUITRY!

Verify, if appropriate, that the contact inputs are connected and working properly. An open contact input floats to +5 Vdc with respect to the C terminal(s).

Very heavy and effective surge protection is built into the phone, power and contact inputs. An extremely heavy surge is not likely to get past the protectors but could blow the printed circuit trace between the terminal strips and the gas tubes. If this happens, repairing the blown traces with jumper wires should return the unit to working order.

The gel cell battery (6 volt, 4.0 AH) should last 3 to 5 years before requiring replacement. A bad battery is indicated by the LOW BATTERY LED staying on for more than 36 hours. After a discharge due to power failure on setup, the charge recharges the battery in just a few hours but the detector circuit is very sensitive and does not go out until the "last ounce" of charging occurs and this takes many more hours.

Table 5-1 provides a brief troubleshooting guide.

TABLE 5-1
TROUBLESHOOTING

PROBLEM	CAUSE OR SOLUTION
Unit keeps going into alarm. User can acknowledge alarm, BUT when Alarm Reset Time (default 1 hour) elapses, unit goes back into Unacknowledged Alarm and calls out again.	There is a violation of the Alarm Criteria setting on some channel. Unused channels may have been left open without altering Alarm Criteria. See Section 3.1.
Unit won't accept Touch Tone commands.	Microphone on OMA may be picking up too much local sound. Turn microphone off. Tones may be too brief. Press button longer or press twice in quick succession.
Can't force unit to dial out. Acknowledged Alarm light is on.	Need to clear out Acknowledged Alarm status. See Section 3.1.
Unit seems to dial but call doesn't go through.	May need to switch Tone/Pulse dialing modes. See Sections 3.2.2 and 3.2.3.
Get "alarm" speech message when conditions are normal, or get "normal" message when conditions are not normal.	Clarify whether your system's alarm condition is Open Circuit (i.e., Normally Closed); or Closed Circuit (i.e., normally open). FPS speech message programming must be done with respect to the Open Circuit and Closed case, regardless of Alarm Criteria settings. See Sections 3.3, 3.3.1, 3.4.9 and 3.4.10.

TABLE 5-1 (Cont'd)

PROBLEM	CAUSE OR SOLUTION
Not sure what programming is presently in place; want to start from default settings.	Referring to the flow diagram in Section 3.4.1, press and hold the PROGRAM button until the Power Off Alarm Count message begins. Release the button before this message ends. With PROGRAM LED still on, press POINT. Unit will return to normal, with all user entered programming erased.

