Macaw 5

SERIES

32-Key & 128-Key

ZYGO®

OPERATION MANUAL

32-Key & 128-Key

MACAW 5

SERIES

-|-

OPERATION MANUAL

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IMPORTANT: READ THIS FIRST

The **ZYGO MACAW *5*** is shipped from ZYGO Industries, Inc. complete with the following items:

- **ZYGO MACAW 5**
- 002-5032-00 Sample Overlay Set
- 002-5031-00 Overlay Template Set
- KG-M5/1 Hinged Keyboard Frame

The **ZYGO *Green* MACAW *5*** is shipped from ZYGO Industries, Inc. complete with the following items:

- **ZYGO *Green* MACAW *5***
- 002-5032-00 Sample Overlay Set
- 002-5031-00 Overlay Template Set
- KG-M5/1 Hinged Keyboard Frame

The **ZYGO *DACtyl* MACAW *5*** is shipped from ZYGO Industries, Inc. complete with the following items:

- **ZYGO *DACtyl* MACAW *5***
- 002-5033-00 Sample Overlay Set
- 002-5034-00 Overlay Template Set
- KG-M5D/1 Hinged Keyboard Frame

Each **MACAW *5*** also includes:

- 262-0540-15 CM-40-R *Lolly* Switch
- 061-0010-00 Warranty Registration Card
- 346-0014-00 Neck Strap
- 070-0076-00 Operation Manual (MACAW 5 Series)

Optional accessories and replacement parts are available from ZYGO Industries, Inc.

To assure full warranty of the ZYGO MACAW, please review the ZYGO WARRANTY REGISTRATION CARD procedures and return the mail-back section to ZYGO Industries, Inc. TODAY!

ICON REFERENCE

The following icons may appear on the MACAW labels.

Icon	Meaning
	Indicates that the units bearing this mark have met the European Community's Declaration of Conformity.
	Indicates that the units bearing this mark meet the Medical Device Directives for electrical equipment.
	Indicates a CAUTION to a General Hazard condition.
	Indicates that the port is NOT to be used for telephones.
	Notation for a data port such as an RS-232C Serial Communications connector.
	Indicates an item that can, and should be recycled.
	Power Switch to ON position.
	Power Switch to OFF position.

The following icons appear in this MACAW manual.

Icon	Meaning
	Indicates a notation about a CAUTIOUS situation.
	Indicates IMPORTANT information that should be read and understood.

32-Key & 128-Key MACAW *5* SERIES

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INTRODUCTION

The MACAW series of digital recording communication systems has been a preferred choice internationally. The units have provided high quality speech output in very small, lightweight, easy-to-use communication aids. Rather than needing days of “programming” time to prepare a communication aid for a user, the clinician can do the entire job in minutes. What's more, the spoken output is obtained by recording the voice of someone of similar age, gender, and dialect as the final user. Because they take so little time to “program,” these units can be changed regularly to accommodate specific activities.

The MACAW should be considered in the same regard as a tape recorder; messages are recorded by a facilitator and retrieved by the user. As in most sophisticated electronic devices, the MACAW is capable of being tailored by the facilitator to function in a variety of modes, including visual and auditory scanning.

With its ability also to operate in LEVELs and KEY LINK Modes, the number of messages it stores is not restricted to the number of keys on the keyboard. In use as a personal system, a clinical tool, or a teaching aid, you'll find the MACAW to be the most powerful, versatile, friendly communication aid of its kind.

The MACAW is a new-generation device capable of permanently storing large amounts of vocabulary as well as the system's operating parameters. That information is called the unit’s PERSONALITY. When needed, that PERSONALITY can be transferred to and from a computer.

Its most popular application is as a language development aid for youngsters in special and mainstream public education programs, but the MACAW has almost boundless applications for other disabled populations; e.g., as a limited communication system for those who need to communicate only a minimum number of messages, for ambulatory youngsters with cerebral palsy, patients in intensive-care environments or long-term profoundly disabled people with ALS (Motor Neuron Disease), etc.

The MACAW's attractive packaging makes it more desirable to those for whom appearance is a major concern; it doesn't *look* like an orthopedic appliance. The unit is small and light enough to be carried by its unique folding handle or on a neckstrap and, although a variety of sturdy, rigid and flexible mounting systems are available, it can be easily secured with hook-and-loop fasteners (Velcro) to table tops and wheelchair trays.

The latest MACAWs are the culmination of all that has been derived from using earlier MACAW products, plus input from clinicians, therapists, teachers and parents who, in their own environments, perceived many more applications for it. The MACAW is a very simple-to-use tool but, when needed, can be made to perform exceptionally.

This manual covers both the 32-Key and 128-Key MACAWs. Information that pertains to the 128-Key MACAWs is shown in square brackets, i.e., [Key #37], and is colored green. In some instances, information relative to the 32-Key MACAWs is shown in blue.

What's New in the MACAW…

New features include:

- **All new battery system**
  - **Replaceable AA cells** for exchanging in the field
  - Can use **rechargeable AA cells purchased locally**
- **Re-record to any length at any time**
- **Level Selection** with **Auditory Scan**
- **Cued Auditory Scan**
- **Facilitator** control of **changing Levels in PLAY Mode**
- **Hinged Keyguards** for easy overlay exchange

Standard MACAW Features…

- **32-Key [128-Key] "No Dead Spaces" keyboard**
- **32 Levels [63 Levels]**
- **Key-Linking** up to 80 keys
- **"Coded"** rapid access to all keys
- **Separate earphone & speaker** with Auditory Scanning
- **Compacting Memory** eliminates having to re-record
- Vocabulary and setup transfer to **computer**
- Power Off **without losing memory**
- **Battery Level** indication
- Speech **Time Remaining** indication
- Speech **Erasing**
- Speech **Moving** to other locations
- **Deleting** Messages, Levels, etc.
- **Over an hour** of recording time, no limit for each key

CHANGING THE BATTERIES

The MACAW is powered by four (4) Alkaline AA cells that are easily removed and replaced. Rechargeable, nickel metal hydride (NiMH) AA cells, recharged outside of the MACAW, may also be used.

The MACAW must be set for the Battery Type being used. See Page 6.3, Battery Type Setting.

⚠ ATTENTION ⚠
Do not store the unit for extended periods (months) with NiMH batteries in place. Install long-life Alkaline batteries during storage.
NiMH batteries drain more quickly when not being used and recorded messages and setups may be lost.

The POWER Switch may be turned off to deactivate the keyboard, especially for shipping. The recorded memory will NOT be erased and the unit may be used as soon as the POWER Switch is turned on.

The MACAW will "beep" as the first indication that the battery cells need to be replaced (see the MACAW's Signals appendix to this manual). When the battery gets even weaker, the unit will just stop "talking." Should that happen, replace the battery cells. It should "talk" if low battery was the only problem. See the section on Battery Level Indication for monitoring the remaining battery power.

When the battery is low, the sound output may become severely distorted, and new recordings may not process properly. Changing the battery cells should clear up this condition immediately.

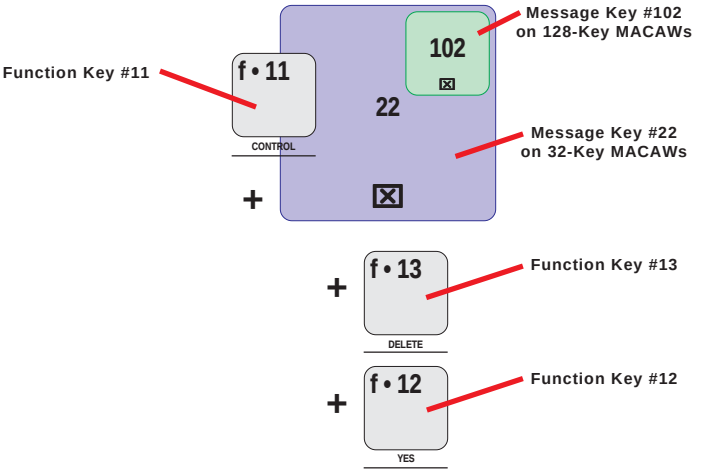
Key Notations Used in this Manual

To assist visually in understanding the key strokes required to perform the operations described, the following graphic notations are used.

The keys along the top of the MACAW keyboard are called “Function Keys” and are written as “**f • 5**”, meaning Function Key #5.

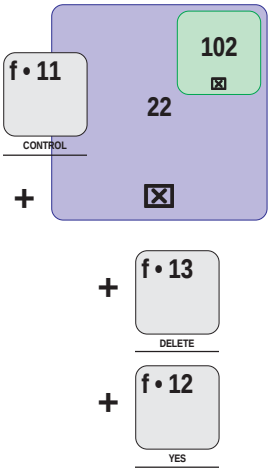
The Message Keys of the keyboard are written as “Key **#22**,” and noted simply as “**22** ” in the graphics.

The large blue Message Keys are on 32-Key MACAWs. The smaller green Message Keys shown inside the blue Message Keys are the keys used in the 128-Key MACAWs to perform the same function.



This graphic indicates the key sequence **f •11**, Message Key **#22** (**#102** in the 128-Key MACAWs), **f •13**, and **f •12**.

CLEAR Everything



The details about CLEARing the MACAW and discussions about PERSONALITYs are elsewhere in this manual, however, since you might be familiar with the routine operation of previous MACAWs and want to get started immediately, this procedure allows you to CLEAR the unit of all active vocabulary/recordings and parameter settings.

1. *Switch to RECORD Mode*
2. Press f•11 (CONTROL), then
3. Press the CLEAR Message Key #22 [Key #102] (⊠), then
4. Press f•13 (DELETE), then, *if you really want to CLEAR,*
5. Press f•12 (YES)
6. *Switch to PLAY Mode*

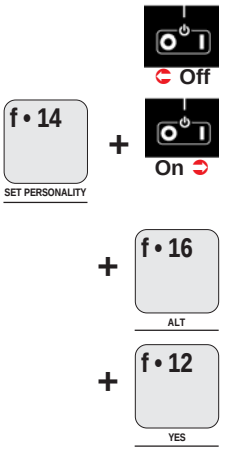
All the vocabulary/recordings will be CLEARed and the operating parameters will be as set by the factory.

It is also possible to CLEAR only the vocabulary and leave the operating parameters as they may have been set or changed. That procedure is described elsewhere in this manual.

RESET—Recovery from a Totally Discharged Battery

The MACAW has a Backup Battery to save the unit's messages for awhile after the main batteries are depleted. The Backup Battery is automatically charged from the unit's main batteries. When the Backup Battery, itself, gets depleted, the MACAW will not function. This procedure reinstates the unit's operation but cannot retrieve the stored messages. Saving the unit's messages in a backup memory is discussed in Section 5 (PERSONALITY) elsewhere in this manual.

Install fresh batteries.



1. Turn the Power Switch OFF
2. Switch to RECORD Mode
3. Press and hold f•14 (SET PERSONALITY) and…
4. Turn the Power Switch ON. There will be a series of beeps. Release f•14.
5. Press f•16 (ALT). There will be another series of beeps.
6. Press f•12 (YES). There will be a delay and a long beep.
7. Switch to PLAY Mode

All the vocabulary/recordings will have been CLEARed and the operating parameters will be as set by the factory.

DESCRIPTION

The MACAW is an electronic, digital recording/playback communication aid. In its simplest method of operation, the MACAW is switched to RECORD Mode, a message key is pressed (and held) while a message is spoken into the microphone. The unit then is switched back to PLAY Mode and, when that message key is pressed, the MACAW will "parrot" back the recorded message.

Messages can be recorded in any order and may be re-recorded at any time. The amount of total "dynamic" recording time available in the MACAW depends on the amount of memory in the unit. There is no restriction as to how much of the available recording time is used in each message.

Vocabulary and configuration groupings are called **personalities**.

All MACAWs have LEDs for visual key-selection feedback, and all units have the ability to scan.

IMPORTANT ! ! !

In each of the step-by-step procedures described in this manual, you'll notice that the facilitator uses the MACAW in RECORD Mode and the user functions in PLAY Mode.

For contiguous operations (like selecting a key pattern, a scanning mode with its speed and delay time, the output volume and actually recording messages), **it's not necessary to change the RECORD/PLAY Switch back and forth for each, but the instructions have been written that way to be consistent. The first and last directions are, therefore, shown in italics to highlight the point.**

CONTROLS & JACKS

All controls are on the left side of the MACAW.

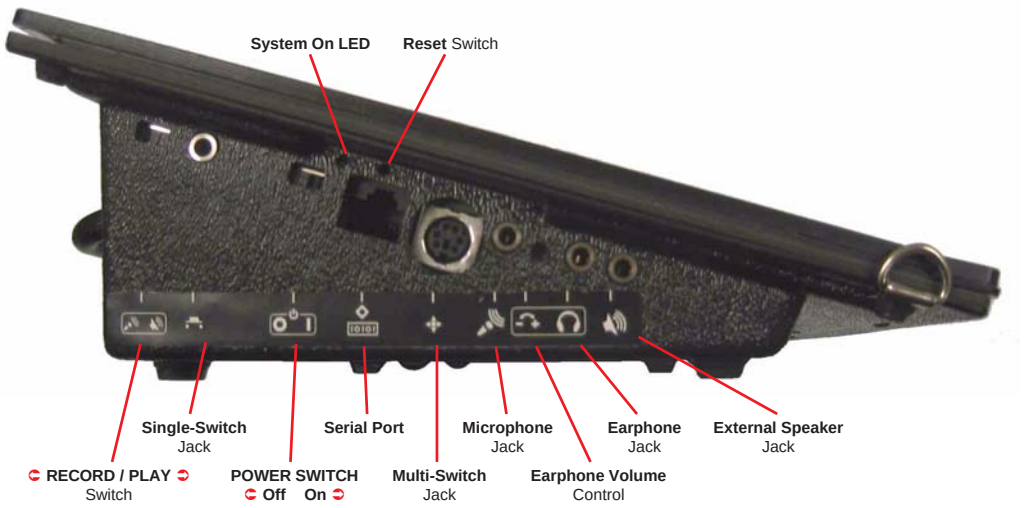
There are only two (2) switches used in the MACAW; the POWER Switch and the RECORD / PLAY Switch.

There are audio jacks for connecting the external microphone, external speaker, and earphone with separate volume control.

For scanning switches, there is a jack for single-switch scanning and a multi-pin jack for connecting multiple switches. A serial interface permits connecting to computers and specialized test equipment.

All other functions and operational changes are performed through the function keys and message keys on the surface of the keyboard.

A RESET pushbutton switch is located above the multi-pin multi-switch jack.



Left Side

1. **POWER** Switch: The POWER Switch is recessed to make access to it more difficult. Usually, once the POWER Switch is turned ON, the unit should remain ON, since a fully charged battery will retain its charge for many weeks of non-use. (See the notice on Page 1-5 about storing the unit for extended periods.) Turning the POWER Switch OFF **will NOT** erase anything that has been recorded.

The POWER Switch should be turned OFF whenever the unit is to be packed for transport or put away for periods of time, otherwise accidental activation of the message keys will cause the unit to turn itself ON and the battery may be depleted beyond recovery.

2. To the upper right of the POWER Switch is the **System On LED**. The unit is *on* when this LED is lighted and in a *standby* mode when it is not. The LED will be out when the power is off.

3. The **RESET** Pushbutton, to the right of the System On LED, is used to restart the unit's computer if it should malfunction.

4. **RECORD / PLAY** Switch: The RECORD / PLAY Switch is used for more than its name implies; it might also have been labeled "*facilitator* / *user*" because, in addition to changing between RECORD and PLAY Modes, it will be used in RECORD position by the facilitator to set up and/or change the operating parameters of the MACAW, including the output volume.

5. **SWITCH INPUTS:**

SINGLE: A standard 3.5 mm diameter miniature phone jack is provided for connection of any single, momentary contact switch.

MULTIPLE: A 6-Pin Mini-DIN Jack is used for connection of multi-input switches (like a joystick). Adapters to allow the use of multiple switches and cables with different connectors are available from ZYGO Industries, Inc.

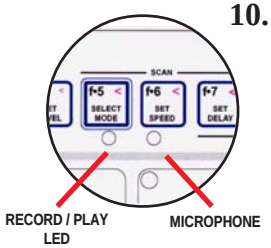
6. **RS-232C** SERIAL PORT: An 8-Pin RJ-45 is used for high-speed serial communications with peripheral equipment.

7. The **EXT**ernal **MIC**rophone Jack is for use of an external microphone or input from other sources, such as a tape recorder. It should be used for convenience, to record at reasonable volumes without having to bend down to the INTERNAL MICROPHONE and in order to reduce ambient background noise.

8. The audio output quality and volume are limited by the available space and the size of the internal speaker. The **EXT**ernal **SP**ea**K**er Jack provides a means for connecting either a high-quality speaker or an amplifier to the MACAW.

9. The **EARPHONE** Jack is for sending messages to the user while using Auditory Scanning. Its screwdriver adjustable **VOL**ume Control is to its left.

On the Keyboard



10. Slightly below the f•5 Function Key, is the **RECORD / PLAYBACK LED**, which will illuminate when the unit is recording and when it is recalling a recorded message. It will illuminate during playback regardless of the output volume setting—an asset to users who can't hear the audio output.

11. The **INTERNAL MICROPHONE** is located behind a small hole in the keyboard, slightly below the f•6 Function Key.

The battery compartment has a removable drawer that contains four (4) AA cells. Alkaline or NiMH cells may be used. (Pay special attention to the note below and the label above the battery compartment).

The MACAW must be set for the Battery Type being used. See Page 6.3, Battery Type Setting.

To remove the battery compartment drawer, squeeze the two tabs towards the center and pull the drawer out.

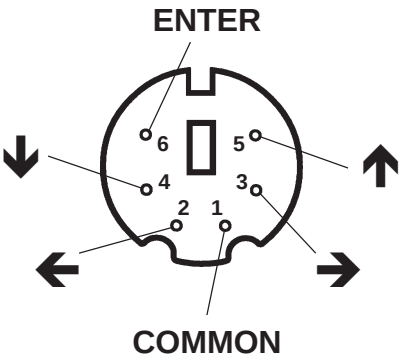
⚠ ATTENTION ⚠
Do not store the unit for extended periods (months) with NiMH batteries in place. Install long-life Alkaline batteries during storage.
NiMH batteries drain more quickly when not being used and recorded messages and setups may be lost.

When replacing battery cells:

- **Make sure they are inserted correctly with the polarities as indicated in the battery drawer.**
- **Always use the same type of cells for all four.**
- **Do not mix types of cells, or cells of different ages.**
- **Set the MACAW for the Battery Type to be used!**

Schematic for MULTIPLE Switch Input Jack

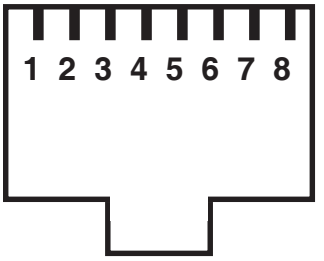
Wiring is shown as viewed into the front of the DIN jack.



Contact ZYGO Industries, Inc. for information regarding switches and adapters.

Schematic for RS-232C Serial Communications Jack

Wiring is shown as viewed into the front of the RJ-45 Jack.



