

MessageMate 20™ User Manual

Models 20/75 & 20/150



Integrated
Communication
Systems
And Computer
Access Software
Designed
For the Way
You Live

MessageMate 20 User Manual

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1 Introduction to MessageMate 20

Congratulations on your purchase of MessageMate 20, the lightweight portable voice output communication aid from Words+, Inc. Your MessageMate 20 has been designed to give you years of easy-to-use, trouble-free speech output communication.

MessageMate is a device that stores recorded sounds and lets you play them back. It is not a voice synthesizer, which assembles elementary sounds together to produce words and sentences. It is more like a tape recorder, except that there is no tape. The sounds are recorded from the built-in microphone and are stored in the internal electronics (in integrated circuit “chips”). The MessageMate 20 is available in two models:

- **MessageMate 20-75** has 20 keys and 75 seconds total recording time
- **MessageMate 20-150** has 20 keys and 150 seconds total recording time

Because the sounds produced by MessageMate are recorded, you can use it to speak any language (or more than one language!) and to produce other sounds (such as a dog barking, a bell ringing, etc.) for training purposes. Also, recording allows quick reprogramming - all 20 items can be rerecorded within just a few minutes. Each key on the MessageMate keyboard is independently recorded - you do not have to rerecord all keys just to change one.

MessageMate is intended for use where:

- a small number of basic messages will suffice for most of the situations the user will encounter
- an extremely rugged device is needed
- low cost is important
- simple language concepts are desirable

About this manual

The remainder of this manual describes the operation of MessageMate. Section 2 provides a basic physical description of the device. Section 3 describes how to use the device with the sample messages we've stored for you, and how to put new messages into MessageMate. Section 4 presents samples of ways to program MessageMate for efficient communication with only 20 messages. Finally, Section 5 provides troubleshooting tips in the event you experience a problem with your unit. Of course, if you need further assistance, have questions or suggestions, please call our technical support staff toll-free in the United States or Canada at (800) 869-8521, from outside the U.S. or Canada at (661) 723-6523 or Fax us at (661) 723-2114.

Physical Description

The MessageMate 20 is a device which weighs approximately 1 3/4 pounds (about 3/4 kilogram), and is approximately 11.75 inches (29.9 cm) long, 3 inches (7.6 cm) wide, and 1.25 inches (3.2 cm) thick. Several views of the unit are shown in Figure 2-1.

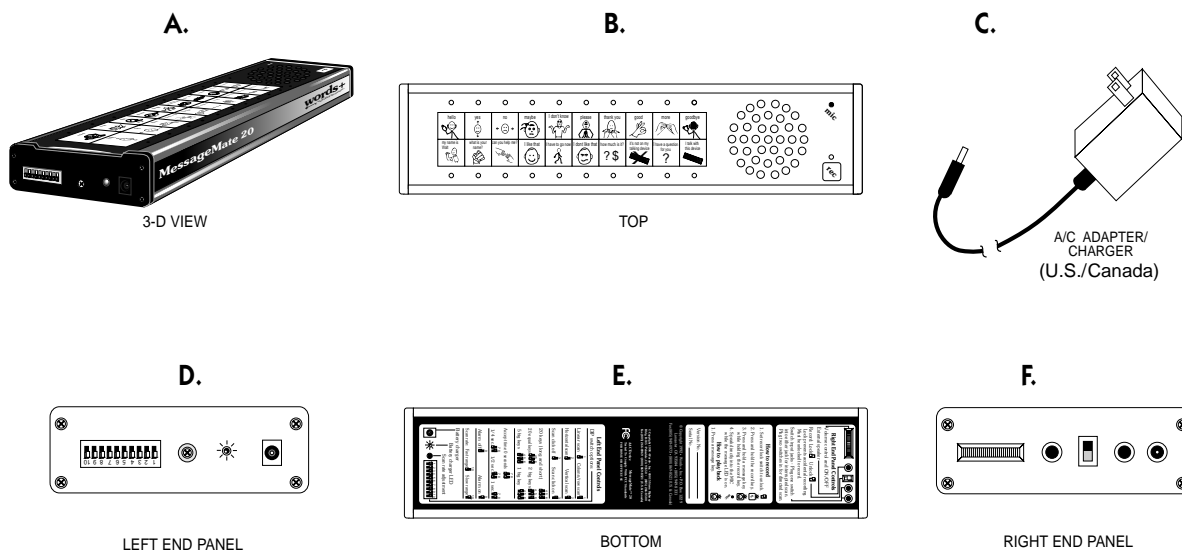


Figure 2-1

The main body of the case is made of aluminum. The end caps are made from high impact plastic. The top of the unit (Figure 2-1B) includes the keyboard, which consists of twenty 3/4 x 3/4 inch (1.9 cm x 1.9 cm) membrane keys, 20 light emitting diodes (LED's) corresponding to the keys, a RECORD key separate from the 20 language keys, a RECORD LED to indicate when the unit is in the RECORD mode, a hole for sound to enter the built-in microphone, and holes for sound to exit from the built-in speaker.