SECTION 6 SPECIFICATIONS

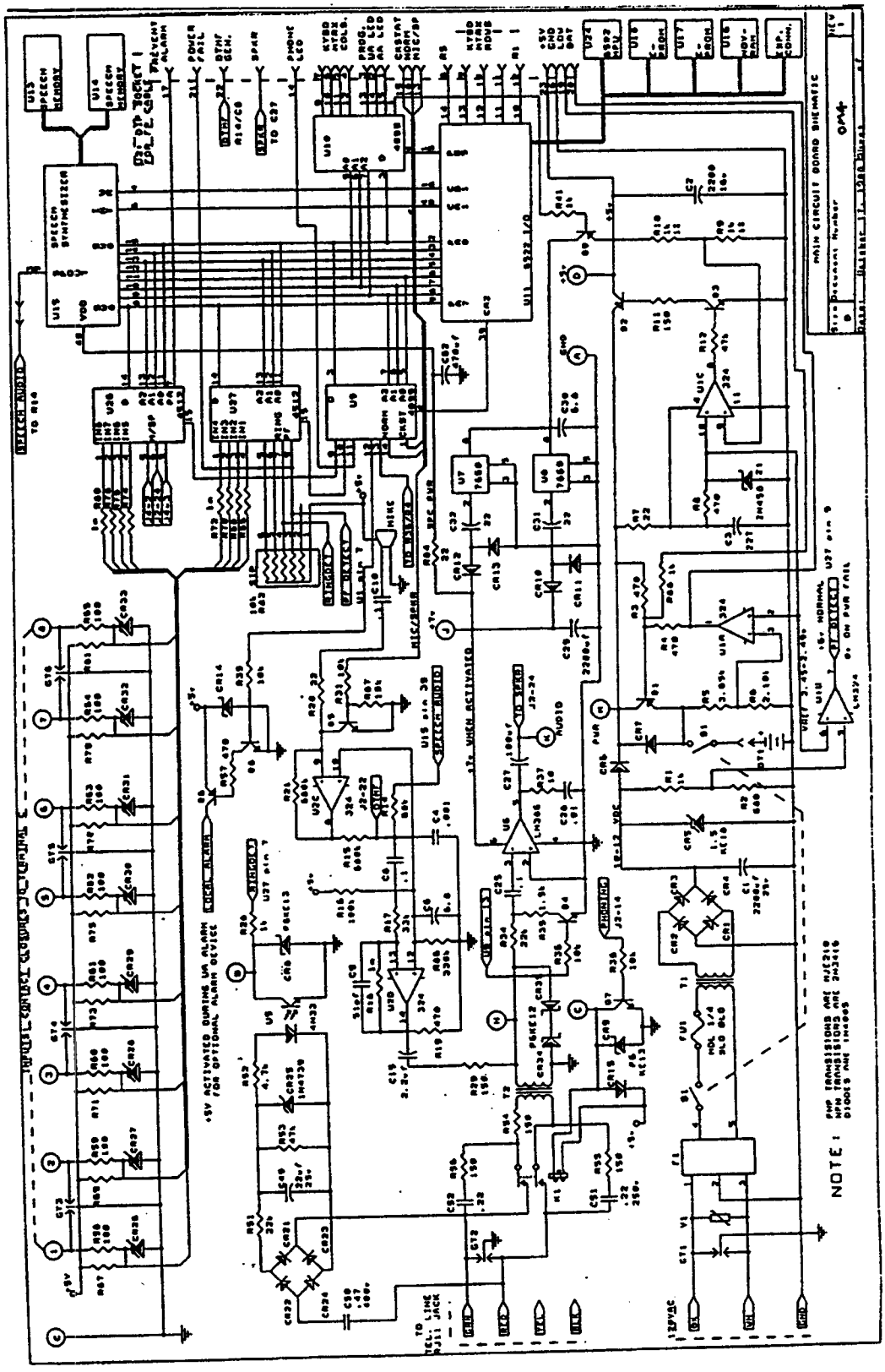
ELECTRICAL

POWER:	105 - 135 Vac, 50/60 Hz, 15 W max
BATTERY CHARGING:	Precision voltage controlled, including automatic rapid recharge after drain
BATTERY BACKUP:	6 hour on OMA-C4, OMA-C8; others, 24 hours
INPUT SENSING:	Open contacts see 5 Vdc, closed contacts see 10 mA dc
PHYSICAL SURGE PROTECTION:	Integral gas tube and solid-state protectors on all phone, power and signal lines

ENVIRONMENTAL

TEMPERATURE RANGE:	0° to 130°F
HUMIDITY:	0 to 95%, non-condensing
WEIGHT:	8 lbs.
DIMENSIONS:	11 5/8" H X 9 5/8" W X 3 3/4" D
MOUNTING CENTERS:	10 1/4" vertical by 8 1/4" horizontal