1 = DDQ
2 = GND
3 = SCK
4 = ENABLE
5 = V Bat (fused at 1/2A)
6 = TxD
7 = RxD
8 = $\overline{SS}$

Contact ZYGO Industries, Inc. for information regarding cables and adapters.

SEE CAUTION ON NEXT PAGE!

CAUTION!

Accessory equipment connected to the analog and digital interfaces must be certified according to the respective IEC standards (e.g., EN 60950 for Data Processing Equipment and EN 60601-1 for Medical Equipment). Anyone connecting additional equipment to the signal input or output connectors is configuring a medical system and, therefore, is responsible that the system complies with the requirements of the system standard IEC 601-1-1.

SPECIFICATIONS

RECORDING TIME: **All recordings are backed up by batteries**

Dynamic: Continuous high-quality:

78 minutes in each MACAW

This is the maximum recording time that may be accessed continuously.

KEYBOARD:

MESSAGE Keys: 32 membrane switch keys (4 x 8 pattern)
[128 membrane switch keys (8 x 16 pattern)]

Spacing: 3.2 cm (1-1/4") between centers [1.6 cm (5/8") between centers]

Size: 2.9 cm (1-1/8") square [1.4 cm (9/16") square]

Force Required: 114 grams (4 ounces) maximum

Panel: White keys with clear markings; keys are numbered 1 through 32 [128]; keyboard functions are shown; LED in the upper left corner for visual feedback and scanning.

FUNCTION Keys: 16 membrane switch keys (1 x 16 pattern)

Spacing: 1.6 cm (5/8") between centers.

Size: 1.3 cm (1/2") square.

Force Required: 228 grams (8 ounces) maximum.

Panel: White keys with clear markings; keys are centered, numbered 1 through 10 and marked with functions. Six additional keys are on either side of the first ten, 11-13 on the left and 14-16 on the right.

KEYBOARD (Con't):

Key Cover:	Transparent keypad covers to protect overlays are attached to the keyboard retaining ring and optional keyguards.
Retaining Ring:	Hinged, locks the overlays in place.

MICROPHONE:	Internal (jack is provided for external microphone).
SPEAKER:	7.6 cm (3") permanent magnet type, (jack is provided for an external speaker).
OUTPUT VOLUME:	Adjustable from silent to very loud.

POWER:	Four (4) disposable Alkaline AA cells.
Playback:	15 hours continuous sound output, (2 - 8 weeks of normal use), 9 hours continuous when using scanning. Time will vary according to output sound level.
Standby:	2 months minimum.

CONTROLS:	POWER ON / OFF switch. RECORD / PLAY switch. Reset Pushbutton.

JACKS:

External Microphone:	Mono Mini-phone jack
External Speaker:	Mono Mini-phone jack
Earphone:	Mono Mini-phone jack (with Volume Control)
Single-Switch:	3.5 mm (0.138") dia mini-phone jack.
Multi-Switch:	6-Pin Mini-DIN.
RS-232C:	8-Pin RJ-45.

PHYSICAL:

Size (Wedge Shape):	Top: 29.2 cm W x 19.7 cm H, (11-1/2"W x 7-3/4"H). Front: 1.6 cm H (5/8"H). Back: 7 cm H (2-3/4"H) .
Weight:	0.9 Kg (2 pounds).

ENVIRONMENT: The MACAWs are quite rugged, but hostile environments may damage them.

Temperature:

Maximum operating:	45ºC (120ºF)
Minimum operating:	0ºC (32ºF)
Maximum non-operating:	68ºC (155ºF)
Minimum non-operating:	-40ºC (-40ºF)

Moisture/Rain: Optional “raincoats”are available to protect the MACAW from excessive moisture and drool. For very high moisture conditions, place the entire MACAW within a clear plastic bag and tape the bag closed. The unit will be operational and can be heard through the plastic bag. Replace the bag when needed.

Do not expose an uncovered unit to heavy rains or excessive moisture.

Drool on the surface is acceptable; excess drool can seep into the unit and cause damage to the electronic circuits.

If the unit does get soaked, let it dry out before attempting to operate it.

The KEYBOARD(s)

The MACAW's Keyboard is made of exceptionally sensitive membrane switches that require very little force to actuate.

These keyboards do not respond well to sharp objects like pencil points or fingernails. A damaged keyboard will require replacement by qualified technical personnel and will probably have to be done at the factory.

A transparent Keyboard Cover is provided to protect the items placed on the keys. The Keyboard Cover is fastened to the underside of the Keyboard Frame and the optional Keyguards.

The primary cause of keyboard destruction is the use of glues that eat through the plastic.

Overlay graphics ***should not*** be adhered directly to the keyboard! It is preferable to use clear panels, such as clear polycarbonate sheets, which cover and protect the entire keyboard. The individual keys are 2.9 cm (1-1/8") [1.4 cm (9/16")] square and can support symbols, concept pictures, or written words to describe the contents of each recorded key. Lift the hinged Keyboard Frame or Keyguard to position full size overlays.

OVERLAYS

Sets of symbols and pictures are available from a variety of sources (see PICTURES/SYMBOLS References at the back of this manual). The MACAW can be configured to many key sizes, and large quantities of materials may be used directly. The following procedure is useful for making properly sized overlays for the MACAW Keyboard from any graphic material.

1. Using a photocopy machine, reduce or enlarge the size of any graphic (including traditional orthography) to fit the key size. The key sizes for the standard MACAW Keyboard options are:

32-Key MACAW

a.	32 keys:	1-3/16" (30 mm) square
b.	16 keys:	1-3/16" (30 mm) H x 2-7/16" (62 mm) W
c.	8 keys:	2-7/16" (62 mm) square
d.	4 keys:	2-7/16" (62 mm) H x 4-15/16" (125 mm) W
e.	4 keys:	4-15/16" (125 mm) H x 2-7/16" (62 mm) W
f.	2 keys:	4-15/16" (125 mm) square
g.	1 key:	4-15/16" (125 mm) H x 9-15/16" (25.2 cm) W

128-Key MACAW

a.	128 keys:	9/16" (14 mm) square
b.	64 keys:	9/16" (14 mm) H x 1-3/16" (30 mm) W
c.	32 keys:	1-3/16" (30 mm) square
d.	16 keys:	1-3/16" (30 mm) H x 2-7/16" (62 mm) W
e.	8 keys:	2-7/16" (62 mm) square
f.	4 keys:	2-7/16" (62 mm) H x 4-15/16" (125 mm) W
g.	4 keys:	4-15/16" (125 mm) H x 2-7/16" (62 mm) W
h.	2 keys:	4-15/16" (125 mm) square
i.	1 key:	4-15/16" (125 mm) H x 9-15/16" (25.2 cm) W

It may be necessary to thicken lines on some graphics so they can be clearly seen when reduced in size.

When preparing graphics for the MACAW, remember to cut away the corner for the LED to show through, or make transparencies that are clear in the upper left corner. Punching holes for the LEDs to show through is easily done with a 3/16" (5 mm) diameter leather-punch and mallet.

Paper overlays are available with holes pre-drilled for the LEDs.

2. Coat the back of the properly sized graphics with “Spray-Mount,” an artist’s spray adhesive which doesn't dry completely (the predecessor to those yellow “Post-It” notepads that have become so popular). This adhesive will allow easy application and removal of the graphics. “Spray-Mount” is a Scotch Brand, 3M product, Catalog Number 6065.

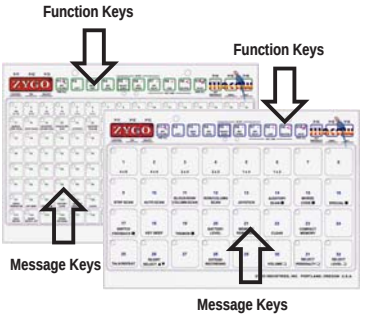
3. Full panels that cover the entire keyboard can be constructed for use with situation-appropriate message lists.

Don’t make the overlay too thick! The keyboard is very sensitive, and thick overlays can actuate the unit with no additional force being applied.

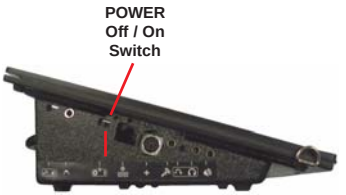
4. Sample overlays and overlay templates that may be photocopied are provided as standard accessories. Overlay templates are also available from Mayer-Johnson LLC (see contact details in Appendix C) and others.

OPERATION

On the left side of the MACAW is a slide switch marked RECORD  PLAY. It will be in **PLAY** position for the **user** and in **RECORD** position for the **facilitator**. While in RECORD Mode, in addition to being able to record messages, the facilitator may set up and/or alter the operational characteristics of the unit.

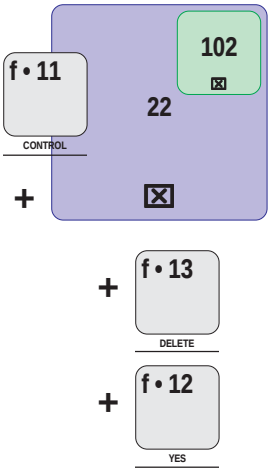


The keyboard has 32 (or 128) Message Keys in which recordings will be stored. Across the top are 16 smaller Function Keys with which the facilitator will format the MACAW for the individual user. Keep in mind that, with only a few exceptions, the Function Keys are active only when the RECORD / PLAY Switch is in the RECORD position, and they are specifically for the use of the attending facilitator. The Function Keys will be referred to as "**f • #**" throughout this manual, where the "#" is a number from 1 to 16.



The POWER Switch OFF  ON is used to disable the keyboard so the unit cannot be turned on inadvertently. **Turning the power off does not erase the vocabulary in memory.** The power should be turned off whenever the unit is packaged for shipment or stored for any length of time (see note on Page 1-5 about long-term storage).

CLEAR Everything

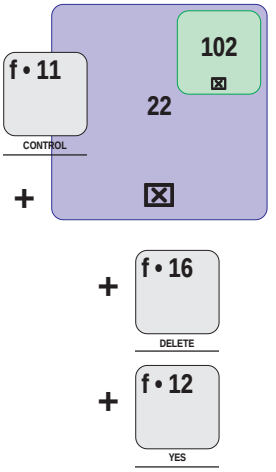


The details about CLEARing the MACAW and discussions about PERSONALITYs are elsewhere in this manual, however, since you might be familiar with the routine operation of previous MACAWs and want to get started immediately, this procedure allows you to CLEAR the unit of all active vocabulary/recordings and parameter settings.

1. *Switch to RECORD Mode*
2. Press f•11 (CONTROL), then
3. Press the CLEAR Message Key #22 [Key #102] (⊠), then
4. Press f•13 (DELETE), then, *if you really want to CLEAR,*
5. Press f•12 (YES)
6. *Switch to PLAY Mode*

All the vocabulary/recordings will be CLEARed and the operating parameters will be as set by the factory.

CLEAR Vocabulary/Recordings ONLY



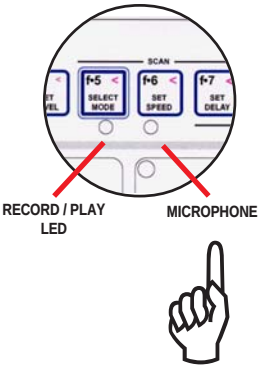
The details about CLEARing the vocabulary/recordings of the MACAW and leaving the operating parameters intact are elsewhere in this manual. Again, this is for those who need quick action.

1. *Switch to RECORD Mode*
2. Press f•11 (CONTROL), then
3. Press the CLEAR Message Key #22 [Key #102] (☒), then
4. Press f•16 (ALT), then *if you really want to CLEAR,*
5. Press f•12 (YES)
6. *Switch to PLAY Mode*

All the vocabulary/recordings will be CLEARed and the operating parameters will remain unchanged.

RECORDING & PLAYING BACK

To RECORD



1. *Switch to RECORD Mode*

2. Press and **hold** any of the Message Keys, and while the Record / Play LED is lighted, speak into the microphone

Hold the unit so the microphone is about 6 inches (150 mm) from your mouth and speak in a natural volume and tone. If it would be more convenient, an external microphone may be used.

Do not cover the microphone opening while recording.

Ambient room noise, such as the sound of an air conditioner, fans, fluorescent light hum, etc., will be amplified when messages are played back. In those conditions, speak somewhat louder than normal or, if desired, use an external microphone.

3. Release the Message Key when the recording is complete
4. Repeat with each Message Key to be utilized

5. *Switch to PLAY Mode*

Messages may be re-recorded at any time.

HELPFUL HINTS for RECORDING

A. Try to use age-, gender-, and dialect-appropriate people to record for the actual user.

B. Experiment to learn how long messages may be and the rate at which you need to speak in order to determine the number of messages you may eventually be able to use, especially if you intend utilizing the LEVELs or KEY LINK features.

C. Message lists which are situation-appropriate should be established and documented for rapid recording as needed; e.g., Going to: the market, the restaurant, the pharmacy, the park, the playground, etc. Message lists can be stored on a tape recorder and retrieved when needed by an assistant or the user, if able. Consider the flexibility...it takes only minutes to record an entire activity's messages!

Sample Message List

1. Please help me.
2. I'm very tired.
3. I don't feel well.
4. Stop! Don't do that!
5. Adjust the TV for me.
6. Change the window.
7. My prescription needs filling.
8. Let's go to the movies.
9. Hi, how are you?
10. I'm fine, thanks.
11. See you soon.
12. Stay awhile.
13. That's very funny.
14. I can't have any salt.
15. I'm fixing dinner tonight.
16. I need to do shopping.
17. Hello.
18. Goodbye.
19. Thanks for calling.
20. Yes.
21. No.
22. A glass of dry white wine.
23. Let's have lunch soon.
24. Take me to the market.
25. Please call back later.
26. Ask me "yes"/"no" questions.
27. Wait, I'm not finished.
28. I love you.
29. I'm angry with you.
30. I need my glasses.
31. Get my pointing board.
32. Replace my MACAW's batteries, please.

To PLAY Back

To PLAY back a recorded message, simply select the Message Key. The Record / Play LED will light if the message is being played. If nothing is heard, check the volume setting.

In an effort to provide additional feedback, especially to hearing impaired users, the LED in each Message Key will illuminate while the key is actuated.

OPERATIONAL CHANGES

The operational format of the MACAW is set by the facilitator using the Function Keys, sometimes in combination with Message Keys.

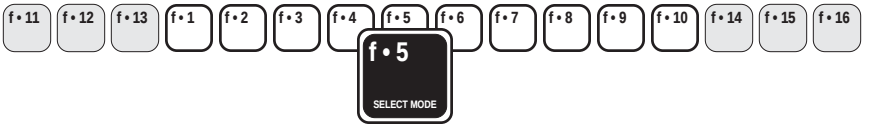
Usually, a setting is made

- by selecting a Function Key followed by another Function Key **(f • # + f • #)**, or
- by a Function Key followed by a Message Key **(f • # + Key #)**.

When a variety of options are available for a specific operation mode, it will require a third key selection,

- another Function Key **(f • # + Key # + f • #)**.

Since the most significant Function Key (the one which will be used most often) is **f•5 (SELECT MODE)**, its use will be described first in the following pages.



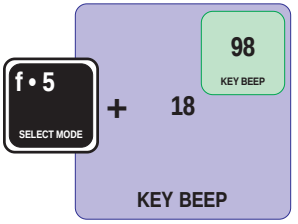
SELECT MODE Key

The SELECT MODE Key, in combination with Message Keys, is used to change the primary operating parameters of the MACAW. Among others, these include the number of Message Areas (we call them Enlarged-Key patterns), the scanning method, KEY BEEP toggle, and auditory switch feedback for scanning. It is also used to activate certain functions for access by the user: SELECT LEVEL and VOLUME, for example.

All Function Key selections must be made by the facilitator in RECORD Mode. Switch back to PLAY Mode for the user.

Keyboard Panel Markings

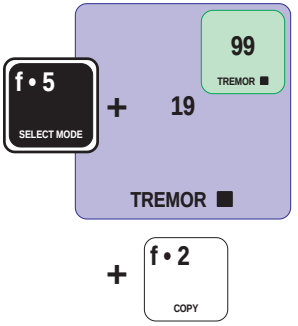
The Keyboard panel markings indicate the various combinations of key selections used in the MACAW.



For simple settings, the facilitator will press the f•5 (SELECT MODE) key and a Message Key. The Message Keys will be marked with words or an icon. For example, to turn the KEY BEEP function on or off:

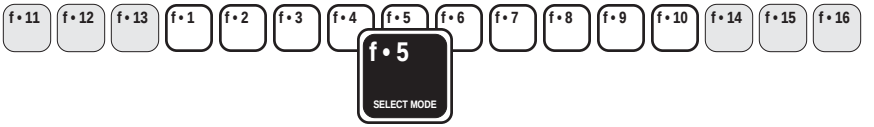
- select **f•5** (SELECT MODE) and
- **Key #18** [Key #98] (KEY BEEP)

<function> ■



For those settings that offer multiple options, the first two selections will be followed by a third key (another Function Key). Where the third key selection is needed, the Message Key is coded with ■ following the SELECT MODE function title. For example, to set delayed key entry, TREMOR ■ :

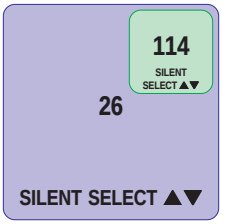
- select **f•5** (SELECT MODE), then
- **Key #19** [Key #99] (TREMOR ■), and then a Function Key,
- **f•1 through f•10**



Setting User Options

Some SELECT MODE functions offer options that allow the user to control the MACAW's operation, such as SELECT LEVEL or output VOLUME control. The following Message Key markings should assist in understanding their use.

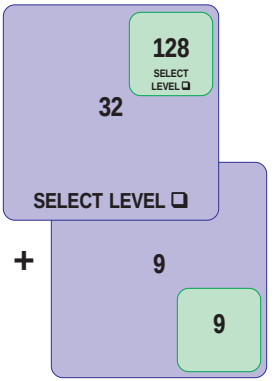
<function> ▲▼



Where, after having been activated in RECORD Mode, the SELECT MODE function may be toggled ON and OFF with repetitive selections by the user, the Message Key marking is followed by ▲▼ . For example, to SILENT SELECT ▲▼ while in PLAY Mode, the user will:

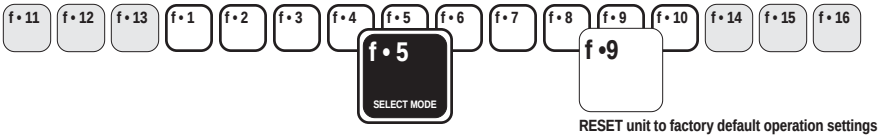
- select **Key #26** **[Key #114]** (SILENT SELECT ▲▼) to turn it ON; repeat by
- selecting **Key #26** **[Key #114]** (SILENT SELECT ▲▼) to turn it OFF

<function> ❑



Where the use of a Message Key is made available to the user and selecting that key requires that the user make an additional selection of another Message Key, the Message Key is marked with ❑ . For example, after activation from RECORD Mode, to give the user the ability to change Levels in PLAY Mode, the user will SELECT LEVEL ❑ like this:

- select **Key #32** **[Key #128]** (SELECT LEVEL ❑), then
- select a Message Key, **Key #1** through **Key #32**



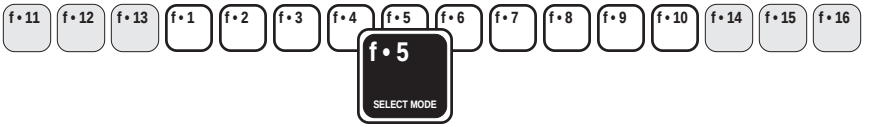
ATTENTION!
This Section is MOST IMPORTANT!