The 20 language keys are sized to match the 3/4 inch picture symbol stickers from the Mayer-Johnson Company (PCS - Picture Communication Symbols). A clear plastic pocket is provided on the keyboard to hold a sheet of paper with words or symbols representing the recorded speech items (this sheet is called an "overlay"). Several extra overlays are also provided in the back of this manual. These can be filled with whatever symbols or words you find most convenient. If you would like to have more picture symbols, the complete set of Mayer-Johnson stickers is available from Words+.

The left end panel (Figure 2-1D) includes 10 DIP switches used to set various modes for MessageMate, a scan rate adjustment screw, a battery charger LED, and a coaxial jack where the battery charger is plugged in.

The right end panel (Figure 2-1F) includes the thumbwheel-style volume control (which is also the master ON/OFF switch), a mono miniphone jack for an external speaker (in the event you want to use a bigger speaker for even more volume) , a record lock switch, and two 1/8" (3.2 mm) miniphone jacks for switch inputs to allow scanning operation of MessageMate.

On the bottom of the MessageMate unit (Figure 2-1E), a label with a condensed set of operating instructions is provided.

The standard AC adapter/recharger (Figure 2-1C) allows recharging the internal battery and/or operating the unit on AC power (during charging) if the internal battery becomes completely discharged.

2.1 Specifications

- Dimensions: 11.75" x 3" x 1.25" (29.9 cm x 7.6 cm x 3.2 cm)
- Weight: 1 3/4 lbs. (3/4 kilogram)
- Number of keys: 20
- Total recording time:

| | |
|--------------|-------------------|
| Model | |
| 20/75: | 75 seconds total |
| 20/150: | 150 seconds total |
- Key size: 3/4" x 3/4" (1.9 cm x 1.9 cm)
- Key sensitivity: 2.5 oz. (70 g) [somewhat more with optional clear plastic stiffener]
- Key accept time: 0 seconds (immediate), 1/4 second, 1/2 second, 1 second
- Keyguard: Optional
- Materials: Aluminum, fiberglass, and high impact plastic
- Language: Sample overlays/optional Mayer-Johnson or Imaginart stickers or Makaton or Blissymbol icons.
- Scanning switch modes: 1-switch interrupted, 2-switch directed
- Scan patterns: Linear or column/row
- Scan rate: 1/8 second per step to 10 seconds per step
- Auditory Scanning: Stepping tone and 3/4 second recorded cue.
- Switch accept time: 0 seconds, 1/4 seconds, 1/2 second, 1 second

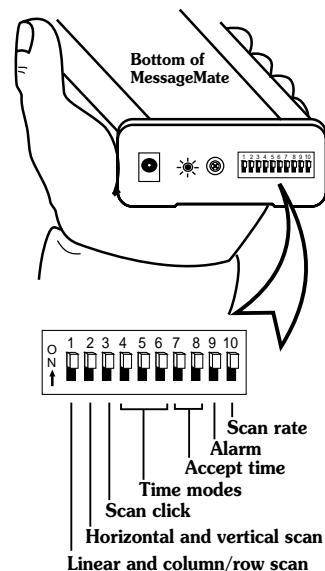
Operation

You will find your MessageMate to be very easy to use. When you receive it, you should be able to take it out of the box, turn it on (with the volume control), and press any key to produce speech output using the sample messages we loaded in at the factory. This section describes how to make the MessageMate produce messages. Section 4 describes how to record them.

3.1 Master power and volume control

The thumbwheel-style volume control also contains the master ON/OFF switch, which operates like many radios. You'll feel and hear a "click" when the power switch is activated. When the switch is OFF, you cannot move the thumbwheel without turning it back ON. When it is ON, moving the thumbwheel controls the volume level of the speaker, as well as allowing you to turn the unit off.