SECTION 7 SCHEMATIC DIAGRAM

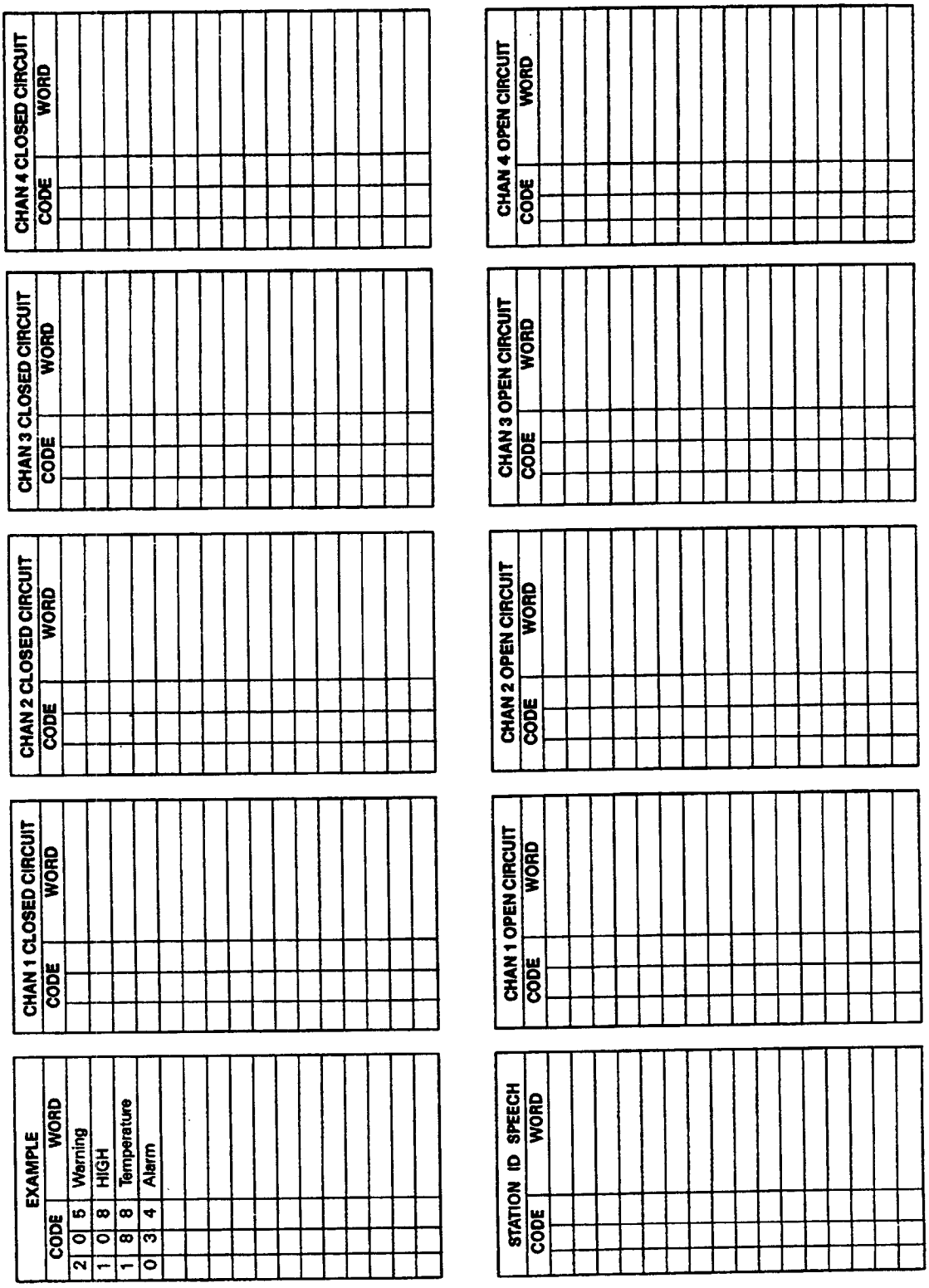


SECTION 8 FCC NOTICE TO USERS

1. You must notify your telephone utility as follows:
    a. Intention to install a FCC Part 68-registered device.
    b. The FCC registration number
    c. The ringer equivalence number :0.3A
    d. When the device is disconnected from the telephone utility network and will not be reconnected.
2. These units may not be used on party lines.
3. The telephone utility has the right to make changes in their network which may affect the operation of your unit, provided adequate notice is given to you in advance to permit continued correct operation.
4. In the event of operational problems, disconnect your unit by removing the modular plug from the modular telephone jack. To test the phone line, temporarily plug a working rotary dial telephone into the jack normally used by the OMA. If the substitute telephone works correctly, your OMA has a problem and should be returned for repairs (in or out of warranty). Contact the OMEGA Customer Service Department for an Authorized Return Number before sending your unit to OMEGA. If the substitute telephone does not work correctly, notify the telephone utility that they have a problem and request prompt repair service (at no cost to the user).
5. The user may not under any circumstances (in or out of warranty) attempt any service or repairs to the OMA. It must be returned to OMEGA for all repairs. Call the OMEGA Customer Service Department for an Authorized Return number.