RESET to Factory Default Operation Settings

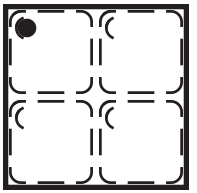
Sometimes, after making many changes to the operating parameters of the MACAW, certain operations may not function, solely because some settings have been put in conflict with others. So that you may "start over" without affecting the recorded messages, the MACAW can be RESET to its factory Default Settings.

1. *Switch to RECORD Mode*
2. Press f•5 (SELECT MODE), and then
3. Press f•9 (RECORD)
4. *Switch to PLAY Mode*

All operating parameters are as set at the factory. Select new values as desired.



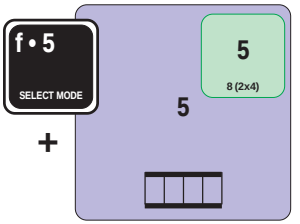
Set Number of Message Areas



A number of regularly shaped keyboard patterns, from the full 32-key **[128-Key]** format (the default setting) to an enlarged 2-key layout (where each key is made up of 16 **[64]** regular sized keys in a 4 x 4 **[8 x 8]** matrix), may be used on the MACAW. In the Enlarged-Key patterns, only one recording needs to be made for each Enlarged-Key; the unit will, automatically, put the recorded message on each of the individual keys within the Enlarged-Key without consuming addtional memory.

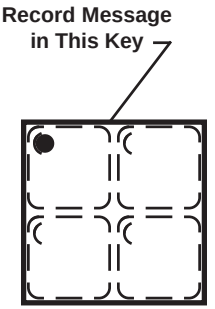
The real location of the recorded message is in the upper left corner of the Enlarged-Key pattern.

1. Switch to RECORD Mode



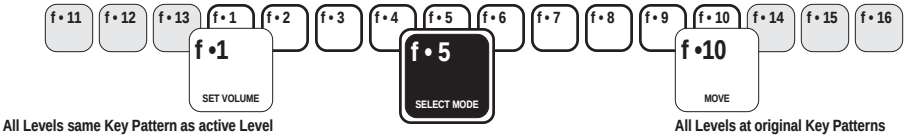
2. Press f•5 (SELECT MODE) and then
3. Press a Numbered Message Key for the desired key pattern

- **[#1]** - 128 Message Areas (8 Rows x 16 Columns)
- **[#2]** - 64 Message Areas (8 Rows x 8 Columns)
- **#1 [#3]** - 32 Message Areas (4 Rows x 8 Columns)
- **#2 [#4]** - 16 Message Areas (4 Rows x 4 Columns)
- **#3 [#5]** - 8 Message Areas (2 Rows x 4 Columns)
- **#4 [#6]** - 4 Message Areas (2 Rows x 2 Columns)
- **#5 [#7]** - 4 Message Areas (1 Row x 4 Columns)
- **#6 [#8]** - 2 Message Areas (1 Row x 2 Columns)



Messages may now be recorded. Although any key within the Enlarged-Key can be used for recording, for ease of understanding, messages should be recorded in the upper left corner Message Area of the Enlarged-Key pattern because that is where the actual message will reside. The message will automatically be transferred to the other Message Areas contained by the Enlarged-Key.

4. Switch to PLAY Mode



Key Patterns and Levels

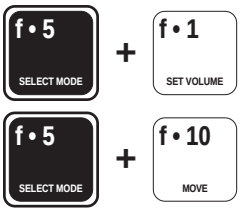
If the MACAW has been recorded in its 32-key pattern and then changed to an Enlarged-Key pattern, the message in the upper left corner key of the new pattern will be the active message.

The default Key pattern for the MACAW is the 32-Key [128-Key] pattern. If Enlarged-Key patterns are desired while using Levels, the Enlarged-Key pattern will need to be set for each new Level.

However, if you often work with the same Enlarged-Key pattern on all Levels, you can set the MACAW to "copy" that pattern to all Levels. You are able to switch between Levels having different or same key patterns.

1. Switch to RECORD Mode

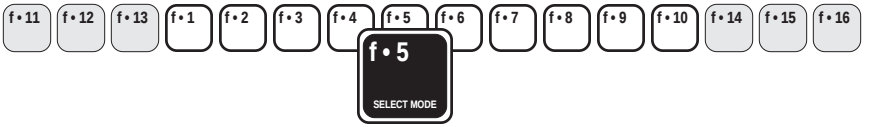
2. Press f•5 (SELECT MODE), and then
3. Press a Function Key to set the key pattern wanted



f•1 to set all Levels to the same pattern as the active Level

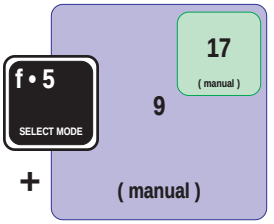
f•10 to set all Levels to their original (maybe different) patterns (this is the default setting)

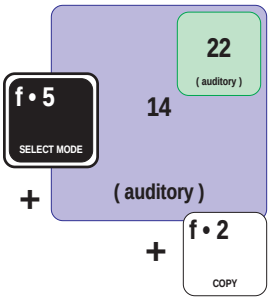
4. Switch to PLAY Mode



Set Scanning Mode

In the MACAW, each Scan Mode is set by the following method and may be changed at any time. In-depth details are given in the SCANNING section of this manual.





1. Switch to RECORD Mode

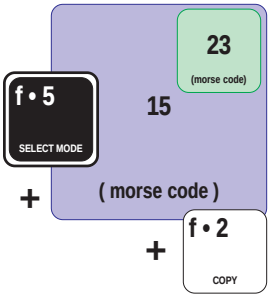
2. Press f•5 (SELECT MODE) and then
3. Press the Numbered Message Key for the desired scanning method

#9 - **[#17]**- Manual / Directed Scan, Linear
#10 - **[#18]**- Automatic Scan, Linear
#11 - **[#19]**- Automatic Scan, Block / Row / Column
#12 - **[#20]**- Automatic Scan, Row / Column
#13 - **[#21]**- Multi-Switch Directed Scan
#14 - **[#22]**- Auditory Scan (must be followed by a Function Key to select the specific mode)

- f•1 No Repeat:
  Speak Each Message and
  Stop after the Selected Message
- f•2 Repeat:
  Speak Each Message at low (personal) volume and
  Repeat the Selected Message at a louder (public) volume
- f•3 Repeat Using Earphone:
  Speak Each Message into the earphone (personal) and
  Repeat the Selected Message into the unit's speaker (public)
- f•4 Cue:
  Speak Each Cue into the earphone (personal) and
  Speak the Associated Message into the unit's speaker (public)
- • • •
- f•10 Exit Auditory Scan Mode

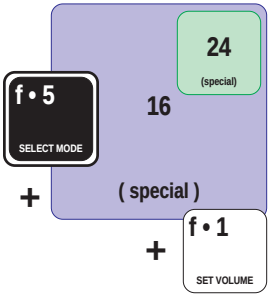
AUDITORY Scan works in conjunction with the Visual Scanning Modes and, therefore, one of those should also be selected (the default Visual Scanning Mode is MANUAL).

(Continued next page)



#15 - **[#23]**- Morse Code (must be followed by a Function Key to select the specific mode)

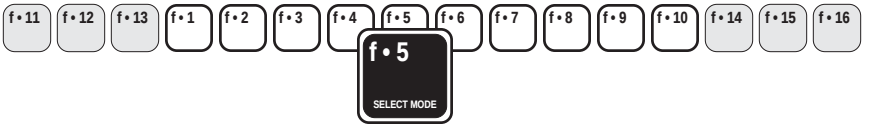
- f•1 Single-Switch:
  Unit interprets time lengths of "*dits*" and "*dahs*"
- f•2 Dual-Switch:
  Automatic "keying" of "*dits*" and "*dahs*", time delay for entry
- f•3 Three-Switch:
  Manual "keying" of "*dits*" and "*dahs*", 3rd switch for entry
- • • •
- f•10 Exit Morse Code Mode



#16 - **[#24]**- Special Scanning options (must be followed by a Function Key to select the specific option)

- f•1 Right-to-Left Scanning:
- • • •
- f•10 Left-to-Right Scanning: (Default)

4. Switch to PLAY Mode

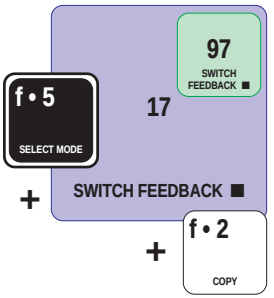


Set Auditory Feedback when User's Switch is Actuated

Some users will require auditory feedback whenever they actuate a switch used for scanning. The MACAW provides three (3) options for switch feedback:

- **NO FEEDBACK** is the default setting.
- **MOMENTARY** sets the MACAW to **buzz momentarily** whenever a switch is actuated.
- **CONTINUOUS** sets the MACAW to **buzz continuously** as long as the switch actuation is maintained.

Set Switch Feedback

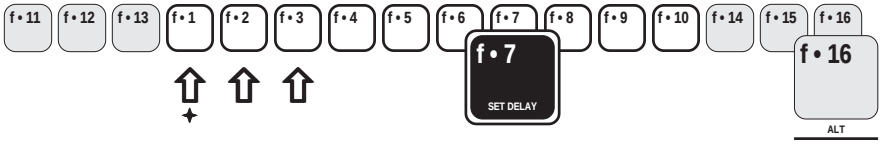


1. *Switch to RECORD Mode*
2. Press f•5 (SELECT MODE)
3. Press Message Key #17 [Key #97] (SWITCH FEEDBACK ■)
4. Press the Function Key for the desired switch feedback setting

   f•1 - NO FEEDBACK
   f•2 - MOMENTARY
   f•3 - CONTINUOUS

5. *Switch to PLAY Mode*

The Default Setting is NO FEEDBACK (f•1).



Set User's Switch Debounce Time (Switch Delay)

If, due to a lack of positive control after making a switch selection during scanning, the user erroneously actuates the switch again, the MACAW can be made to ignore those extra switch presses for a specific period of time.

Set Debounce Time

1. *Switch to RECORD Mode*

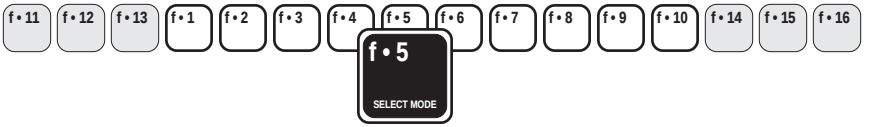
2. Press f•7 (SET DELAY)
3. Press f•16 (ALT)

4. Press a Function Key from f•1 to f•10 for the desired switch delay setting:

   f•1 - No delay
   f•10 - Maximum Delay

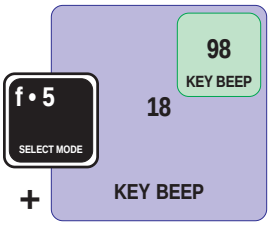
   (f•1 is the default value)

5. *Switch to PLAY Mode*



Toggle KEY BEEP On/Off

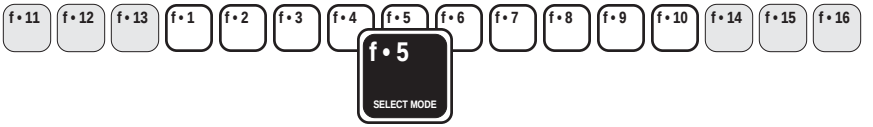
The MACAW provides auditory feedback by sounding a simple beep when Message Keys are selected and there is no obvious, immediate response, such as talking. There may not be a message recorded, or when using KEY LINK, for example, there is a delay between the time a linked key is actuated and the spoken output occurs. It can be disconcerting if one is expecting a response and is not prepared for either nothing or a delay, which usually causes the user to tend to push harder and longer on the key to try to make contact. The KEY BEEP provides a bit of comfort by letting the user know a selection actually has been made. On the other hand, beeping keys can be a little disruptive in group environments, and it's nice to be able to use the system silently.



1. *Switch to RECORD Mode*
2. Press f•5 (SELECT MODE)
3. Press Message Key #18 [Key #98] (KEY BEEP)
4. *Switch to PLAY Mode*

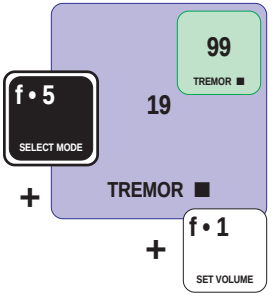
The Default Setting is KEY BEEP on.

Repeat steps *1.* through *4.* to toggle the KEY BEEP off.



Set TREMOR Time (Delayed Key Selection)

Some users may inadvertently actuate keys that are not intended to be selected. Often, a keyguard helps to overcome this difficulty but when it doesn't, especially when working with expanded keys where a keyguard's height would need to be substantial in order to be effective, delayed key acceptance may help. It is, therefore, possible to set a length of time for which a key must be pressed before it is considered a selection by the MACAW.



1. *Switch to RECORD Mode*
2. Press f•5 (SELECT MODE)
3. Press Message Key #19 [Key #99] (TREMOR ■)
4. Press a Function Key from 1 through 10:

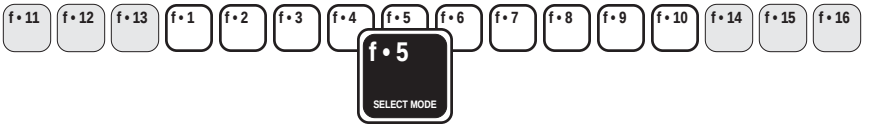
   f•1 - provides NO TREMOR DELAY

   • • •

   f•10 - sets the TREMOR DELAY to MAXIMUM
5. *Switch to PLAY Mode*

The Default Setting is NO DELAY (f•1).

If used in conjunction with KEY LINK Mode, it will be necessary to keep the TREMOR Delay Time setting shorter than the KEY LINK Delay Time setting.



Activate the TALK / REPEAT Key to Speak or Repeat Messages

This is a method for repeating a string of messages that have been selected from individual Message Keys. After selecting a series of Message Keys, which will have "spoken" at the time of selection, pressing the TALK / REPEAT Key (Key #25) [Key #113] will cause the unit to repeat those messages in sequence. Each subsequent selection of the TALK / REPEAT Key will repeat the string. The string of messages saved in the TALK / REPEAT Key will reset as soon as a new Message Key is selected.

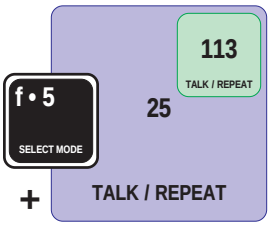
The TALK / REPEAT Key is user accessible only in the [128-, 64-], 32-Message Area Pattern(s) and may be used with Levels and KEY LINK Modes.

When active, the TALK / REPEAT Key may **not** have an associated message.

The TALK / REPEAT Key may be moved to another location. See the MOVE section of this manual.

Even when not manually activated, the TALK / REPEAT Key is automatically activated and deactivated when the SILENT SELECT ▲▼ Key is in use.

Activate the TALK / REPEAT Key



1. *Switch to RECORD Mode*
2. Press f•5 (SELECT MODE)
3. Press Message Key #25 [Key #113] (TALK / REPEAT)*
4. *Switch to PLAY Mode*

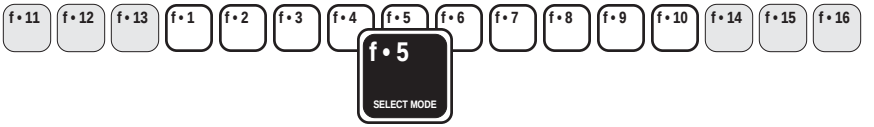
The user may now select any number of Message Keys and press Key #25 [Key #113] (TALK / REPEAT) to TALK the string of messages. Select Key #25 [Key #113] (TALK / REPEAT) again to REPEAT the string. The LEDs of selected Message Keys will light as each key is played back.

Deactivate the TALK / REPEAT Key

Repeat Steps 1 through 4, above, to turn off the TALK / REPEAT Key function.

The Default Setting is TALK / REPEAT off.

*The MACAW will sound 4 "beeps" when the function is activated, and will sound 2 "beeps" when the function is deactivated.



Silent Selection

This is a method which permits the user to select a string of individual messages (from individual Message Keys) without having them speak, and then speaking the entire string at one time. This is a user-accessible function, and he or she can toggle it on and off. When SILENT SELECT is off, each message is spoken when selected.

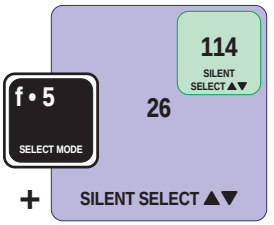
With SILENT SELECT ▲▼ active, pressing the TALK / REPEAT Key (Key #25 [Key #113]) will cause the unit to speak, sequentially, the messages of (silently) selected Message Keys. Therefore, the minimum number of keys that will have to be selected in this mode is two (2); a Message Key and the
TALK / REPEAT Key.

SILENT SELECT is user accessible <u>only</u> in the [128-, 64-], 32-Message Area Pattern(s) and may be used with Levels and KEY LINK Modes.

When active, the SILENT SELECT ▲▼ Key may **<u>not</u>** have an associated message.

The SILENT SELECT ▲▼ Key is movable to other locations. See the MOVE section of this manual.

Activate User's SILENT SELECT ▲▼ Key



1. *Switch to RECORD Mode*
2. Press f•5 (SELECT MODE)
3. Press Message Key #26 [Key #114] (SILENT SELECT ▲▼)*
4. *Switch to PLAY Mode*

The user may now select any number of Message Keys and press Key #25 to TALK the string of messages. Subsequent pressing of Key #25 will REPEAT the string of messages. The string will be cleared and new messages remembered as soon as another Message Key is selected.

*The MACAW will sound 4 "beeps" when the function is activated,
and will sound 2 "beeps" when the function is deactivated.

Toggle Silent Selection On/Off

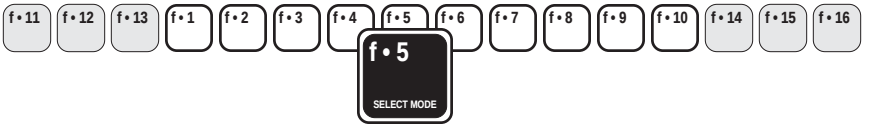
Silent Selection can be toggled on and off by the user by selecting the SILENT SELECT ▲▼ Key*. When off, the MACAW will speak each message as it is selected. The TALK / REPEAT Key will not function to repeat messages unless it was, specifically, activated for access by the user. See the TALK / REPEAT Key section of this manual.

Deactivate SILENT SELECT ▲▼ Key

Repeat Steps 1 through 4, above, to disable Silent Selection so it is no longer available to the user.

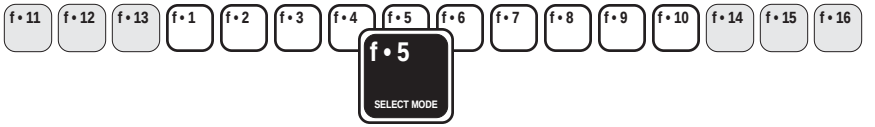
The Default Setting is SILENT SELECT ▲▼ off.