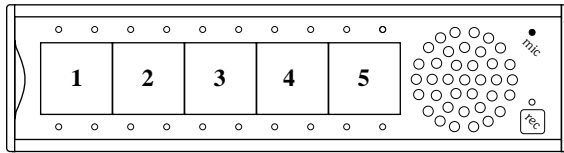
Note that you do not need to turn the unit off in normal use. MessageMate automatically goes into a "sleep" mode between messages. (In the sleep mode, a fully-charged battery will power the unit for nearly two months). Actual battery life between charges will depend on how often you use the unit. You should be able to generate over 5,000 messages on a full charge. If you use 100 messages a day, you should be able to go for 50 days. If you use 200 a day, you should go about 25 days, and so on. When the battery is low, a low "beep-beep-bop" tone will sound after you replay any message. Turn the thumbwheel to the OFF position when you know you won't be using the MessageMate for several days, or when you pack it for shipping (so that if something presses against the keys while it's packed, it won't run down the battery).



3.2 Keyboard time adjustments

The amount of recording time allotted for each key on the keyboard is adjustable to best suit your needs, and can be changed whenever necessary. Set dipswitches 4, 5, and 6 for the following adjustments:

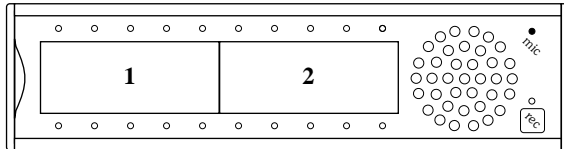
| | <i>Approximate time in seconds for each model</i> | |
|--|--|-----------------------------|
| | 20/75 | 20/150 |
| <p><i>20 Keys (Long and Short)</i></p> | <p>Keys 1-10</p> <p>Keys 11-15</p> <p>Keys 16-20</p> | <p>3</p> <p>5</p> <p>10</p> |
| <p><i>20 Equal Keys</i></p> | <p>Keys 1-20</p> | <p>3.5</p> <p>7</p> |



Keys 1-5

14.3

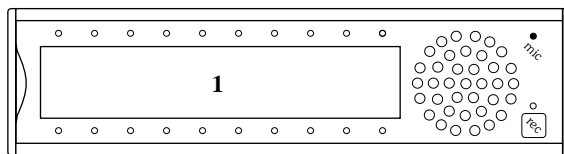
28



Keys 1-2

35

75



Key 1

65

140

3.3 Playing messages with the keyboard

Your MessageMate was shipped from Words+ with a sample set of messages and a sample overlay containing 20 picture symbols, as shown in Figure 3-1. Additional Mayer-Johnson and Imaginart picture stickers are available from Words+.

Turn the volume control/ON-OFF switch to on and set the volume to about the middle of the range of free movement of the control. Now press the “YES” key on the keyboard. The unit should say “YES”. Now try the other keys. Each one should produce the message shown on the key. That’s how easy it is to use MessageMate!





















| | | | | | | | | | |
|--|---|---|--|--|---|---|--|--|--|
| hello  | yes  | no  | maybe  | I don't know  | please  | thank you  | good  | more  | goodbye  |
| my name is Walt  | what is your name?  | can you help me?  | I like that  | I have to leave now  | I dont like that  | how much is it?  | it's not on my talking device  | I have a question for you  | I talk with this device  |

Figure 3-1

3.4 Adjusting the keyboard





There are two adjustments you can make to change the “feel” of the keyboard: (1) the “accept time” for the keys, and (2) the amount of pressure required to activate a key.

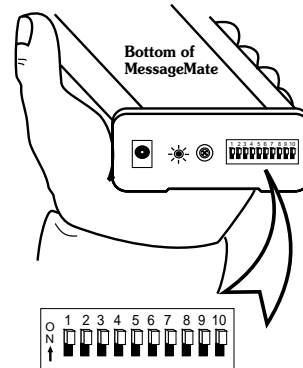
3.4.1 Keyboard Accept Time

For some users, keys may be accidentally activated by brushing against other keys while moving toward the desired key. When this happens, the keyboard “accept time” may need to be adjusted.

The accept time means the amount of time the user must hold a key pressed before the MessageMate will “accept” it. For example, if the accept time is set for a half second, and the user brushes against a key briefly (less than a half second), then the MessageMate will ignore that key. If the user holds the key for more than a half second, then the MessageMate will accept the key and will produce the corresponding message.