SECTION 9 SPEECH PROGRAMMING WORKSHEETS

Referring to the FPS 400 Vocabulary List, decide in advance exactly what you want the messages to be and then enter them below with the corresponding 3-digit codes. Then program as described. The arrows indicate program flow.



SUPPLEMENTARY SPEECH PROGRAMMING WORKSHEET FOR CHANNELS 5-8

CHAN 5 CLOSED CIRCUIT	
CODE	WORD

CHAN 5 OPEN CIRCUIT	
CODE	WORD

CHAN 6 CLOSED CIRCUIT	
CODE	WORD

CHAN 6 OPEN CIRCUIT	
CODE	WORD

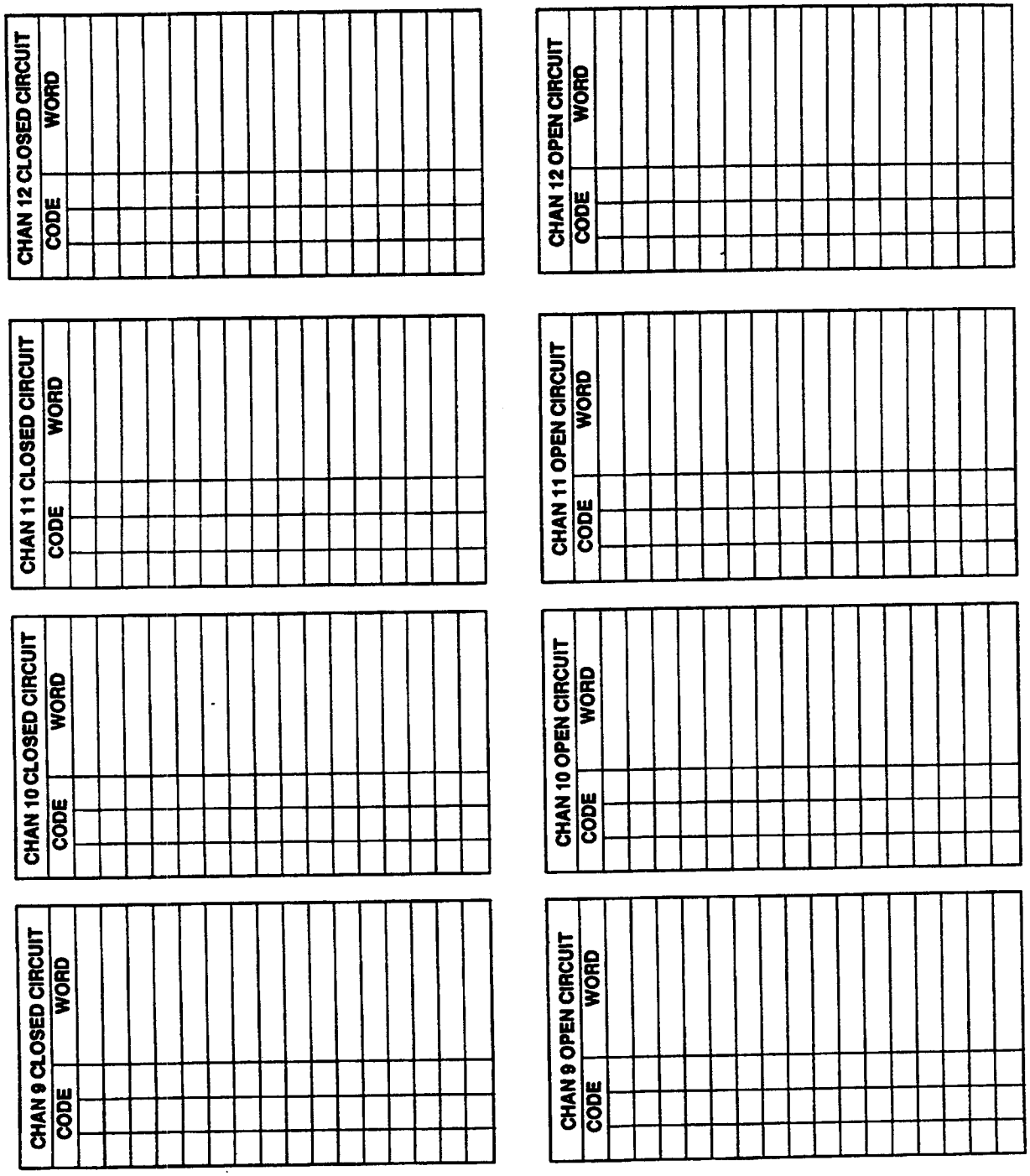
CHAN 7 CLOSED CIRCUIT	
CODE	WORD

CHAN 7 OPEN CIRCUIT	
CODE	WORD

CHAN 8 CLOSED CIRCUIT	
CODE	WORD

CHAN 8 OPEN CIRCUIT	
CODE	WORD

SUPPLEMENTARY SPEECH PROGRAMMING WORKSHEET FOR CHANNELS 9-12



SUPPLEMENTARY SPEECH PROGRAMMING WORKSHEET FOR CHANNELS 13-16

CHAN 13 CLOSED CIRCUIT	
CODE	WORD

CHAN 13 OPEN CIRCUIT	
CODE	WORD

CHAN 14 CLOSED CIRCUIT	
CODE	WORD

CHAN 14 OPEN CIRCUIT	
CODE	WORD

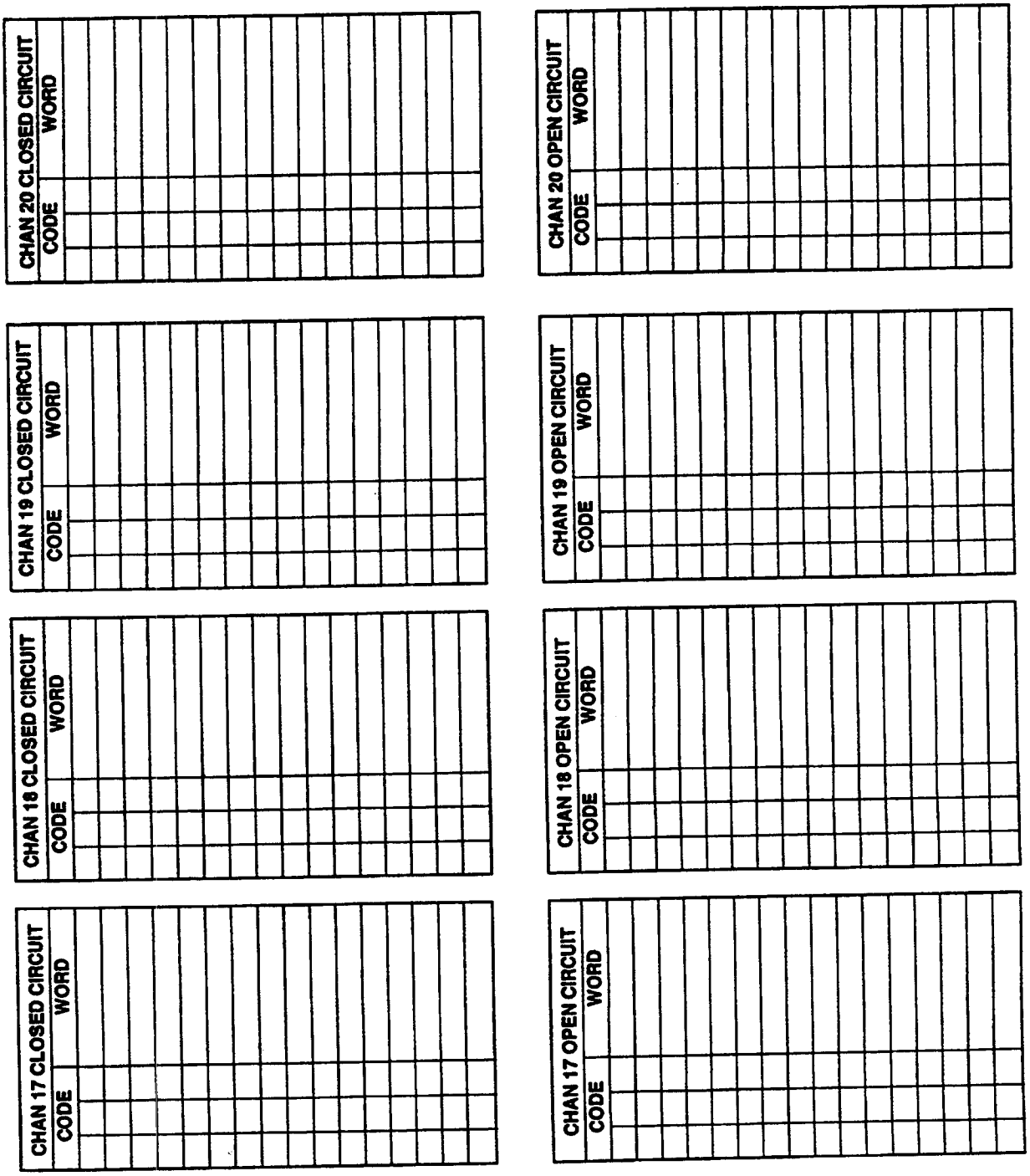
CHAN 15 CLOSED CIRCUIT	