*The MACAW will sound 4 “beeps” when the function is activated, and will sound 2 “beeps” when the function is deactivated.

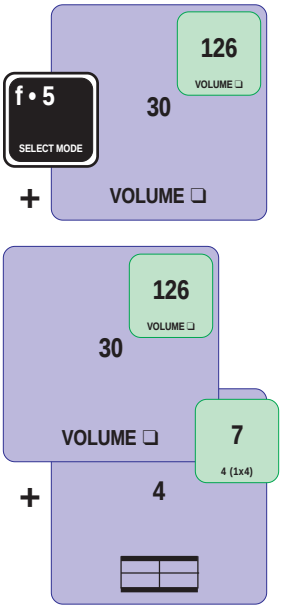


EXTEND RECORDING
Limit

In this new MACAW, a recorded message may be re-recorded at any time, to the amount of time remaining in the MACAW. The EXTEND RECORDING procedure, required in older MACAWs, is not needed in this version. The only penalty paid for this new process is that the recording time of the original message will be subtracted from the total time available (until the next time the unit's memory is Compacted. See the Compact Memory section of this manual).



Activate User's VOLUME ❑ Control



Normally, the facilitator sets the unit's output volume (see the VOLUME CONTROL section of this manual), and it is not changeable by the user. However, the user may be allowed to change the output volume with a 2-key selection process: Key #30 [Key #126] (VOLUME ❑) and a Message Key, #1 through #8 [#16] .

1. *Switch to RECORD Mode*
2. Press f•5 (SELECT MODE)
3. Press Message Key #30 [Key #126] (VOLUME ❑)*
4. *Switch to PLAY Mode*

The user may now set the output volume of the unit by

- selecting Message Key #30 [Key #126] (VOLUME ❑) and
- Message Key #1 through Message Key #8[Key #16]
  - Key #1 SILENT
  - • • •
  - Key #8 [#16] LOUD

The VOLUME ❑ Key is user accessible only in the [128-, 64-], 32-Message Area Pattern(s) and may be used with Levels and KEY LINK Modes.

When active, the VOLUME ❑ Key **may** have an associated message.

The VOLUME ❑ Key may be moved to another location. See the MOVE section of this manual.

Selecting the Key twice truncates any message being spoken (like selecting f•1 when the VOLUME Control is active).

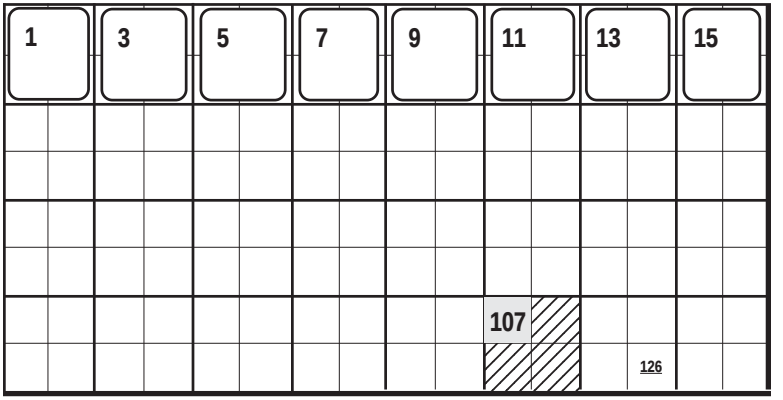
The Default Setting is User's VOLUME at Key #4.

*The MACAW will sound 4 "beeps" when the function is activated,
and will sound 2 "beeps" when the function is deactivated.

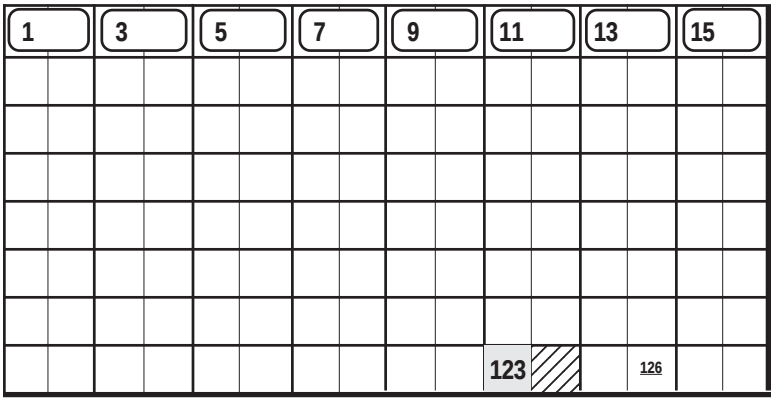
128-Key MACAW Enlarged-Key Considerations for User's VOLUME ❑ Control

When active, the VOLUME ❑ Key is useable in the full 128-Key Pattern as well as the 64- and 32-Message Area Patterns. When in an Enlarged-Key pattern, the function of the VOLUME ❑ Key will move appropriately so that the entire Enlarged-Key in the third-to-the-left of the lower right corner will provide that function. In addition, the Volume Adjustment Keys will map across the top row of Message Keys from 16 keys to 8 keys.

Keyboard Pattern	Active Location of VOLUME ❑ Key
128	Key #126
64	Key #123
32	Key #107



32-Key Pattern

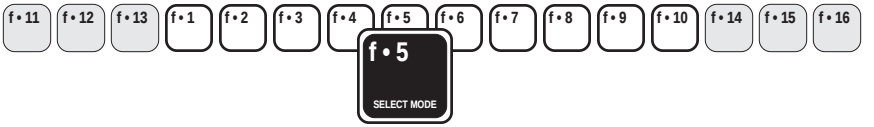


64-Key Pattern

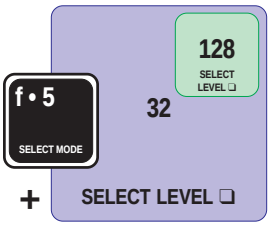
In RECORD Mode, the VOLUME ❑ **Key is *ALWAYS* located in Message Area #126.**

Deactivate User's VOLUME ❑ Control

Deactivate the user's ability to change VOLUME by repeating steps 1 through 4 on page 3-19.



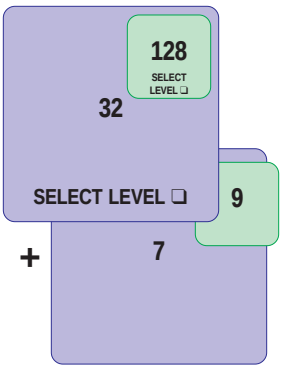
Activating the SELECT LEVEL ❑ Key



Message Key #32 [Key #128] (SELECT LEVEL ❑) may be activated so that the user can select LEVELs from the keyboard (see the LEVELs section of this manual). When it is active, any message stored under that key is also available and will be spoken after the delay time that has been set.

1. *Switch to RECORD Mode*
2. Press f•5 (SELECT MODE)
3. Press Message Key #32 [Key #128] (SELECT LEVEL ❑)*
4. *Switch to PLAY Mode*

The SELECT LEVEL ❑ Key is user accessible in <u>all</u> Message Area Modes and may be used with Levels and KEY LINK Modes. If the unit is in an Enlarged-Key pattern, the entire Enlarged-Key in the lower right corner will act as the SELECT LEVEL ❑ key.



When active, the SELECT LEVEL ❑ Key **may** have an associated message, including a KEY LINK. If a message has been recorded in the SELECT LEVEL ❑ Key, the MACAW will wait a Delay Time (set by the facilitator) before speaking, thus allowing the user time to select a LEVEL Key, if that is desired. Set the Delay Time to accommodate the user's cognitive and motoric abilities to select keys in sequence. See the SET DELAY section of this manual.

The SELECT LEVEL ❑ Key may be moved to another location. See the MOVE section of this manual.

The user may now select the operating Level of the unit by

- selecting Message Key #32 [Key #113] (SELECT LEVEL ❑) and
- Message Key #1 through Message Key #32 [Key #128], whichever is set up as a Level Key

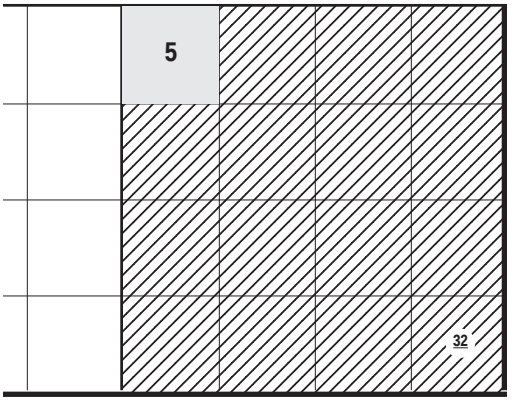
Repeat Steps 1 through 4 (above) to deactivate the SELECT LEVEL ❑ Key.

Deactivating the SELECT LEVEL ❑ Key

*The MACAW will sound 4 "beeps" when the function is activated, and will sound 2 "beeps" when the function is deactivated.

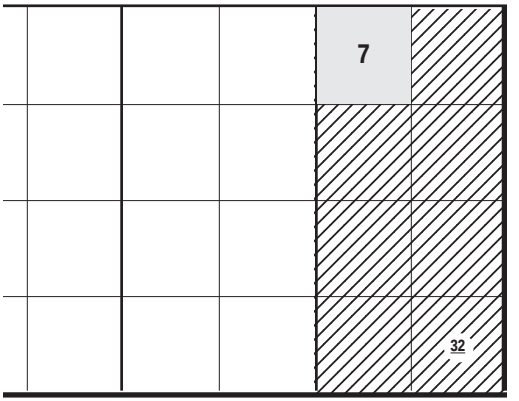
32-Key MACAW Enlarged-Key Considerations

When active, the SELECT LEVEL ❑ Key is useable in the full 32-Key Pattern as well as all the Enlarged-Key Message Area Patterns. When in an Enlarged-Key pattern, the function of the SELECT LEVEL ❑ Key will move appropriately so that the entire Enlarged-Key in the lower right corner will provide that function.

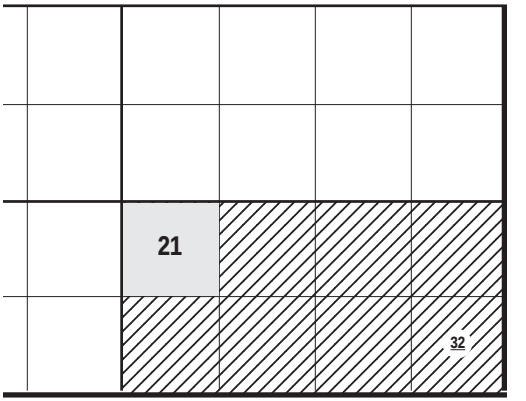


2-Key Pattern

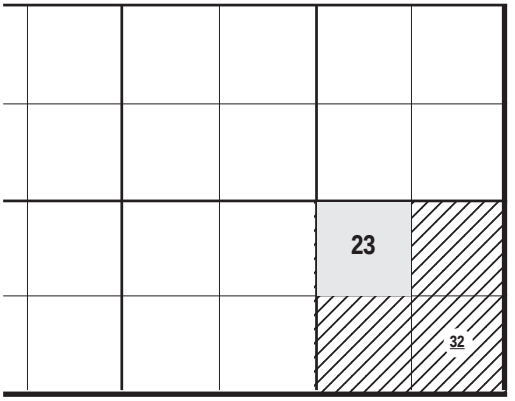
Keyboard Pattern		Active Location of SELECT LEVEL ❑ Key
32	_____	Key #32
16	_____	Key #31
8	_____	Key #23
4+	_____	Key #21
4	_____	Key #7
2	_____	Key #5



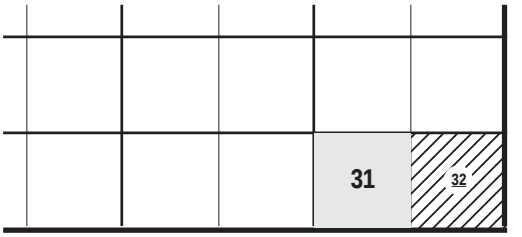
4-Key Pattern



4+-Key Pattern



8-Key Pattern

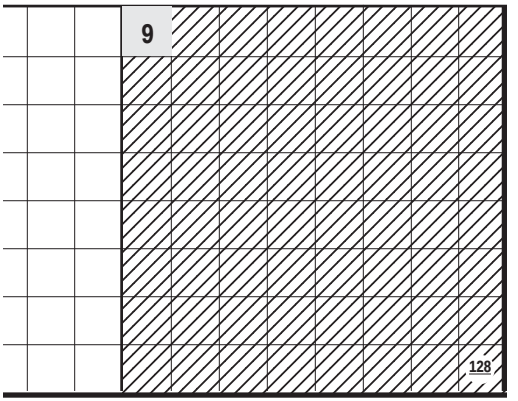


16-Key Pattern

In RECORD Mode, the SELECT LEVEL ❑ **Key is *ALWAYS* located in Message Area #32.**

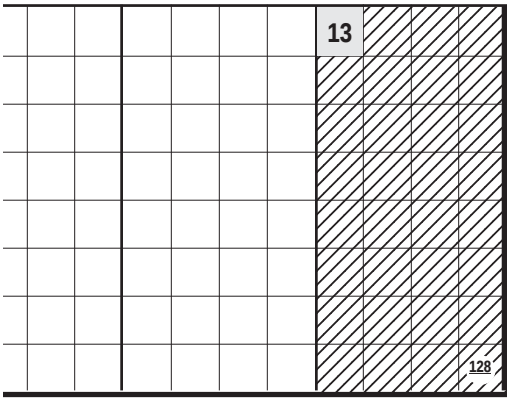
128-Key MACAW Enlarged-Key Considerations

When active, the SELECT LEVEL ❑ Key is useable in the full 128-Key Pattern as well as all the Enlarged-Key Message Area Patterns. When in an Enlarged-Key pattern, the function of the SELECT LEVEL ❑ Key will move appropriately so that the entire Enlarged-Key in the lower right corner will provide that function.

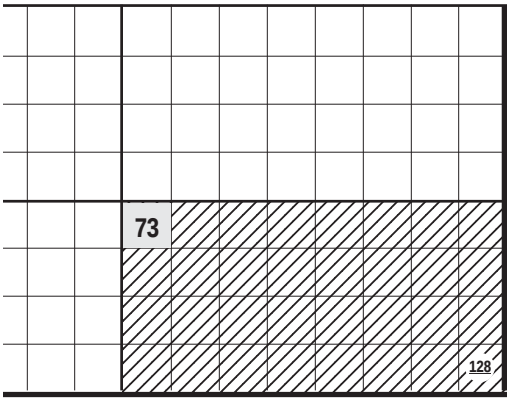


2-Key Pattern

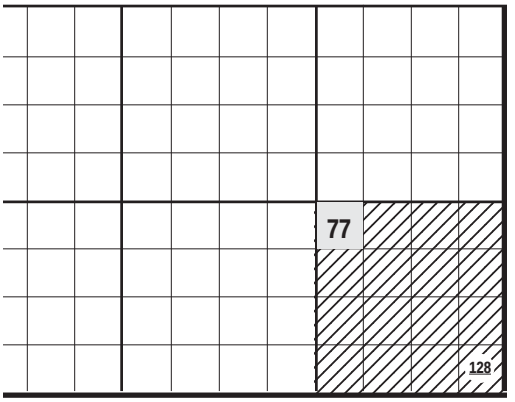
Keyboard Pattern	Active Location of SELECT LEVEL ❑ Key
128	Key #128
64	Key #127
32	Key #111
16	Key #109
8	Key #77
4+	Key #73
4	Key #13
2	Key #9



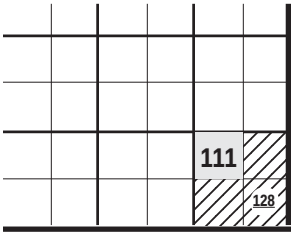
4-Key Pattern



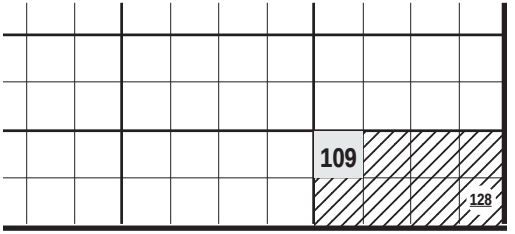
4+-Key Pattern



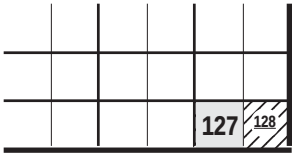
8-Key Pattern



32-Key Pattern

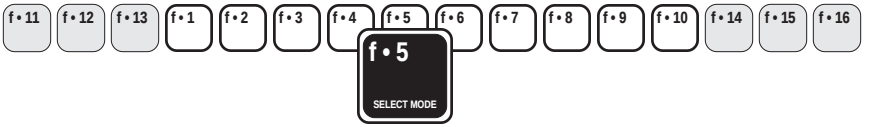


16-Key Pattern



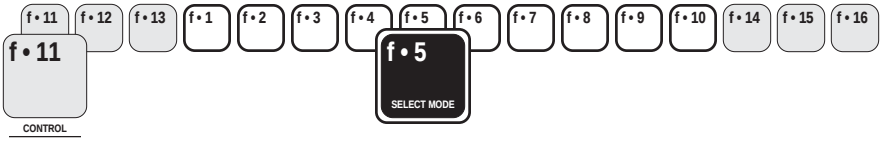
64-Key Pattern

In RECORD Mode, the SELECT LEVEL ❑ **Key is *ALWAYS* located in Message Area #128.**



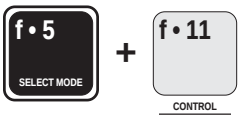
The SELECT PERSONALITY ❑ Key

Message Key #31 [Key #127] (SELECT PERSONALITY ❑) is not operational on the MACAW at this time.



Activating the CONTROL Key

Function Key f•11 (CONTROL) may be activated so that the user can access certain functions directly from the keyboard (see the CONTROL Key section of this manual). When it is active, those special functions may be accessed by actuating the CONTROL Key plus specific Message Keys.

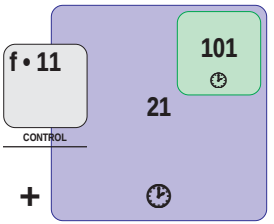


1. Switch to RECORD Mode

2. Press f•5 (SELECT MODE)
3. Press f•11 (CONTROL)*

4. Switch to PLAY Mode

The CONTROL Key is user-accessible only in the 32 Message Area pattern.



The user may now select the special functions of the MACAW by

- selecting f•11 (CONTROL) and
- Message Key #20 [Key #100] to check the battery status

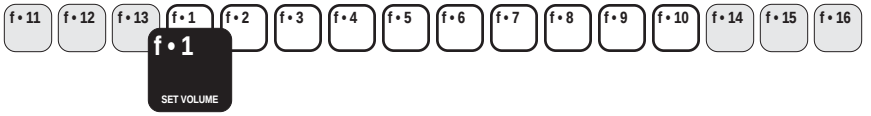
or

Message Key #21 [Key #101] to check the amount of recording time remaining

Deactivating the CONTROL Key

Repeat Steps 1 through 4 (above) to deactivate the CONTROL Key.