Keyboard accept time can easily be adjusted using the “DIP” switches on the left end of MessageMate. The Keyboard Accept Time adjustment is made with the following DIP Switch settings:

| SWITCH POSITIONS FOR KEYBOARD ACCEPT TIME | | |
|---|-------------------|--------------|
|  | 7 down and 8 down | 0.0 seconds |
|  | 7 down and 8 up | 0.25 seconds |
|  | 7 up and 8 down | 0.5 seconds |
|  | 7 up and 8 up | 1.0 seconds |



3.4.2 Keyboard Pressure

The standard amount of pressure required to operate the MessageMate keys is about 2.5 oz. (70 grams). This assumes only a single sheet of paper with symbols placed under the plastic pocket window. For some users, the standard pressure will be too light, and keys will be accidentally activated.

To increase the amount of pressure required to activate the keys, you can insert the optional clear plastic stiffener sheet, or you can use a sheet of stiff paper under the symbol overlay.

An optional keyguard is also available to fit MessageMate. It is basically a clear plastic sheet of material with holes in it for the keys, which is mounted and supported so that the user can rest his or her hand on the keyboard without activating any keys, but can reach through the holes to push keys when desired. Unlike other keyguards, that have small, round holes, this keyguard has square holes with rounded corners which allows it to accommodate larger fingers.

3.5 Playing Messages By Scanning

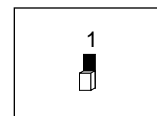
With MessageMate, “Scanning” means selecting a message by operating one or two switches. You operate your switch(es) based either on LED’s that light up next to the keys, or by listening to the auditory “scan click” sound produced as MessageMate steps from one LED to the next.

If you plug only one switch into either of the switch jacks on the right end panel, MessageMate will automatically go into an “interrupted” scan when the switch is operated. If you plug two switches into the switch jacks, MessageMate will automatically go into a “directed” scan. These methods of scanning are described in paragraphs 3.5.4 and 3.5.5 below.

Within one- or two-switch scanning, MessageMate also offers the option of either a **linear** or a **column-row** pattern for scanning.

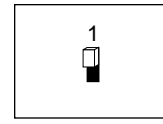
3.5.1 Linear Scanning

Linear means “in a line”. If you set DIP switch 1 to the down position, MessageMate will use a linear scan, lighting the LED’s one at a time across the top row, and then across the bottom row.



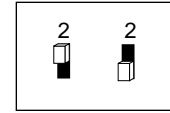
3.5.2 Column-Row Scanning

If you set DIP switch 1 to the up position, MessageMate will use a column-row (or row-column) scan, lighting the LED's two at a time until you select a pair, and then alternating between the LED's in the pair one at a time.



3.5.3 Horizontal and Vertical Scan Setting

The MessageMate is typically mounted either horizontally or vertically. This affects the sequence in which LEDs are highlighted to perform either a linear or column-row scan. Simply set dipswitch number 2 based on whether you position MessageMate horizontally or vertically. Set dipswitch 2 up for Vertical Scan and down for Horizontal Scan.



3.5.4 One-Switch Scanning

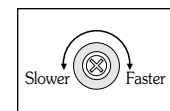
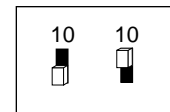
In one-switch scanning, MessageMate uses an "interrupted" (sometimes called "automatic") scan. At first, the LED's will all be off and the unit will be in the "sleep" mode to save battery power. When you operate your switch, MessageMate will begin to light the LED's using either the linear or the row-column pattern described above. The LED's will light up for a certain amount of time before stepping automatically to the next LED. When you operate your switch to interrupt the scan, you will select the lighted LED(s). In linear scanning, when you select an LED, the message stored under the corresponding key will be played back. In column-row scanning, you first select a pair of LED's, then operate the switch again to choose one of the LED's in the pair, and then the recorded message is played back.

3.5.5 Two-Switch Scanning

In two-switch scanning, MessageMate uses a "directed" (sometimes called "inverse") scan. At first, the LED's will be off and the unit will be in the "sleep" mode to conserve power. One of your two switches will serve as a "step" switch, and the other as "select" switch. When you press the step switch, MessageMate will begin to step from one LED to the next (or one pair to the next if you are using column-row scanning). When you reach what you want to select, you let go of the step switch and operate the select switch. It is preferable that you leave all the LEDs off when you are done using the unit, to conserve battery power. To do this, simply finish the selection, and don't start another scan until you are ready. If you do leave an LED on, don't worry, MessageMate will still run for many hours before you need to recharge.