CODE	WORD

CHAN 15 OPEN CIRCUIT	
CODE	WORD

CHAN 16 CLOSED CIRCUIT	
CODE	WORD

CHAN 16 OPEN CIRCUIT	
CODE	WORD

SUPPLEMENTARY SPEECH PROGRAMMING WORKSHEET FOR CHANNELS 17-20



SUPPLEMENTARY SPEECH PROGRAMMING WORKSHEET FOR CHANNELS 21-24

CHAN 21 CLOSED CIRCUIT	
CODE	WORD

CHAN 22 CLOSED CIRCUIT	
CODE	WORD

CHAN 23 CLOSED CIRCUIT	
CODE	WORD

CHAN 24 CLOSED CIRCUIT	
CODE	WORD

CHAN 21 OPEN CIRCUIT	
CODE	WORD

CHAN 22 OPEN CIRCUIT	
CODE	WORD

CHAN 23 OPEN CIRCUIT	
CODE	WORD

CHAN 24 OPEN CIRCUIT	
CODE	WORD

SUPPLEMENTARY SPEECH PROGRAMMING WORKSHEET FOR CHANNELS 25-28

CHAN 25 CLOSED CIRCUIT	
CODE	WORD

CHAN 26 CLOSED CIRCUIT	
CODE	WORD

CHAN 27 CLOSED CIRCUIT	
CODE	WORD

CHAN 28 CLOSED CIRCUIT	
CODE	WORD

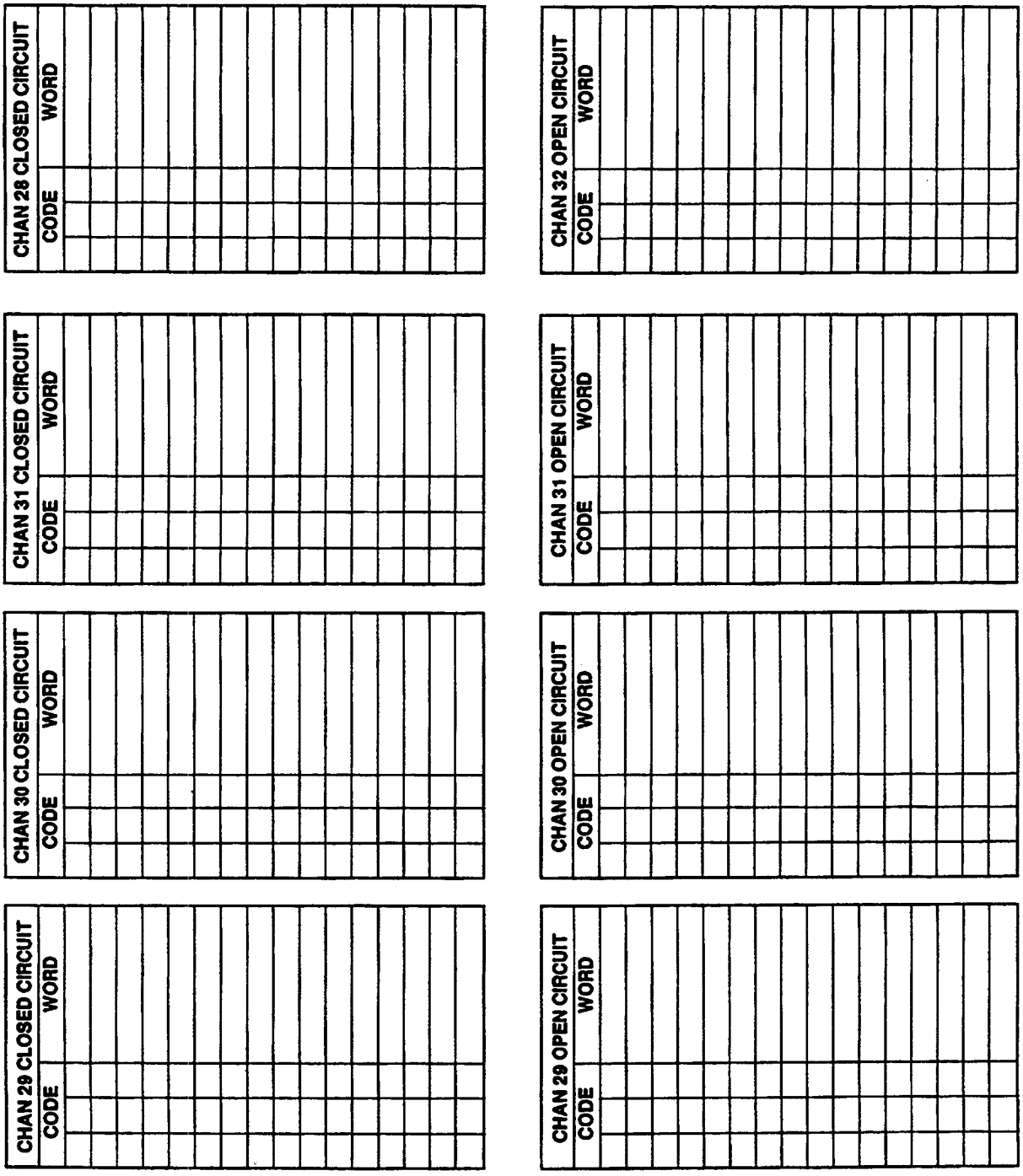
CHAN 25 OPEN CIRCUIT	
CODE	WORD

CHAN 26 OPEN CIRCUIT	
CODE	WORD

CHAN 27 OPEN CIRCUIT	
CODE	WORD

CHAN 28 OPEN CIRCUIT	
CODE	WORD

SUPPLEMENTARY SPEECH PROGRAMMING WORKSHEET FOR CHANNELS 29-32