*The MACAW will sound 4 "beeps" when the function is activated, and will sound 2 "beeps" when the function is deactivated.



VOLUME CONTROL

SET VOLUME

The output volume of the MACAW is set by the facilitator to one of 8 intensities—from silent to quite loud.

1. Switch to RECORD Mode

2. Press f•1 (SET VOLUME)
3. Press the f•# key for the volume desired (as shown by the speaker graphics; f•5 is the default value):

   f•2 is SILENT
   • • •
   f•9 is LOUD

4. Switch to PLAY Mode

The Default Setting is f•5

Enable VOLUME Control

If the user has the fine motor control to access the Function Keys, or if the facilitator would like to adjust the volume while the unit is in PLAY Mode, the Function Keys may be used as an active VOLUME Control.

1. Switch to RECORD Mode

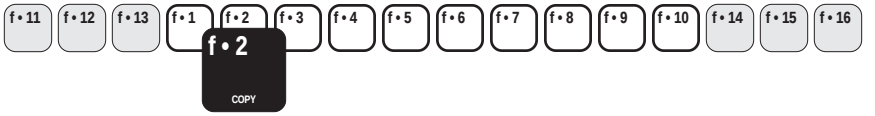
2. Press f•1 (SET VOLUME)
3. Press f•10 (Volume Control Icon)

4. Switch to PLAY Mode

The Function Keys are now active as a Volume Control while in PLAY Mode.

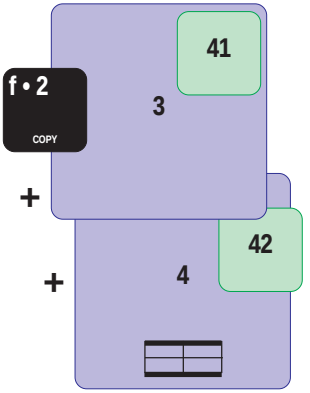
Volume may be changed while a message is being spoken.

To immediately terminate a message being spoken by the MACAW, select f•1 .



COPY

Messages may be copied into as many message areas as desired: to make larger and/or irregularly shaped area keypads, to arrange matching tasks, or to set up exercises like "concentration", for example. The COPY function also works with the MACAW's Enlarged-Key patterns.



1. *Switch to RECORD Mode*

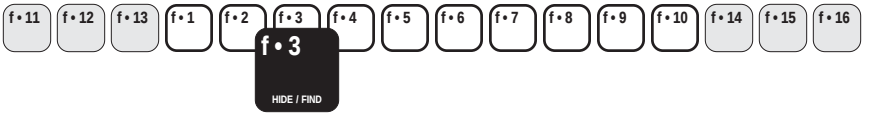
2. Press f•2 (COPY)
3. Press the Message Key to be copied
4. Press the Message Key to also have that message

Think, as you touch each of the three keys:
"Copy-this-here"

Repeat steps 2, 3 and 4 as often as desired.

5. *Switch to PLAY Mode*

No additional message memory is used with this COPY routine; only the time of the original message is deducted from the total available recording time.

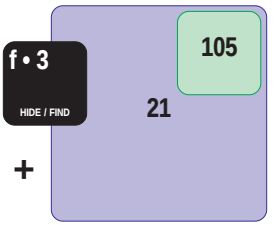


HIDE / FIND

Recorded messages can be hidden from the user by means of the HIDE Command, and they can be brought back to service with the FIND Command (excellent as a teaching strategy). HIDE / FIND is a toggle function using the f•3 Function Key.

The HIDE function is global and when hidden, the keys are inactive on all LEVELs.

HIDE

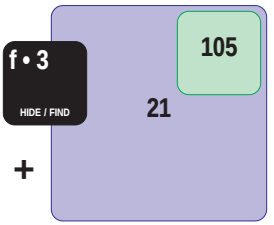


1. *Switch to RECORD Mode*
2. Press f•3 (HIDE / FIND)
3. Press the Message Key to be hidden

Repeat steps 2 and 3 as often as desired.

4. *Switch to PLAY Mode*

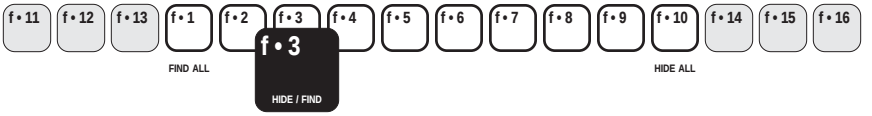
FIND



1. *Switch to RECORD Mode*
2. Press f•3 (HIDE / FIND)
3. Press the Message Key to be reactivated

Repeat steps 2 and 3 as often as desired.

4. *Switch to PLAY Mode*



HIDE ALL / FIND ALL

Rather than having to process each of the 32 [128] messages individually when it's desired to HIDE or FIND all of them, the HIDE ALL and FIND ALL commands can be used. If some Message Keys are hidden, they will remain so with the HIDE ALL command, and will be brought into play with the FIND ALL command.

HIDE ALL

1. *Switch to RECORD Mode*
2. Press f•3 (HIDE / FIND)
3. Press f•10 to HIDE ALL

All the Message Keys will now be hidden, so if some keys are now to be brought into play, follow the FIND procedure shown on the previous page.

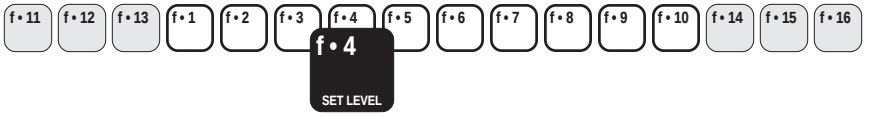
4. *Switch to PLAY Mode*

FIND ALL

1. *Switch to RECORD Mode*
2. Press f•3 (HIDE / FIND)
3. Press f•1 to FIND ALL

All the Message Keys will now be active, so if some keys are now to be hidden, follow the HIDE procedure shown on the previous page.

4. *Switch to PLAY Mode*



LEVEL Modes

The LEVEL Modes are used to expand the number of available messages. Up to thirty-two (32) [sixty-three (63)] levels may be established, and any Message Key may be used as a LEVEL Key. Of course, the total recording time available in the unit will still determine the number of messages that can be used. LEVEL Keys can also contain messages.

There are thirty-two LEVELs [sixty-three (63)] available and they can be assigned to any Message Key. Solely for the ability to identify the LEVELs, we use its Message Key number, such as "LEVEL 24", to mean the LEVEL selected by Message Key #24.

LEVEL Modes may be used in any keyboard pattern supported by the MACAW.

• **DECISIONS** •
• **DECISIONS** •
• **DECISIONS** •

There are two primary considerations for using LEVELs:

1. Selecting the keys to be LEVEL Keys —

   Which keys should be used as LEVEL Keys depends on issues like motor control, range of motion, etc. LEVEL selection should be a much less frequent occurrence than Message selection, so if access is cumbersome with direct selection or scanning, the LEVEL Keys should take a position of lesser importance—perhaps placed in a location a bit more difficult for the user to reach.

2. Deciding if the user is to have independent access to the LEVELs, or not —

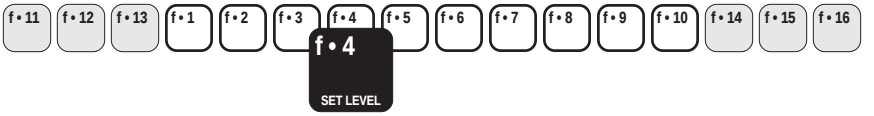
   If the user is to access LEVELs independently, his or

her physical/cognitive abilities need to be considered:

1) In the typical method of accessing LEVELs, **two (2) keys** are to be selected: the SELECT LEVEL ❑ Key and a Message Key that represents the Level. The Level Message Key and the SELECT LEVEL ❑ Key will also be usable for messages.

2) For the situation where it is necessary for the user to select only a **single key** to change LEVELs, Single-Key LEVEL Selection is an option. The penalty, however, is that each Message Key assigned as a LEVEL Key cannot have a message. Therefore, in this mode, LEVELs is usable only in the [128-, 64-], 32-Key pattern(s).

Of course, if the MACAW is to be used by multiple individuals, the choices will need considerably more thought.

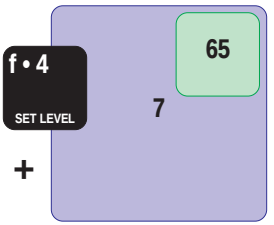


Identify LEVELs to be Used

Identify those Message Keys which will represent each of the LEVELs. These will be used to select the LEVEL for both recording and playing back.

Setting and Recording in LEVELs

LEVEL 1 (Message Key #1) is automatically established as the first operating Level. If another key is preferred, select the LEVEL # before doing any recording.

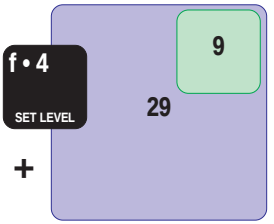


1. *Switch to RECORD Mode*
2. Press f•4 (SET LEVEL)
3. Select a Message Key to represent a LEVEL
4. Set the Key Pattern to be used (see Set Number of Message Areas elsewhere in this manual)
5. Record the messages on that LEVEL

Repeat Steps 2, 3, 4, and 5 for each LEVEL desired.

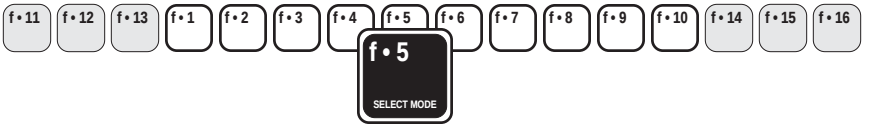
6. *Switch to PLAY Mode*

Changing LEVELs

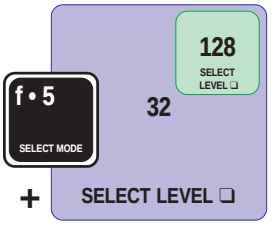


1. *Switch to RECORD Mode*
2. Press f•4 (SET LEVEL)
3. Select the LEVEL # Message Key desired
4. *Switch to PLAY Mode*

See Changing LEVELs While in PLAY Mode, Page 4-17.



Activating the SELECT LEVEL ❑ Key



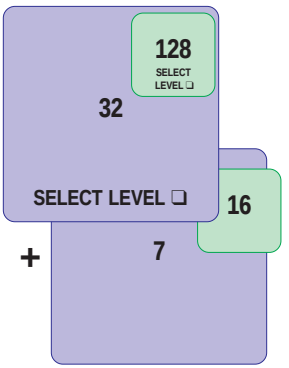
Message Key #32 [Key #128] (SELECT LEVEL ❑) may be activated so that the user can select LEVELs from the keyboard. When it is active, any message stored under that key is also available and will be spoken after the delay time that has been set.

1. *Switch to RECORD Mode*
2. Press f•5 (SELECT MODE)
3. Press Message Key #32 [Key #128] (SELECT LEVEL ❑)*
4. *Switch to PLAY Mode*

Message Key #32 [Key #128] (SELECT LEVEL ❑) is now active for selection by the user.

The SELECT LEVEL ❑ Key is user accessible in <u>all</u> Message Area Modes and may be used with LEVELs and KEY LINK Modes. If the unit is in an Enlarged-Key pattern, the entire Enlarged-Key in the lower right corner will act as the SELECT LEVEL ❑ key.

When active, the SELECT LEVEL ❑ Key **may** have an associated message, including a KEY LINK. If a message has been recorded in the SELECT LEVEL ❑ Key, the MACAW will wait a Delay Time (set by the facilitator) before speaking, thus allowing the user time to select a LEVEL Key, if that is desired. Set the Delay Time to accommodate the user's cognitive and motoric abilities to select keys in sequence. See the SET DELAY section of this manual. Messages in the SELECT LEVEL ❑ Key are not accessible by scanning.



The SELECT LEVEL ❑ Key may be moved to another location, including when used in Enlarged-Key patterns. See the MOVE section of this manual.

The user may now select the operating Level of the unit by

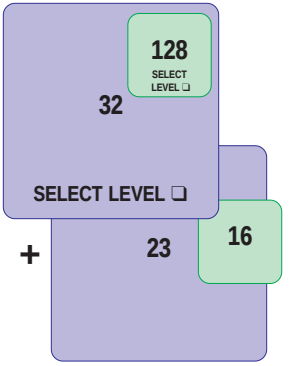
- selecting Message Key #32 [Key #128] (SELECT LEVEL ❑) and
- Message Key #1 through Message Key #32 [Key #113], whichever is set up as a Level Key

*The MACAW will sound 4 "beeps" when the function is activated, and will sound 2 "beeps" when the function is deactivated.

Changing LEVELs Using the SELECT LEVEL ❑ Key

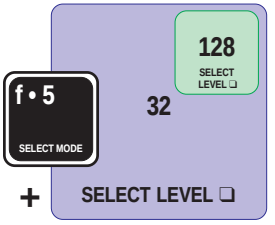
1. Press Message Key #32 [Key #113] (SELECT LEVEL ❑)
2. Press the Message Key # which represents the desired LEVEL

The MACAW will be in the selected LEVEL until changed.



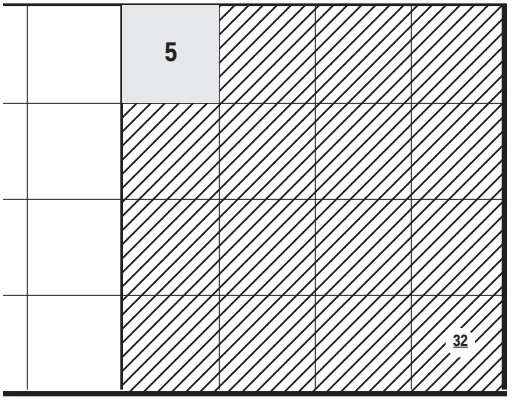
Deactivating the SELECT LEVEL ❑ Key

Repeat Steps 1 through 4 (above) to deactivate the SELECT LEVEL ❑ Key. Now, any message previously stored under that key will be spoken without waiting the Delay Time.



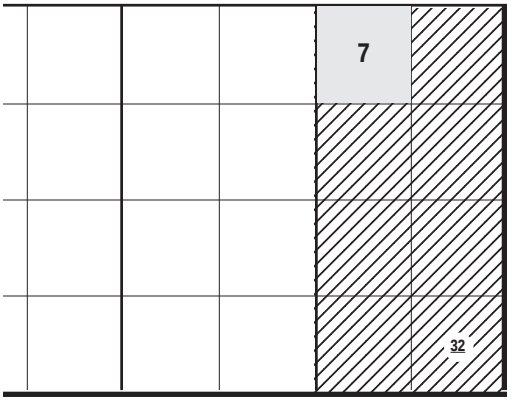
32-Key MACAW Enlarged-Key Considerations for the SELECT LEVEL ❑ Key

When active, the SELECT LEVEL ❑ Key is useable in the full 32-Key Pattern as well as all the Enlarged-Key Message Area Patterns. When in an Enlarged-Key pattern, the function of the SELECT LEVEL ❑ Key will move appropriately so that the entire Enlarged-Key in the lower right corner will provide that function.

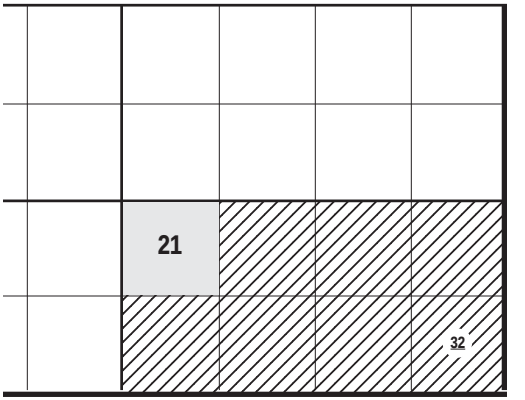


2-Key Pattern

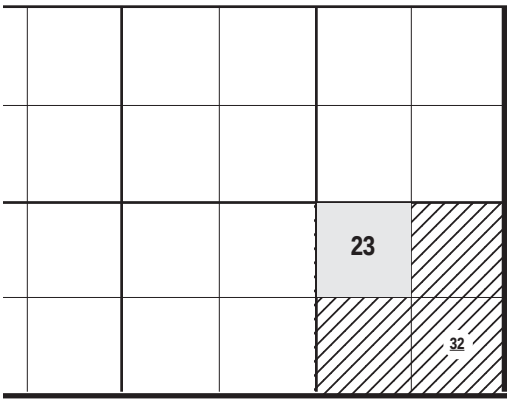
Keyboard Pattern		Active Location of SELECT LEVEL ❑ Key
32	_____	Key #32
16	_____	Key #31
8	_____	Key #23
4+	_____	Key #21
4	_____	Key #7
2	_____	Key #5



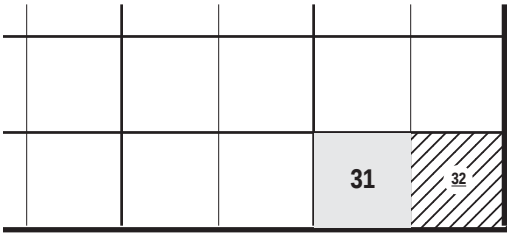
4-Key Pattern



4+-Key Pattern



8-Key Pattern

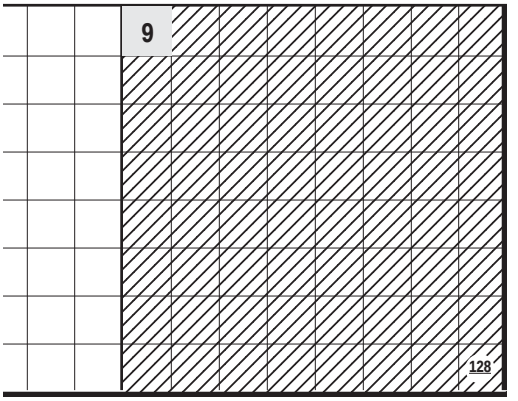


16-Key Pattern

In RECORD Mode, the SELECT LEVEL ❑ **Key is *ALWAYS* located in Message Area #32.**

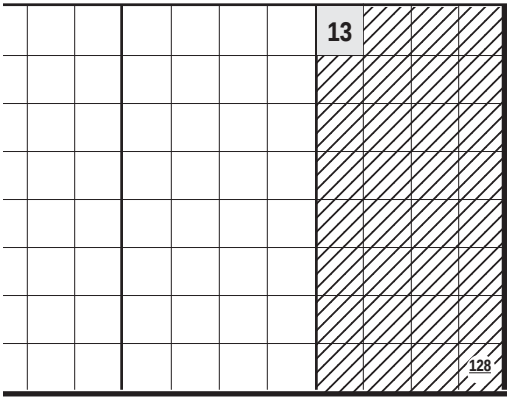
128-Key MACAW Enlarged-Key Considerations for the SELECT LEVEL ❑ Key

When active, the SELECT LEVEL ❑ Key is usable in the full 128-Key Pattern as well as all the Enlarged-Key Message Area Patterns. When in an Enlarged-Key pattern, the function of the SELECT LEVEL ❑ Key will move appropriately so that the entire Enlarged-Key in the lower right corner will provide that function.