3.5.6 Selecting The Stepping Rate

The stepping rate is adjusted in two ways: The range switch and the rate knob. DIP switch number 10 selects either the fast or the slow range of speeds. With DIP switch 10 down (fast), the range of speeds will be from about 0.1 seconds per step to about 1 second per step. With DIP switch 10 up (slow), the range is from about 1 to 10 seconds per step. The actual speed within either range is set using the white scan rate adjustment knob on the left end panel next to the DIP switches. Turn the knob to set the speed at a comfortable level.

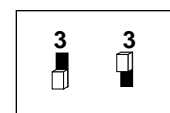


Rate Knob

3.5.7 Turning the Scan Click ON or OFF

For many users, it helps to have the MessageMate produce an audible "click" at each scan step. This additional auditory feedback often makes scanning easier to learn, and it provides a sort of rhythm to the scanning process which helps some users to scan at higher speeds than with visual feedback alone.

The Scan Click rises in pitch to help indicate the scan stepping process to visually impaired users. The Scan Click is turned ON or OFF with DIP switch number 3 on the left end of MessageMate. When the switch is up, the click is ON, and when it is down, the click is OFF.

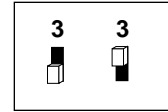


Echo

3.5.8 Auditory Scanning

Many users need more auditory feedback than a simple scan click described above. For these users it helps to have the MessageMate play a short recording at each scan step. This short recording contains a “cue,” just a word or two that you record, that reminds the user of the longer phrase that will be spoken if he or she selects that key.

MessageMate 20's that have 60 or more seconds of recording time have auditory scanning with recorded cues, in place of the Scan Click described above. The Auditory Scan is turned ON or OFF with DIP switch number 3 on the left end of the Messagemate. When the switch is up, the auditory scanning is ON, and when it is down, the auditory scanning is OFF.



When switch 3 is ON, MessageMate will speak the first 3/4 of a second of the recording that you make for each key, then scan ahead to the next key. This 3/4 second message serves to cue the user, to help him select the key he wants. Once the user selects a key, then the full length of the recording is played.

First, review the sections in this manual on recording messages and playing messages with the keyboard, and become comfortable with recording and playing regular messages. The auditory scanning messages are only slightly different. When you record the message for each key, just assume that the first 3/4 second that you speak will be used as the auditory cue, and the rest of the recording is the actual message. When you make the recording, choose a word or two that will serve as a good verbal cue, that will remind the user what the rest of the recording says. Hold down the record button and the key you want to re-record, then speak the cue word(s) and the full message.

For instance, with a pause in your voice, record “Question ... I have a question for you.” When you start the auditory scanner, you will hear it say “Question,” then step to the next key. Once the user selects this key, the full message “Question ... I have a question for you,” will be spoken. It is slightly inconvenient that the cue is repeated once the user selects the key, but this compromise makes recording and checking your message very straightforward. With just a little practice, you will be able to put the pause in the right place, so that only the cue word is spoken during the scan.

Notice that the cues and full recordings both come out of the speaker – it is not possible to send the cues to an earphone and the message to the speaker.

3.6 Built-In Alarm

MessageMate has a built-in attention-getting alarm. Holding any message key or switch input down long enough (5-20 seconds depending on the accept time you have selected) activates the alarm. The alarm switch is set to ON with dipswitch 9 in the up position if you want a full volume emergency type alarm, or OFF with dipswitch 9 in the down position if you want a quieter attention getting alarm. When set to OFF, the loudness of the alarm is the same as the voice volume.

3.7 Recording Messages

Recording new messages under each of the keys is a straightforward process. Messages (or any other sounds) are stored by recording through the built-in microphone.

The amount of recording time available under each key depends on the particular model of the Message Mate 20 that you purchased, and the setting of the Time Mode Switches 4-6 (see section 3.2).

To record, simply perform the following steps:

1 - On the right end panel, move the RECORD/LOCK switch up to RECORD.

2 - To record a message for any key, you simply press and hold down the RECORD key. (The RECORD LED on the front of the unit will be lit as long as the RECORD/LOCK switch is in the RECORD position, and the RECORD key is held.) Press and hold a message key while holding the record key. Speak directly into the microphone - try to get within about 6 inches (15 cm) of the microphone and speak loudly and clearly (but try not to get too close or to talk too loudly - experiment a little to get a good idea of the best distance and loudness). *As soon as you press the key to be recorded, the recording process begins.* The LED next to the key will remain lit during the recording process until the allotted time for that key is used up, or until the key is released. *For keys with short recording times (such as 1/2 second), this means you have to be prepared to speak right after you press the key.* Experiment a few times to develop a feel for the recording process.