NOTES

NOTES

NOTE

MADE IN USA

WARRANTY/DISCLAIMER

OMEGA warrants this unit to be free of defects in materials and workmanship and to give satisfactory service for a period of **13 months** from date of purchase. OMEGA Warranty adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product. If the unit should malfunction, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective it will be repaired or replaced at no charge. However, this WARRANTY is VOID, if the unit shows evidence of having been tampered with or shows evidence of being damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components which wear or which are damaged by misuse are not warranted. These include contact points, fuses, and triacs.

OMEGA is pleased to offer suggestions on the use of its various products. Nevertheless, OMEGA only warrants that the parts manufactured by it will be as specified and free of defects.

OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED.

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CONDITIONS: Equipment sold by OMEGA is not intended to be used, nor shall it be used: (1) as a "Basic Component" under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY / DISCLAIMER language, and additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

RETURN REQUESTS / INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA ENGINEERING Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. P.O. number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS OR **CALIBRATION,** consult OMEGA for current repair/calibration charges. Have the following information available BEFORE contacting OMEGA:

1. P.O. number to cover the COST of the repair/calibration,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

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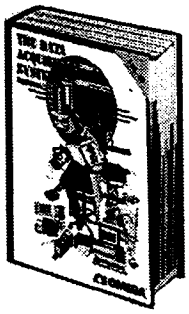

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M0879/1093