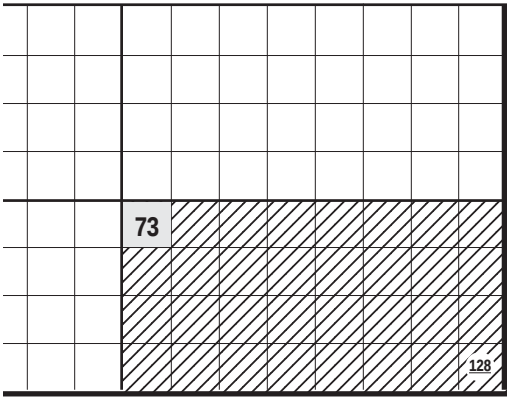


2-Key Pattern

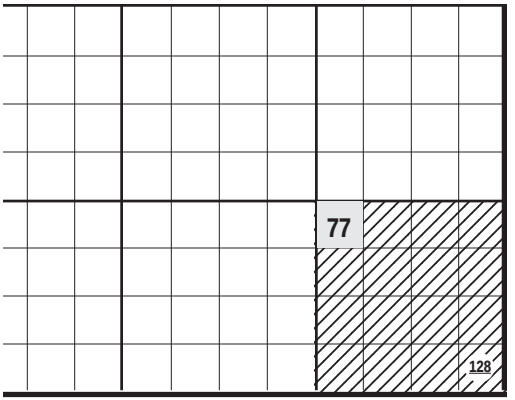
Keyboard Pattern	Active Location of SELECT LEVEL ❑ Key
128	Key #128
64	Key #127
32	Key #111
16	Key #109
8	Key #77
4+	Key #73
4	Key #13
2	Key #9



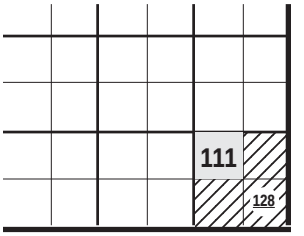
4-Key Pattern



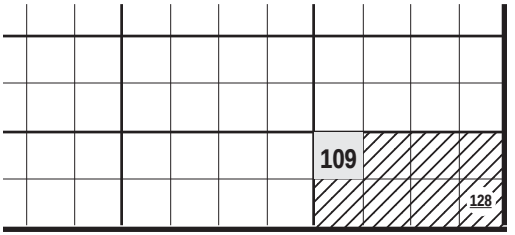
4+-Key Pattern



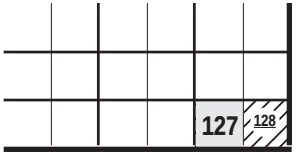
8-Key Pattern



32-Key Pattern

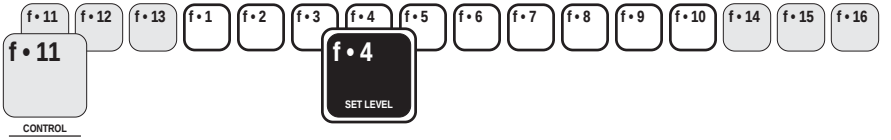


16-Key Pattern



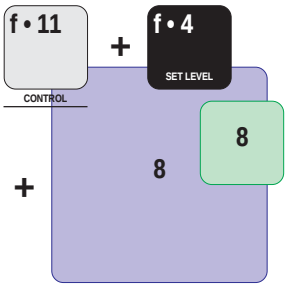
64-Key Pattern

In RECORD Mode, the SELECT LEVEL ❑ **Key is *ALWAYS* located in Message Area #128.**



Changing LEVELs in PLAY Mode

When it is desireable not to allow the user to change LEVELs, the facilitator changes them by using the Function Keys while in RECORD Mode. This procedure allows the facilitator to change LEVELs without having to switch to RECORD Mode each time the LEVEL needs to be changed.



The CONTROL Key (f•11) needs to be active (to activate the CONTROL Key, see Page 6-8). While in PLAY Mode:

1. Press f•11 (CONTROL)
2. Press f•4 (SET LEVEL)
3. Press the Message Key # which represents the desired LEVEL

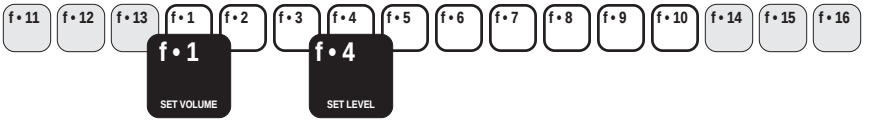
The MACAW will be in the selected LEVEL until changed.

Playing Back Messages from LEVELs

To play back a message, the LEVEL must be determined first. Having selected a LEVEL, the MACAW will stay in that LEVEL until another LEVEL is selected. So if you are already in the desired LEVEL, simply press the Message Keys desired.

To change LEVELs if the SELECT LEVEL ❑ Key is inactive, the LEVEL change must be made in RECORD Mode. Follow the Changing LEVELs procedure elsewhere in this section to select the new LEVEL Key and then select Message Keys as needed.

If the SELECT LEVEL ❑ Key is active, LEVEL selection can be made in PLAY Mode. Follow the procedure on page 4-11 to change LEVELs and then select Message Keys as wanted.



Single-Key LEVEL Selection

For those users who have difficulty with Dual-Key LEVEL Selection, the MACAW can be put into a Single-Key LEVEL selection mode. In this mode, any Message Key, including those of Enlarged-Key patterns, may be used as a LEVEL Key but may not have messages associated with them.

The default factory setting for a MACAW is the Dual-Key LEVEL selection mode. You can change to the Single-Key LEVEL selection mode and alternate back and forth between the two. However, certain operations are incompatible and will not be allowed. If messages have been stored in LEVEL Keys, they will be "hidden" in the Single-Key LEVEL selection mode and will reveal themselves when Dual-Key LEVEL selection mode is re-selected.

1. *Switch to RECORD Mode*
2. Press f•4 (SET LEVEL)
3. Press the f•1 Function Key
4. *Switch to PLAY Mode*

Identify Single-Key LEVELs to be Used

Identify those Message Keys which will represent each of the LEVELs. These will be used to select the LEVEL for both recording and playing back and may contain no messages of their own. Probably the best choices for LEVEL Keys in this mode are the extreme right or left columns or the top or bottom rows. The total amount of recording time available in the MACAW will determine the number of messages that may be used.

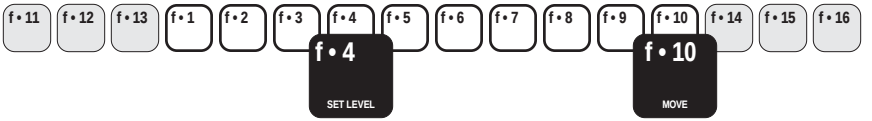
Recording in Single-Key LEVELs

1. Switch to RECORD Mode

2. Press f•4 (SET LEVEL)
3. Select the Message Key which represents the LEVEL
4. Record the messages on that LEVEL

Repeat Steps 2, 3, and 4 for each LEVEL desired.

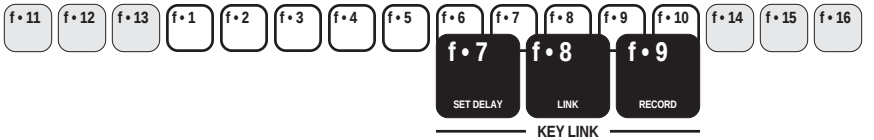
5. Switch to PLAY Mode



Return to Dual-Key LEVEL Selection

To return to Dual-Key LEVEL Selection:

1. *Switch to RECORD Mode*
2. Press f•4 (SET LEVEL)
3. Press the f•10 Function Key
4. *Switch to PLAY Mode*



KEY LINK Mode

KEY LINK is a method by which ***virtually any number of keys*** may be combined to provide additional messaging capability to the MACAW. Messages may be associated with individual keys or with sequences of two or more keys. The message of the sequenced keys may bear no relationship to the messages in the individual keys.

If a Message Key has been used in a KEY LINK sequence, the MACAW will wait a Delay Time (set by the facilitator) before speaking, thus allowing the user time to select the next key, if desired. Set the DELAY Time to accommodate the user's cognitive and motoric abilities to select keys in sequence. The MACAW will speak immediately upon the selection of the last key in a sequence.

1. *Switch to RECORD Mode*

LINK 

2. Press f•8 (LINK)
3. Press the sequence of two or more keys (80 maximum)

RECORD 

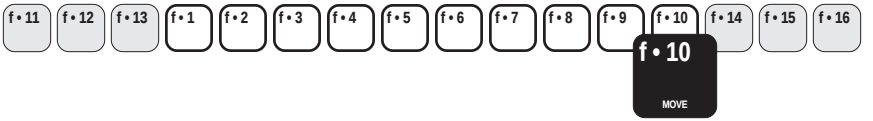
4. Press and hold f•9 (RECORD) while speaking into the microphone; release it when finished

SET DELAY Time


5. Press f•7 (SET DELAY)
6. Press a Function Key from f•1 (shortest delay) to f•10 (longest delay); (f•2 is the default value)

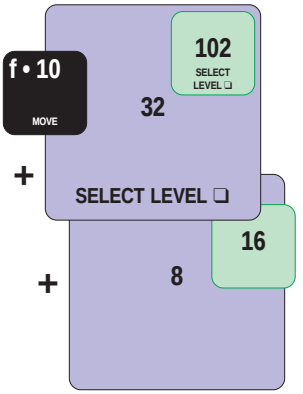
7. *Switch to PLAY Mode*

There are a few restrictions to using KEY LINK Mode with SCANNING. Because users operate in different Scanning Modes and at different Scan Speeds, it is necessary to require the user to select the TALK / REPEAT Key (Message Key #25 [Key #113]) to speak messages less than the full sequence. However, the unit will speak immediately upon selection of the last key in a LINK. **KEY LINK is functional <u>only</u> in the** [128-, 64-,] **32-Message Area Mode(s) when used with SCANNING.**



MOVE Function

The user-accessible Function-Message Keys, like VOLUME ❑, SELECT LEVEL ❑, and SILENT SELECT ▲▼, have been positioned in the lower corners of the keyboard. It may be desirable to move them to other locations for convenience or physical ability reasons. **These Function-Message Keys must first be activated in order to be Moved.**



1. *Switch to RECORD Mode*
2. Press f•10 (MOVE)
3. Press the Function-Message Key to be moved
4. Press the Message Key to have that function

Think, as you touch each of the three keys:
"Move-this-here"

Repeat steps 2, 3 and 4 to move as many of the user-accessible Function-Message Keys as desired.

5. *Switch to PLAY Mode*

Although the user will now access the new Message Key to select the function, the original Function-Message Key must be used when it is to be moved again. Repeat Steps 1 through 5, above, each time a Function-Message Key is to be moved.

The MACAW will not allow you to MOVE a function to a key where another function exists. The VOLUME ❑ function cannot be moved to Message Keys 1 through 8 [Keys 1–16] .

The VOLUME ❑ and SILENT SELECT ▲▼ Function-Message Keys will MOVE globally (to all LEVELs). However, the SELECT LEVEL ❑ Function-Message Key will MOVE locally; i.e., it must be moved on each operating LEVEL.

PERSONALITYs

Definition: ***"The total of one's nature."***

As it relates to the MACAW, a PERSONALITY is the entire characteristic content of its working memory at any one time. It contains all the recorded vocabulary (messages) and parameter settings, including LEVELs, user-accessible keys that have been activated, key pattern, scan modes and their settings, etc.

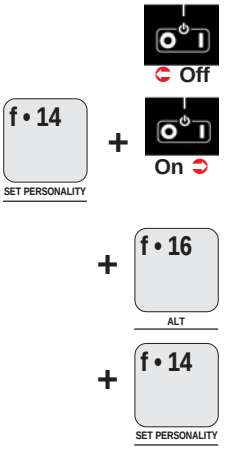
The PERSONALITY in use is called its Active PERSONALITY and is stored within the MACAW.

At this time, the MACAW can have only one PERSONALITY.

MACAW-5 Serial Number 2051 and up

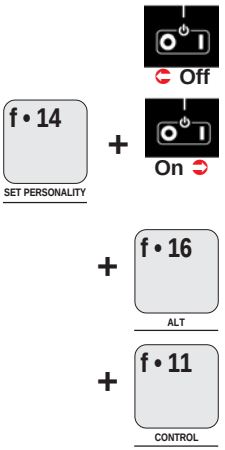
The MACAW's PERSONALITY can be saved to its internal memory and retrieved should the battery power become depleted.

SAVE



1. Turn the Power Switch OFF
2. Switch to RECORD Mode
3. Press and hold f•14 (SET PERSONALITY) and…
4. Turn the Power Switch ON. There will be a series of beeps. Release f•14.
5. Press f•16 (ALT)
6. Press f•14 (SET PERSONALITY)
7. *Switch to PLAY Mode*

RESTORE



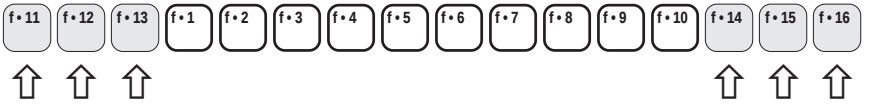
1. Turn the Power Switch OFF
2. Switch to RECORD Mode
3. Press and hold f•14 (SET PERSONALITY) and…
4. Turn the Power Switch ON. There will be a series of beeps. Release f•14.
5. Press f•16 (ALT)
6. Press f•11 (CONTROL)
7. *Switch to PLAY Mode*

The MACAW's PERSONALITY can be saved to personal computers (PCs) for later retrieval. The number of PERSONALITYs which can be saved depends on the memory size of the computer and/or the memory size of the removable memory available (disks, flash cards, etc.). One PERSONALITY uses about 1 Mbyte of memory.

Although there are markings on the Keyboard of the MACAW that refer to PERSONALITYs, like SET PERSONALITY and SELECT PERSONALITY, they are not operational.

Other, “Hidden,” Function Keys

The routinely used function keys are clearly marked on the keyboard of the MACAW as f•#, where # is a number from 1 to 10. There are six additional function keys, identified as #’s 11 through 16 and marked below the key position with specific names. These “hidden” keys are:



- **CONTROL** - “Hidden” under the “**Z**” in the **Z**YGO logotype on the keyboard to the left of the numbered function keys.

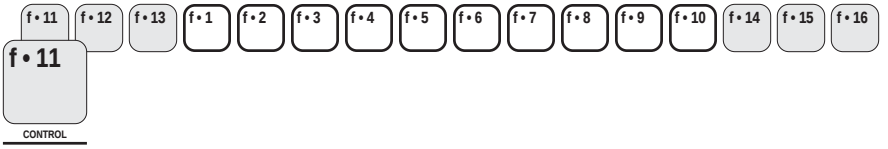
- **YES** - “Hidden” under the “**YG**” in the Z**YG**O logotype on the keyboard to the left of the numbered function keys.

- **DELETE**- “Hidden” under the “**O**” in the ZYG**O** logotype on the keyboard to the left of the numbered function keys.

- **SET PERSONALITY**- “Hidden” under the “**M**” in the **M**acaw logotype on the keyboard to the right of the numbered function keys.

- **UNDO**- “Hidden” under the “**C**” in the Ma**c**aw logotype on the keyboard to the right of the numbered function keys.

- **ALT**- “Hidden” under the “**W**” in the Maca**w** logotype on the keyboard to the right of the numbered function keys.

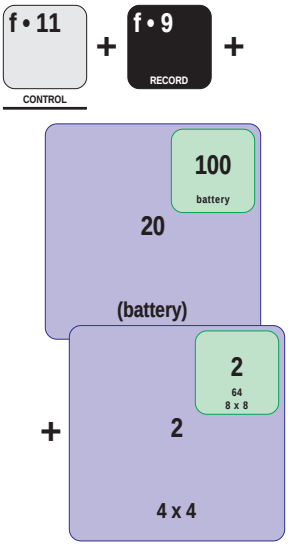


CONTROL Key

The CONTROL Key is similar in function to the SELECT MODE Key. It is "hidden" under the "**Z**" in the **Z**YGO logotype on the keyboard to the left of the numbered function keys. It is usually used while in RECORD Mode, but for some user-accessible operations, it may be made active while in PLAY Mode.

The MACAW needs to be set properly in order to be most efficient with either Alkaline or Nickel Metal Hydride (NiMH) batteries.

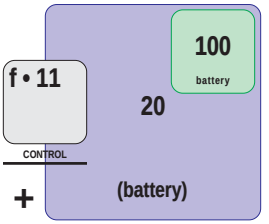
Battery Type Setting



1. *Switch to RECORD Mode*
2. Press f•11 (CONTROL), then
3. Press f•9 (RECORD), then
4. Press Message Key #20 [Key #100] (BATTERY)
   The LED on either Message Key #1 or Message key #2 will light to show for which Battery Type the MACAW is set.
   - Message Key #1 - Set for Alkaline batteries
   - Message Key #2 - Set for NiMH batteries
5. Press Message Key #1 or Message Key #2 for the Battery Type to be used
   Pressing any other key will exit the operation without making any changes.
4. *Switch to PLAY Mode*

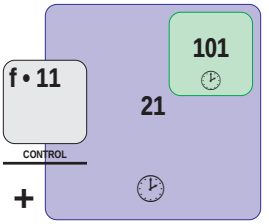
The MACAW uses its top row of indicator LEDs as a gauge for making some system measurements: the amount of battery power remaining and the amount of memory remaining in the MemCard. The gauge is divided among the eight (8) LEDs with "empty" on the left and "full" on the right.

Battery Level Indication

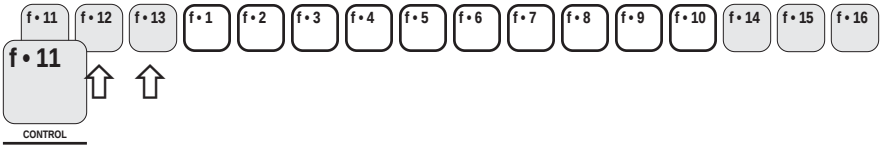


1. *Switch to RECORD Mode*
2. Press f•11 (CONTROL), then
3. Press Message Key #20 [Key #100] (BATTERY)
   A Message Key LED on the top row will light to show the amount of battery power remaining.
4. *Switch to PLAY Mode*

Recording Time Remaining Indication



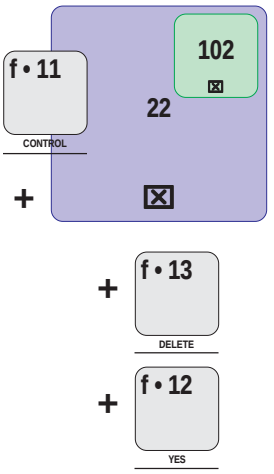
1. *Switch to RECORD Mode*
2. Press f•11 (CONTROL), then
3. Press Message Key #21 [Key #101] (🕑)
   A Message Key LED on the top row will light to show the amount of recording time remaining in the MemCard.
4. *Switch to PLAY Mode*



CLEAR Key (⊠)

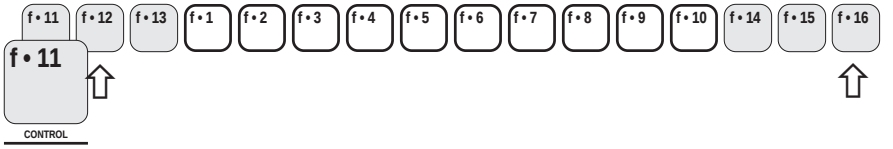
The CLEAR Key (⊠) is used to erase completely the information in the MACAW's active memory. It's like the 'reset' operations of other devices. It is a four-keystroke activity to provide a deterrent to making a mistake.