3 - When you are done recording, be sure to set the RECORD/LOCK switch back down to the LOCK position. Then test each of the keys. If any do not sound correct, rerecord those keys.

3.8 Resetting MessageMate

If you feel that you have accidentally re-programmed, de-programmed, or otherwise just completely ruined some or all of the settings on MessageMate, not to worry - resetting the unit is as easy as 1-2-3.

1. Turn unit off with the record switch in the Lock position.
2. Hold the record key for at least 5 seconds.
3. Turn unit back on.

Units having version 1.03 or later (see back panel for version number) will make a unique reset sound; older units can be upgraded for a nominal fee. The unit is now reset. Messages and dip switch settings are not lost.

3.9 Battery and A/C Adapter

Note that you need not turn the unit off in normal use. MessageMate automatically goes into a "sleep" mode between messages. In the sleep mode, a fully-charged battery will power the unit for nearly two months. Actual battery life between charges will depend on how often you use the unit. You should be able to generate over 5,000 messages on a full charge. Turn the thumbwheel to the OFF position when you know you won't be using the MessageMate for several days, or when you pack it for shipping (so that if something presses against the keys while it's packed, it won't run down the battery).

MessageMate requires 10 to 15 hours for a full charge. When the batteries are low, the unit will make a special (beep, beep, bop) sound after each message to alert you. The rechargeable Ni-Cad batteries inside MessageMate like to be charged and discharged. It is best to use the unit until it gives its low battery warning sound, and then charge it fully. This is better than keeping the unit fully charged all the time. If you keep it charged all the time, it will lose its ability to hold a charge. If this happens, go back to using the unit until it gives its low battery warning sound, then recharge it. Chances are, after a few charges and discharges, it will recover its ability to hold a charge.

If your A/C Adapter should be lost or broken, you should call Words+ for a replacement to avoid violating the warranty. However, most A/C adapters (either 50 or 60 HZ) providing output of 12VDC to 35VDC and at least 100mA will work fine. We have designed the MessageMate so that either positive tip or negative tip is acceptable.

Programming Suggestions

This section presents several samples to show how you can achieve the most efficient communication with only 20 messages. MessageMate is not intended to be a *powerful* communication system - it is a *basic* communication system. These samples should give you ideas to help you make the most efficient use of your MessageMate.

4.1 Basic message approach

The "Basic Message Approach" involves determining the most important basic messages for the user. Some examples are:

These 10 short messages can be recorded on the top row of 3 second keys on the MessageMate 20-75 when "20 keys long & short" is selected:

- 1 - "YES"
- 2 - "NO"
- 3 - "MAYBE"
- 4 - "I DON'T KNOW"
- 5 - "THANK YOU"
- 6 - "MORE"
- 7 - "GOOD"
- 8 - "NOT"
- 9 - "HELLO"
- 10 - "GOODBYE"

These 10 longer messages can be recorded on the bottom row of 10 second keys on the MessageMate 20-75 when "20 keys long & short" is selected::

- 11 - "I'M IN PAIN"
- 12 - "I FEEL FINE"
- 13 - "HOW ARE YOU?"
- 14 - "I'M TIRED"
- 15 - "I'M HOT OR COLD"
- 16 - "I'M HUNGRY OR THIRSTY"
- 17 - "I HAVE AN ITCH"
- 18 - "I WANT TO TELL YOU SOMETHING"
- 19 - "PLEASE COME AGAIN SOON"
- 20 - "I LOVE YOU"

By using the top row of keys for short items and the bottom for longer items, the storage capacity of each key is most efficiently used.

4.2 Building block approach

A second example is to use each of the keys as a "building block" for messages, so that many more than 20 messages can be generated by selecting groups of keys. One set of 20 building blocks are shown below:

| | | | | | | | | | |
|------|-----|----|------|------|------|------|------|------|-----|
| I | YOU | WE | HE | SHE | THEY | CAN | DID | DO | GO |
| HAVE | HOW | IS | KNOW | LIKE | NOT | THAT | WANT | WHAT | WHY |

With these 20 building blocks, you can generate all of the following messages (and more):

Messages based on "DO":

- "I (you, we, they, he, she) can do that"
- "I (you, we, they, he, she) can not do that"
- "Can I (you, we, they, he, she) do that"
- "How can I (you, we, they, he, she) do that"
- "What can I (you, we, they, he, she) do"
- "Why can I (you, we, they, he, she) not do that"
- "I (you, we, they, he, she) like to do that"
- "I (you, we, they, he, she) want to do that"
- "I (you, we, they, he, she) do not like to do that"
- "I (you, we, they, he, she) do not want to do that"
- "Did I (you, we, they, he, she) do that"

Messages based on "GO"

- "I (you, we, they, he, she) like to go"
- "I (you, we, they, he, she) want to go"
- "I (you, we, they, he, she) do not like to go"
- "I (you, we, they, he, she) do not want to go"
- "Can I (you, we, they, he, she) go"

Messages based on "HAVE":

- "Can I (you, we, they, he, she) have that"
- "Do I (you, we, they, he, she) have that"
- "Why can I (you, we, they, he, she) not have that"

Messages based on "KNOW":

- "I (you, we, they, he, she) know (that)"
- "I (you, we, they, he, she) do not know (that)"
- "I (you, we, they, he, she) did not know (that)"
- "How can I (you, we, they, he, she) know (that)"

Messages based on "LIKE":

- "I (you, we, they, he, she) like that"
- "I (you, we, they, he, she) do not like that"
- "How do you (they, he, she) like that"

Messages based on "WANT"

- "I (you, we, they, he, she) want that"
- "I (you, we, they, he, she) do not want that"
- "Do I (you, we, they, he, she) want that"

As you can see, the number of possible messages from only 20 “building blocks” can be quite large. The choice of which 20 items are best for any individual will vary. You may wish to use some or all of the items suggested above, changing a few keys to better match the user’s needs and situations. The key to achieving maximum messaging capability with a small number of keys is to provide as many basic language elements (that can be combined with others) as possible. One example is to use the word “NOT” to produce two meanings from each of several other single keys. For example, instead of the following 6 keys:

“GOOD” “BAD” “MORE” “LESS” “DO” “DON’T”

you can use the following 4 keys and achieve the same number of messages:

“GOOD” “MORE” “DO” “NOT”

because “NOT GOOD”, “NOT MORE”, and “DO NOT” take the place of “BAD”, “LESS”, and “DON’T”. Also, using the word “DID” in a similar way, you can achieve past tenses of several other verbs (e.g., “DID SAY” for “SAID”, “DID GO” for “WENT”, “DID KNOW” for “KNEW”, etc.).

Troubleshooting Guide

This section provides a guide for troubleshooting your MessageMate in the event you experience problems. Because your MessageMate has been designed to be simple and rugged, you may never need this section; however, take a few minutes to glance at the items listed, so that if you ever encounter difficulty, you may remember that a solution exists for you in this section.

Problem: No response to keyboard - no sound, no LED's light.

Cause: On/Off Switch is in the Off position.

Solution: Turn On/Off knob until it clicks on, then turn half way up for medium volume sound.

Cause: Keyboard accept time is set to a value longer than the time you're holding down the keys.

Solution: Try holding keys at least several seconds. If sound is then produced, set the keyboard accept time to the desired value with the DIP switches on the left end of the unit. (see Keyboard Accept Time, paragraph 3.4.1).

Cause: Battery dead.

Solution: Charge battery. Unit will operate at the same time battery is charging, without slowing down the charging process.

Problem: LED's light when keys are pressed, but no sound is produced.

Cause: Volume control is all the way down.

Solution: Turn volume control up.

Cause: Something other than a speaker, for example, is plugged into the external speaker jack, or a non operating speaker is plugged into the external speaker jack .

Solution: Unplug the item from the external speaker jack and try again. If sound is then produced, check the item that was plugged into the external speaker jack.

Problem: After speaking, MessageMate makes a beeping sound.

Cause: Battery is nearly dead. The sound you hear is the low battery warning.

Solution: Charge battery. You can use the unit while it is charging.

Problem: The sound stored under a key has been erased.

Cause: This can happen if the RECORD/LOCK switch is left in the unlocked (up) position, and the RECORD key and MESSAGE key are pressed without recording new sounds.

Solution: Rerecord the sound and set the RECORD/LOCK switch back to the locked (down) position.

Problem: No response to switch(es), but responds to keys.

Cause: Switch accept time higher than expected.

Solution: Adjust accept time as required.

Cause: Switch failure.

Solution: Replace switch.

Problem: No response to keys, but responds to switches.

Cause: Key accept time higher than expected.

Solution: Adjust accept time as required.

Cause: Keyboard failure.

Solution: Replace keyboard (factory repair).

Problem: Record light does not come on when RECORD/LOCK switch is placed in the UNLOCK position and record key is pressed.

Cause: LED failure.

Solution: To replace LED, call Words+.

Problem: Sound quality is less than desired.