CLEAR Everything



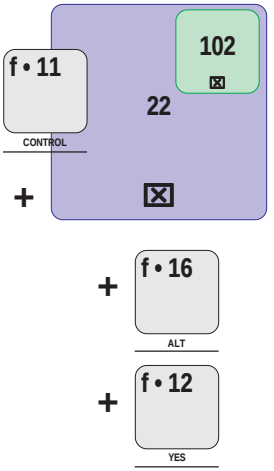
1. *Switch to RECORD Mode*
2. Press f•11 (CONTROL), then
3. Press the CLEAR Message Key #22 [Key #102] (⊠), then
4. Press f•13 (DELETE), then *if you really want to CLEAR*,
5. Press f•12 (YES)
6. *Switch to PLAY Mode*

All the vocabulary/recordings will be CLEARed and the operating parameters will be as set by the factory.



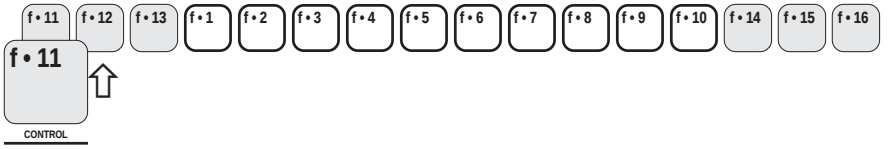
CLEAR Vocabulary/ Recordings ONLY

Specific operating parameters may be set, which are then to be used in a number of PERSONALITYs in the *Big Blue* MACAW. The procedure is: Set the operating parameters, make the recordings, and COPY the entire set to a PERSONALITY. Then CLEAR *only* the recordings, re-record the messages and COPY to another PERSONALITY.



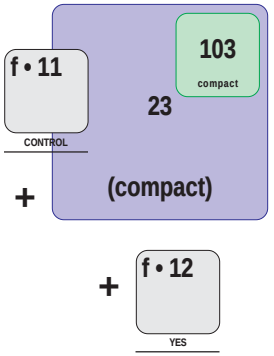
1. *Switch to RECORD Mode*
2. Press f•11 (CONTROL), then
3. Press the CLEAR Message Key #22 [Key #102] (⊠), then
4. Press f•16 (ALT), then *if you really want to CLEAR*,
5. Press f•12 (YES)
6. *Switch to PLAY Mode*

All the vocabulary/recordings will be CLEARed but the operating parameters will remain unchanged.



COMPACT Memory

When a short message is "overwritten" by a longer message using the EXTEND RECORDING function, a portion of the unit's memory is vacated and left abandoned. In older MACAWs, when the limit of memory was reached, you would have had to CLEAR the memory and start recording over again. Now, the MACAW can be commanded to compact the memory—extract the abandoned locations and fill in those locations by compacting the memory. This leaves the total amount of unused memory available for additional recording.

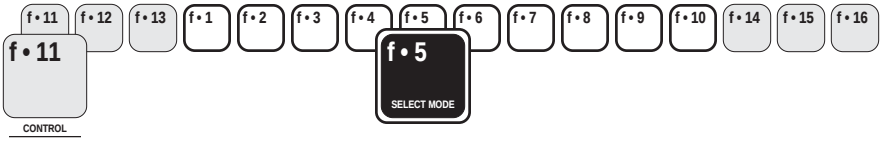


1. *Switch to RECORD Mode*

2. Press f•11 (CONTROL), then
3. Press the COMPACT Message Key #23 [Key #103], then
4. Press f•12 (YES)

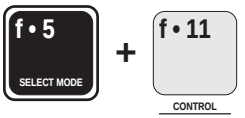
5. *Switch to PLAY Mode*

The MACAW will process the memory files to remove any unused portions, leaving the unit with as much free memory in the MemCard as possible. Key #23 [Key #103] will blink while "doing its thing."



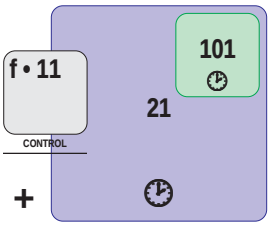
Activating the CONTROL Key

Function Key f•11 (CONTROL) may be activated so that the user can access certain functions directly from the keyboard. When it is active, those special functions may be accessed by actuating the CONTROL Key plus specific Message Keys.



1. *Switch to RECORD Mode*
2. Press f•5 (SELECT MODE)
3. Press f•11 (CONTROL) *
4. *Switch to PLAY Mode*

The CONTROL Key is user-accessible only in the 32-Message Area pattern.



The user may now select the special functions of the MACAW by —

- selecting f•11 (CONTROL) and
- Message Key #20 [Key #100] to check the battery status

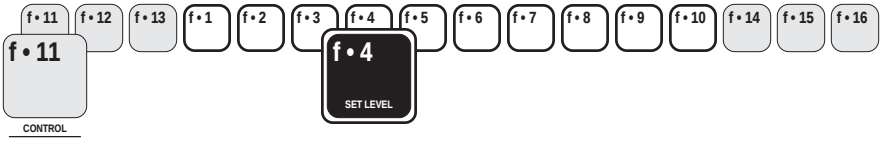
or

Message Key #21 [Key #101] to check the amount of recording time remaining

Deactivating the CONTROL Key

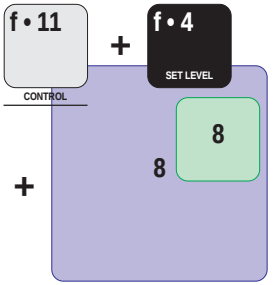
Repeat Steps 1 through 4 (above) to deactivate the CONTROL Key.

*The MACAW will sound 4 "beeps" when the function is activated, and will sound 2 "beeps" when the function is deactivated.



Changing LEVELs in PLAY Mode

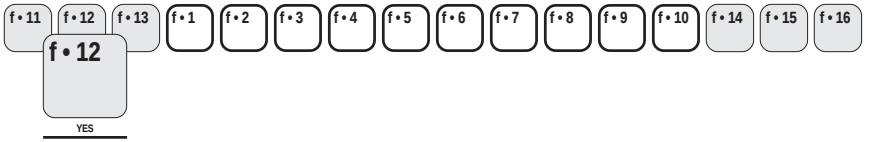
When it is desireable not to allow the user to change LEVELs, the facilitator changes them by using the Function Keys while in RECORD Mode. This procedure allows the facilitator to change LEVELs without having to switch to RECORD Mode each time the LEVEL needs to be changed.



The CONTROL Key (f•11) needs to be active (to activate the CONTROL Key, see Page 6-8). While in PLAY Mode:

1. Press f•11 (CONTROL)
2. Press f•4 (SET LEVEL)
3. Press the Message Key # which represents the desired LEVEL

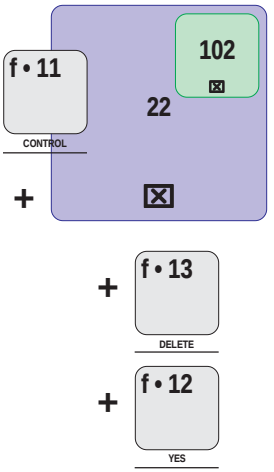
The MACAW will be in the selected LEVEL until changed.



YES Key

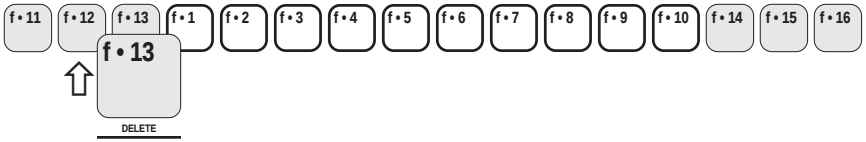
The YES Key is used to confirm certain operations that might destroy, erase, or obliterate information already stored in the MACAW. A typical example is when one goes through the CLEAR process, which will erase everything stored in the active memory of the unit. This example is how the YES Key is used:

To CLEAR the unit—



1. *Switch to RECORD Mode*
2. Press f•11 (CONTROL), then
3. Press the CLEAR Message Key #22 [Key #102] (⊠), then
4. Press f•13 (DELETE), then ***if you really want to CLEAR,***
5. **Press f•12 (YES)**
6. *Switch to PLAY Mode*

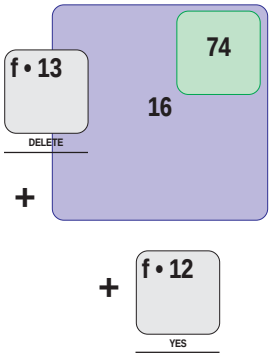
Pressing any key other than the YES Key will abort the procedure.



DELETE Key

The DELETE Key is used to erase various 'aspects' within the MACAW. Among the 'aspects' that may be DELETEd are: MESSAGEs, LEVELs, and LINKs. Items which have been DELETEd may be retrieved with the UNDO Key if they have not yet been replaced with something else.

DELETE a Message

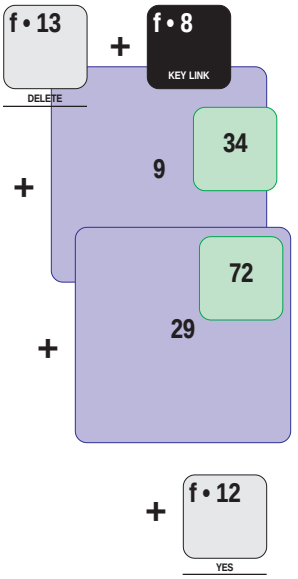


1. *Switch to RECORD Mode*
2. Press f•13 (DELETE), then
3. Press the Message Key # to be deleted, then *if you really want to DELETE*,
4. Press f•12 (YES)

Pressing any key other than the YES Key will abort the procedure.

5. *Switch to PLAY Mode*

DELETE a KEY LINK

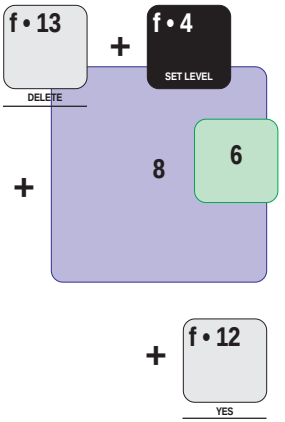


1. *Switch to RECORD Mode*
2. Press f•13 (DELETE), then
3. Press f•8 (LINK), then
4. Press the Message Key #'s that represent the KEY LINK to be DELETEd, then *if you really want to DELETE*,
5. Press f•12 (YES)

Pressing any key other than the YES Key will abort the procedure.

6. *Switch to PLAY Mode*

DELETE a LEVEL



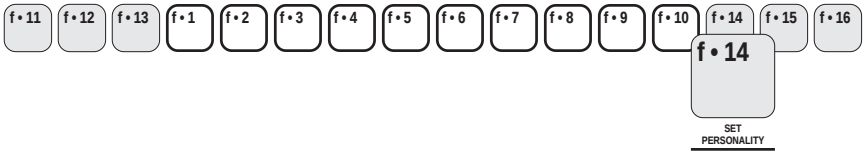
1. *Switch to RECORD Mode*
2. Press f•13 (DELETE), then
3. Press f•4 (SET LEVEL), then
4. Press the Message Key # of the LEVEL to be DELETEd, then *if you really want to DELETE*,
5. Press f•12 (YES)

Pressing any key other than the YES Key will abort the procedure.

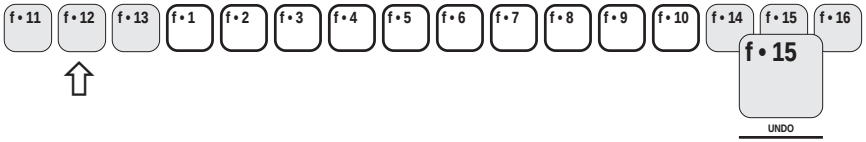
6. *Switch to PLAY Mode*

DELETE a PERSONALITY

This function is not operational at this time.



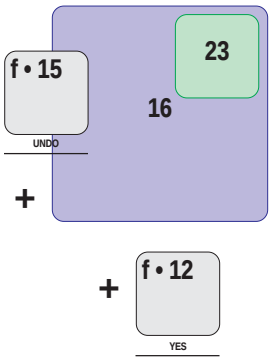
SET PERSONALITY Key This function is not operational at this time.



UNDO Key

The UNDO Key is used to reverse a previous operation, usually a DELETE function. Items which have been DELETEd may be retrieved with the UNDO Key if they have not yet been replaced with something else.

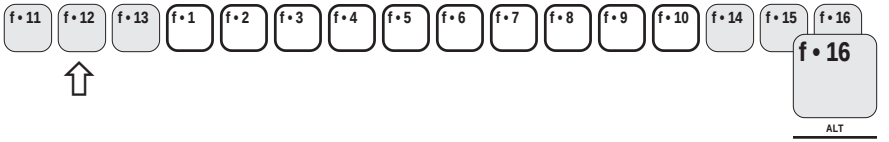
UNDO a DELETEd Message



1. *Switch to RECORD Mode*
2. Press f•15 (UNDO), then
3. Press the Message Key # to be un-deleted, then
4. Press f•12 (YES)

Pressing any key other than the YES Key will abort the procedure.

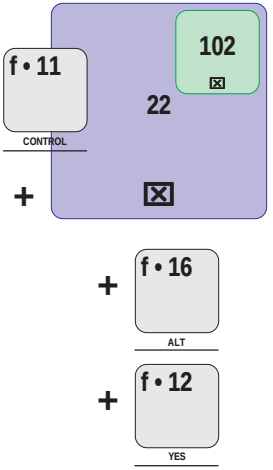
5. *Switch to PLAY Mode*



ALT Key

The ALT Key is used for alternate functions as required. One example is the option of CLEARing all of the MemCard's memory or CLEARing only the vocabulary/ recording portion. In the first instance, the DELETE Key is used; in the second case, the ALT Key is used.

CLEAR Vocabulary/ Recordings ONLY



1. *Switch to RECORD Mode*
2. Press f•11 (CONTROL), then
3. Press the CLEAR Message Key #22 [Key #102] (⊠), then
4. Press f•16 (ALT), then *if you really want to CLEAR*,
5. Press f•12 (YES)
6. *Switch to PLAY Mode*

All the vocabulary/recordings will be CLEARed and the operating parameters will remain unchanged.

SCANNING*

The MACAW may be used as a direct selection aid and/or a scanning aid. It has Light Emitting Diodes (LEDs) in the upper left corner of each Message Key and connectors on the back to allow attachment of single or multiple switches. A variety of visual scanning methods are supported, as well as various auditory scanning modes.

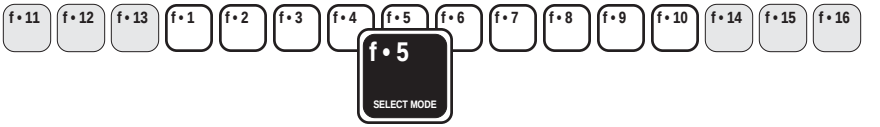
The MACAW should be set up for use and messages should be recorded in the standard way by using the keyboard directly. Activation of any of the switches used by the operator to control the unit will start the scan. Whenever a Message Key is pressed or the unit is put into RECORD Mode, the scanning will stop.

Scanning Modes, as well as the operating parameters like Scan Speed, may be changed routinely without having to CLEAR (☒) the unit or re-record messages.

Regardless of the Scanning Mode used, the scanning will stop after a period of non-use of the selection switch. This automatic scan-off period will vary depending on the Scan Mode in use and the Scan Speed. An actuation of the user's selection switch will cause the scan to resume.

After selection, the message being spoken may be terminated immediately by actuating the selection switch.

*These scanning methods use techniques protected by U.S. Patent Number 4,558,315.

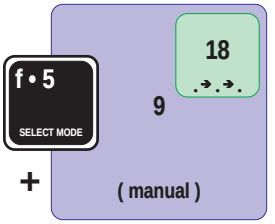


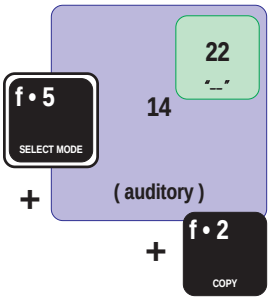
Select Scan Method

1. Switch to RECORD Mode

2. Press f•5 (SELECT MODE)

3. Press the Number Message Key for the desired scanning method





AUDITORY Scan works in conjunction with the Visual Scanning Modes and, therefore, one of those should also be selected (the default Visual Scanning Mode is MANUAL).

#9 - **#17** - Manual/Directed Scan, Linear
#10 - **#18** - Automatic Scan, Linear
#11 - **#19** - Automatic Scan, Block/Row/Column
#12 - **#20** - Automatic Scan, Row/Column
#13 - **#21** - Multi-Switch Directed Scan
#14 - **#22** - Auditory Scan (must be followed by a Function Key to select the specific mode)

f•1 No Repeat:
Speak Each Message and
Stop after the Selected Message

f•2 Repeat:
Speak Each Message at low (personal) volume and
Repeat the Selected Message at a louder (public) volume

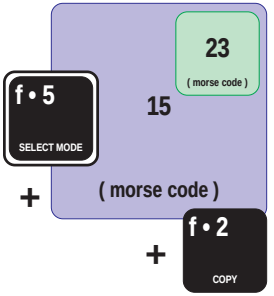
f•3 Repeat Using Earphone:
Speak Each Message into the earphone (personal) and
Repeat the Selected Message into the unit's speaker (public)

f•4 Cue:
Speak Each Cue into the earphone (personal) and
Speak the Associated Message into the unit's speaker (public)

• • •

f•10 Exit Auditory Scan Mode

(Continued next page)



#15 - **#23** - Morse Code (must be followed by a Function Key to select the specific mode)

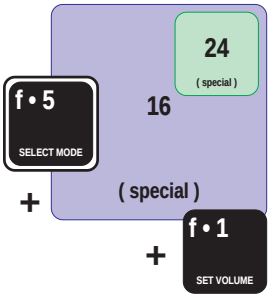
f•1 Single-Switch:
Unit interprets time lengths of "*dits*" and "*dahs*"

f•2 Dual-Switch:
Automatic "keying" of "*dits*" and "*dahs*", time delay for entry

f•3 Three-Switch:
Manual "keying" of "*dits*" and "*dahs*", 3rd switch for entry

• • •

f•10 Exit Morse Code Mode



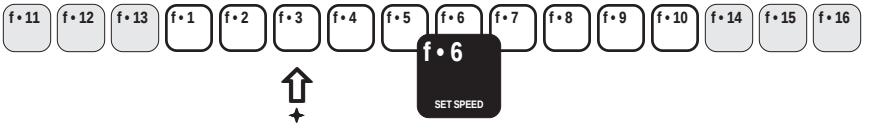
#16 - **#24** - Special Scanning options (must be followed by a Function Key to select the specific option)

f•1 Right-to-Left Scanning:

• • •

f•10 Left-to-Right Scanning: (Default)

4. Switch to PLAY Mode



Select Scan Speed

1. *Switch to RECORD Mode*
2. Press f•6 (SET SPEED)
3. Press a Function Key from
   - f•1 (slowest scan) to
   - f•10 (fastest scan);
   - (f•3 is the default value)
4. *Switch to PLAY Mode*

SET Confirmation DELAY Time

1. *Switch to RECORD Mode*
2. Press f•7 (SET DELAY)
3. Press a Function Key from
   - f•1 (shortest delay) to
   - f•10 (longest delay);
   - (f•3 is the default value)
4. *Switch to PLAY Mode*

SET Confirmation DELAY Time to INFINITE

There are applications for scanning where the user cannot easily select the target Message Area even at the slowest of scan speeds. For this population, it is desirable to <u>not</u> allow the MACAW to automatically Enter selections after the Delay Time but, rather, have another switch actuated for the Enter function.