Cause: Recording too far away or too close to microphone.
Recording too loudly or too quietly.
Air flow from speaking is blowing directly into microphone.
Volume control set too high, causing distortion.

Solution: Use good recording technique - see section 3.7.

Cause: Microphone malfunctioning.

Solution: Replace microphone (factory repair).

Problem: Scan speed is too fast or slow.

Solution: Speed setting needs to be changed - see Stepping Rate, paragraph 3.5.6.

Problem: User cannot see LED's for scanning.

Causes:

- Undesirable viewing angle
- Ambient light
- Unit at inappropriate distance from user

Solution:

- Reposition unit so that it more directly faces the user.
- Reposition unit so than strong direct light is not on the LED's, or provide shading to prevent strong light from hitting face of unit.
- Move unit closer to user.

Problem: Sound volume is not loud enough.

Cause:

- Recording too far away or too quietly
- Volume control set too low
- Battery is weak
- External speaker required

Solution: Use good recording technique. See section 3.7.
Charge battery.
Use external speaker.

Problem: Battery will not hold charge.

Cause: Low battery capacity due to continuous charging.

Solution: Charge battery until fully charged (overnight). Use MessageMate until almost discharged. Continue this cycling several times.

Cause: Battery failure.

Solution: Replace battery (factory repair).

Warranty & Repair Service

Warranty

All Words+ manufactured products and all batteries are warranted to be free from manufacturing defects for a full year from the date of purchase. This warranty includes all parts and labor required to restore defective products to serviceable condition. The Freedom 2000 computer-based communication systems come with a three-year warranty on parts and labor. Items that have been damaged by accident, abuse, or misuse are not covered under the warranty. For terms and conditions of warranties covering specific products, please call.

Words+ recognizes that when a person's communication system is not working, that person's quality of life is greatly reduced. For this reason, we have always assigned repairs top priority. In the unlikely event that your system needs to be sent in for service, we will make every effort to see that it is repaired and returned to you as soon as possible. This policy applies whether or not your equipment is under warranty. All out-of-warranty repairs must be paid for in advance or by C.O.D. return delivery (We accept Visa® and MasterCard®). Please see the Words+ Repair Service below for more information.

Repair Service

In the unlikely event that your system needs to be sent in for service, we will make every reasonable effort to see that it is repaired and returned to you as quickly as possible. This policy applies regardless of whether your equipment is under warranty. All out-of-warranty repairs must be paid for in advance or by C.O.D. return. If you think an item should be sent in for repair, call us first. Many times the problem can be corrected over the phone, saving you time and expense. If your unit must be returned, please be sure to do the following:

1. In the United States or Canada, call (800) 869-8521 or (661) 723-6523 International for a Return Merchandise Authorization (RMA) number. Items returned without RMA numbers will not be accepted.
2. Write the RMA number on the outside of the package.
3. Use at least 2-3" of packing material around the item, and pack it in a strong box using sealing tape. Do not use paper or string on the outside of the box. Insufficient packing material may cause extreme damage to your equipment.
4. Enclose a note with RMA number describing the problem. Include the name of the contact person with a daytime phone number and the street address where the item is to be returned.
5. Ship by UPS. The item will be returned by the same means of delivery used to send it to us. Our standard method of shipment is UPS 3-Day Air. If you wish to have the item returned using a faster method of delivery (such as Next Day Air or 2-Day Air), we will be happy to honor your request; however, you must pay the difference. If the item is under warranty, it will be returned free of charge. If not, you must arrange for either direct payment (Visa® and MasterCard® accepted), or C.O.D. payment.
7. Insure each individual item for full replacement value.

FCC Compliance & Declaration of Conformity

| | |
|--------------------------------|---------------------------------------|
| Trade name: | AAC Device |
| Model number: | MM40 (MessageMate 20) |
| Compliance test report number: | A70424E1 |
| Compliance test report date: | April 24, 1997 |
| Responsible party (in U.S.A.): | Words+, Inc. |
| Address: | 1220 W. Avenue J, Lancaster, CA 93534 |
| Telephone: | (661) 723-6523 |

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications; however, there is no guarantee that interference will not occur in a particular installation.

If the unit does cause harmful interference to radio or television reception, please refer to your user's manual for instructions on correcting the problem.

I, the undersigned, hereby declare that the equipment specified above conforms to the above requirements.

Place: Los Angeles County

Signature: _____



Date: May 13, 1997

Full Name: Virginia E. Woltosz

Position: Senior Vice President