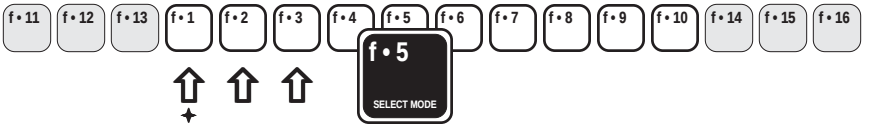
To set the Delay Time to **Infinite**:

1. *Switch to RECORD Mode*
2. Press f•7 (SET DELAY)
3. Press f•10 (longest delay)
4. *Switch to PLAY Mode*

Message Area selections will now continue to flash without being Entered (they won't be spoken). A switch to be used as the Enter function will be required to be connected to the MULTIPLE Switch Input Jack; adapters are available from ZYGO Industries, Inc. Each time this Enter Switch is actuated, the Enter function will cause the message to be spoken immediately.

This Infinite Delay feature is applicable to all Visual Scan Modes.

Contact ZYGO Industries, Inc. for information regarding switches and adapters. For making your own adapter, see the MULTIPLE Switch Schematic elsewhere in this manual.

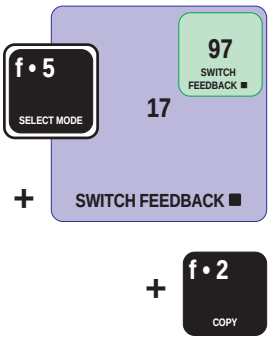


Set Auditory Feedback when User's Switch is Actuated

Some users will require auditory feedback whenever they actuate a switch used for scanning. The MACAW provides three (3) options for switch feedback:

- **NO FEEDBACK** is the default setting.
- **MOMENTARY** sets the MACAW to **buzz momentarily** whenever a switch is actuated.
- **CONTINUOUS** sets the MACAW to **buzz continuously** as long as the switch actuation is maintained.

Set Switch Feedback

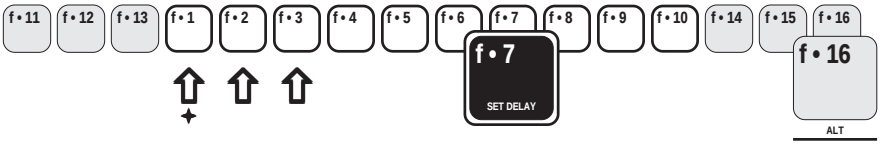


1. *Switch to RECORD Mode*
2. Press f•5 (SELECT MODE)
3. Press Message Key #17[Key #97] (SWITCH FEEDBACK)
4. Press the Function Key for the desired switch feedback setting

   f•1 - NO FEEDBACK
   f•2 - MOMENTARY
   f•3 - CONTINUOUS

   (f•1 is the default value)

5. *Switch to PLAY Mode*

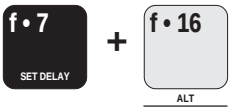


Set User's Switch Debounce Time (Switch Delay)

If, due to a lack of positive control after making a switch selection during scanning, the user erroneously actuates the switch again, the MACAW can be made to ignore those extra switch presses for a specific period of time.

Set Debounce Time

1. *Switch to RECORD Mode*



2. Press f•7 (SET DELAY)
3. Press f•16 (ALT)

4. Press a Function Key from f•1 to f•10 for the desired switch delay setting:

   f•1 - No delay
   f•10 - Maximum Delay

   (f•1 is the default value)

5. *Switch to PLAY Mode*

MANUAL Linear Scanning (Step & Directed)

This scanning method operates in all Message Area Modes.

The TALK / REPEAT Key and SILENT SELECT Keys and KEY LINK Modes are functional only in the 32 Message Area Mode.

A single switch is used to advance the LEDs one at a time (Step Scan) in a left-to-right, row-by-row sequence. After selecting a Message Key (by no longer actuating the switch), the LED will flash for a Confirmation Delay Time, and then that selection will be entered; that is, it will speak if something is recorded or enter the selection into a KEY LINK or string sequence. Actuating the switch before the Confirmation Delay Time will negate the entry, and the scan will step to the next LED.

A second switch may be used to reverse the direction of scan, and for those who have difficulty with the automatic Enter function, another switch can be used for that purpose.

Inverse Scan

If the switch is actuated and held closed, the unit will step one LED and then automatically scan in the selected direction (Directed Scan). When the switch is released, the selected LED will flash for the Confirmation Delay Time, and that selection will be entered.

To deactivate the automatic scan when the switch is held closed, set the SCAN SPEED to Function Key f•1.

AUTOMATIC Linear Scan

This scanning method operates in all Message Area Modes.

The TALK / REPEAT Key and SILENT SELECT Keys and KEY LINK Modes are functional only in the 32-Message Area Mode.

A single switch is actuated to initiate the scan, which causes the LEDs to light sequentially, at the selected scan rate, and in a left-to-right, row-by-row sequence. Actuating the switch a second time will stop the scan, the LED will flash for the Confirmation Delay Time, and that selection will be entered.

A second switch may be used to reverse the direction of scan, and for those who have difficulty with the automatic Enter function, another switch can be used for that purpose.

BLOCK / ROW / COLUMN Scan

This scanning method is useable ONLY in the 32-, 16-, and 8-Message Area configurations.

The TALK / REPEAT Key and SILENT SELECT Keys and KEY LINK Modes are functional only in the 32-Message Area Mode.

This is an efficient automatic scan that allows rapid access to the entire panel with a single switch. The switch is actuated to start the scan. The scan will alternate between lighting all the LEDs in the left half and all the LEDs in the right half. Actuation of the switch begins a row scan of the selected half, where each of the LEDs in a row illuminate and the rows light sequentially. Another actuation of the switch causes the LEDs in the selected row to light one at a time across the columns. A third actuation of the switch selects the Message Key that will be entered after the flashing confirmation period.

With the exception of the action to start the scan, this method requires three (3) switch actuations per selection.

For those who have difficulty with the automatic Enter function, a second switch can be used for that purpose.

Using BLOCK / ROW / COLUMN Scanning in Step-Scan Mode

For those who have difficulty with automatic scanning, it is possible to operate BLOCK / ROW / COLUMN in a single-switch step-scan mode:

- Set the Scan Speed to 1 (slowest).
- Each action of the user's switch (before the Delay Time completes) will cause the MACAW to step-scan through the BLOCK sequence. (Set the Delay Time to an appropriate value).
- When the proper BLOCK is lighted, allow the Delay Time to complete. The top ROW of that BLOCK will light.
- Each action of the user's switch (before the Delay Time completes) will cause the MACAW to step-scan through the ROW sequence.
- When the proper ROW is lighted, allow the Delay Time to complete. The first LED of that ROW will light.
- Each action of the user's switch (before the Delay Time completes) will cause the MACAW to step-scan through the COLUMN sequence.
- When the proper Message LED is lighted, allow the Delay Time to complete and that key will be entered. If the user activates the switch in the last COLUMN of the ROW, the MACAW will return to the beginning with BLOCK sequencing.

Using BLOCK / ROW / COLUMN Scanning in *2-Switch* Step-Scan Mode

For those who have difficulty allowing Delay Time to make Message Key selections automatically, it is possible to operate BLOCK / ROW / COLUMN with 2 switches—one for stepping, the other for entering selections—in a step-scan mode:

- An adapter must be used to connect the 2 switches to the MACAW. Various options are available directly from ZYGO Industries, Inc. The switch used for stepping (user's switch) is plugged into the SINGLE switch jack and the ENTER switch is plugged into the appropriate connection of the MULTIPLE switch jack. Some adapters for the MULTIPLE switch input jack will accept both switches.
- Set the Scan Speed to f•1 (slowest).
- Set the Delay Time to f•10 (infinite).
- Each action of the user's switch will cause the MACAW to step-scan through the BLOCK sequence.
- When the proper BLOCK is lighted, actuate the ENTER switch. The top ROW of that BLOCK will light.
- Each action of the user's switch will cause the MACAW to step-scan through the ROW sequence.
- When the proper ROW is lighted, actuate the ENTER switch. The first LED of that ROW will light.
- Each action of the user's switch will cause the MACAW to step-scan through the COLUMN sequence.
- When the proper Message LED is lighted, actuate the ENTER switch and that key will be entered. If the user steps beyond the last COLUMN of the ROW, the MACAW will return to the beginning with BLOCK sequencing.
- Each continued activation of the ENTER switch will perform the function of the selected Message Key. Activation of the user's switch will restart the BLOCK Scan.

ROW / COLUMN Scan

This scanning method is useable ONLY in the [128-, 64-], 32-, 16-, and 8-Message Area configurations.

The TALK / REPEAT Key and SILENT SELECT Keys and KEY LINK Modes are functional only in the [128-, 64-], 32-Message Area Mode(s).

This is a traditional approach to single-switch scanning such as used in most of the ZYGO products for over 30 years. After the initial switch actuation to turn on the scan, the LEDs will illuminate in entire rows, sequentially and continuously from top to bottom. At the next switch actuation, the LEDs will light one-at-a-time across the columns. The next switch selection will cause the LED to flash for the confirmation period, after which that Message Key will be entered.

For those who have difficulty with the automatic Enter function, a second switch can be used for that purpose.

Using ROW / COLUMN Scanning in Step-Scan Mode

For those who have difficulty with automatic scanning, it is possible to operate ROW / COLUMN in a single-switch step-scan mode:

- Set the Scan Speed to f•1 (slowest).
- Each action of the user's switch (before the Delay Time completes) will cause the MACAW to step-scan through the ROW sequence. (Set the Delay Time to an appropriate value).
- When the proper ROW is lighted, allow the Delay Time to complete. The first LED of that ROW will light.
- Each action of the user's switch (before the Delay Time completes) will cause the MACAW to step-scan through the COLUMN sequence.
- When the proper Message LED is lighted, allow the Delay Time to complete and that key will be entered. If the user activates the switch in the last COLUMN of the ROW, the MACAW will return to the beginning with ROW sequencing.

Using ROW / COLUMN Scanning in *2-Switch* Step-Scan Mode

For those who have difficulty allowing Delay Time to make Message Key selections automatically, it is possible to operate ROW / COLUMN with 2 switches—one for stepping, the other for entering selections—in a step-scan mode:

- An adapter must be used to connect the 2 switches to the MACAW. Various options are available directly from ZYGO Industries, Inc. The switch used for stepping (user's switch) is plugged into the SINGLE switch jack and the ENTER switch is plugged into the appropriate connection of the MULTIPLE switch jack. Some adapters for the MULTIPLE switch input jack will accept both switches.
- Set the Scan Speed to f•1 (slowest).
- Set the Delay Time to f•10 (infinite).
- Each action of the user's switch will cause the MACAW to step-scan through the ROW sequence.
- When the proper ROW is lighted, actuate the ENTER switch. The first LED of that ROW will light.
- Each action of the user's switch will cause the MACAW to step-scan through the COLUMN sequence.
- When the proper Message LED is lighted, actuate the ENTER switch and that key will be entered. If the user steps beyond the last COLUMN of the ROW, the MACAW will return to the beginning with ROW sequencing.
- Each continued activation of the ENTER switch will perform the function of the selected Message Key. Activation of the user's switch will restart the ROW Scan.

Multi-Switch DIRECTED Scan

This scanning method is useable ONLY in the [128-, 64-], 32-, 16-, and 8-Message Area configurations.

The TALK / REPEAT Key and SILENT SELECT Keys and KEY LINK Modes are functional only in the [128-, 64-], 32-Message Area Mode(s).

When used with four (4) input switches, the unit will operate in a directed scan method in the four directions. The scan will wrap around in both rows and columns; i.e., when the “go-to-the-right” switch is actuated, the LEDs will scan to the right, and after the right column LED is lighted, the next LED to light will be in the left column, same row. When the scan is stopped (by no longer actuating a switch), the LED will flash the Confirmation Delay Time before that selection is entered. A fifth switch may be used as a deliberate Enter function to speed the selection process.

In this Multi-Switch DIRECTED Scan mode, all Message Keys can be accessed with 2, 3, 4, or 5 switches. Its flexibility offers many practical options for rapid manipulation over a large keyboard area. Adapters are available to connect multiple individual switches to the MACAW.

AUDITORY Scan

This scanning method operates in all Message Area Modes, working in conjunction with all the visual scanning modes.

The following user selectable functions are not usable with AUDITORY Scan: LEVELs, KEY LINK, TALK / REPEAT Key, SILENT SELECT Key, and the user's VOLUME Control.

The MACAW has a rudimentary AUDITORY Scan capability that operates in a few different modes:

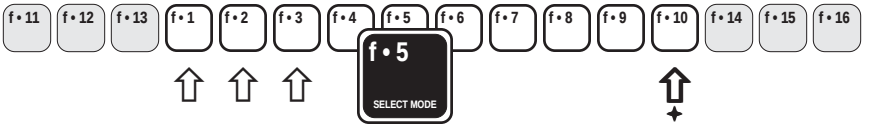
1. No Repeat
   - Speak each **total Message** while scanning and **stop** scanning when selected.
   - Speak **part of the Message** while scanning and **finish the message** when selected.
2. Repeat
   - Speak each **total Message** (at reduced volume) while scanning and **repeat** the message (at the set volume) when selected.
   - Speak **part of the Message** (at reduced volume) while scanning and **repeat** the message (at the set volume) when selected.
3. Repeat with EARPHONE
   - Speak each **total Message** (into the EARPHONE at the earphone's VOLume) while scanning and **repeat** the message (at the set volume) when selected.
   - Speak **part of the Message** (into the EARPHONE at the earphone's VOLume) while scanning and **repeat** the message (at the set volume) when selected.

Of all the scanning approaches, AUDITORY Scan is the slowest and most difficult to implement. However, when the user cannot follow, or cannot see, the LEDs used for visual scanning, AUDITORY Scan may be a workable option. The AUDITORY Scan modes function in conjunction with the many visual scanning modes of the MACAW, which provide important feedback, at least, to the facilitator. Specific characteristics of the AUDITORY Scan modes are controlled by the scan-speed and delay-time settings.

Consider whether the user can benefit from using the approach called Morse Code Key Selection. Although Morse Code is used to identify the keys on the MACAW, the user can be taught to simply select minimum numbers of switch patterns to make the MACAW a viable communication tool even with only a few messages.

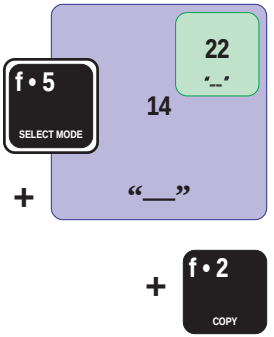
Changing LEVELs in AUDITORY Scan Mode

If the MACAW is set for Single-Key LEVEL Selection, it can be used to change LEVELs while in AUDITORY Scan Mode. Record on the LEVEL selection Message Keys things like, "*Change to level 5*," or, "*Go to the food level*." Once the message is heard and the switch actuated, the MACAW will change to the selected LEVEL and continue its AUDITORY scanning. Remember to record the LEVEL information on each LEVEL Key in each LEVEL. On its own LEVEL, the LEVEL Message Key might say, "*This is level 1*," or, "*This is the TV level*."



Set AUDITORY Scan Mode

In addition to choosing an AUDITORY Scan Mode, the facilitator must select a Visual Scanning Mode. The MACAW will default to MANUAL Linear Scan if another Visual Scanning Mode isn't selected.



1. *Switch to RECORD Mode*
2. Press f•5 (SELECT MODE), then
3. Press Key #14 [Key #22] (AUDITORY SCAN), and then
4. Press

   f•1 No Repeat:
   Speak Each Message and
   Stop after the Selected Message

   f•2 Repeat:
   Speak Each Message at low (personal) volume and
   Repeat the Selected Message at a louder (public) volume

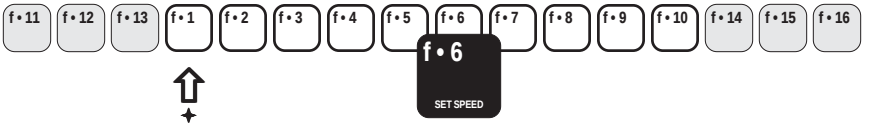
   f•3 Repeat with EARPHONE
   Speak Each Message at low (personal) volume into the EARPHONE and
   Repeat the Selected Message at a louder (public) volume

   * * *

   f•10 Exit Auditory Scan Mode

5. *Switch to PLAY Mode*

This is the time to select the Visual Scanning Mode if the one that has been set is not the one wanted (see the Select Scan Method section of this manual).



Select AUDITORY Scan SPEED

The Scan Speed setting determines the amount of the auditory message that is spoken before the MACAW scans to the next message. The Scan Speed can be set so the entire message is spoken before proceeding; therefore, the slowest Scan Speed is governed by the length of the message. By scanning faster, only a portion of the message will be spoken before proceeding.

1. *Switch to RECORD Mode*

2. Press f•6 (SET SPEED)
3. Press a Function Key from

   f•1 (slowest scan — based on message length) to
   f•10 (fastest scan — too fast for message retrieval);

   (f•1 is the default value)

4. *Switch to PLAY Mode*

The Visual Scan Speed setting may have to be reset when AUDITORY Scan is turned off.

Select AUDITORY Scan DELAY Time

When the AUDITORY Scan Speed is set to its slowest (where the entire message is spoken before proceeding), a waiting time must be determined before the MACAW moves to the next message.

1. *Switch to RECORD Mode*

2. Press f•7 (SET DELAY)
3. Press a Function Key from

   f•1 (shortest delay) to
   f•10 (longest delay);

   (f•1 is the default value)

4. *Switch to PLAY Mode*

The Visual Scan Delay Time setting may have to be reset when AUDITORY Scan is turned off.

AUDITORY Scan - No Repeat

In this AUDITORY Scan Mode, regardless of the visual scan mode in use, each message is spoken sequentially until a Message Key is selected. This approach can be helpful to attract a user's attention to the MACAW's display panel in an effort to train "attending" to the scanning lights. For users who cannot see the display, the auditory output provides one of the only options for scanning.

The last spoken message is the message desired.

AUDITORY Scan - Repeat

In this method of AUDITORY Scanning, each message is spoken at a lower (private) volume until a selection is made. Upon selection, the message being spoken is terminated and the MACAW will repeat the message at a louder (public) volume.

The SET VOLUME selection determines the public volume. The private volume is predetermined according to the following table:

SET VOLUME

Public Volume	Private Volume
f•2 (Silent)	f•3
f•3	f•3
f•4	f•3
f•5	f•4
f•6	f•4
f•7	f•4
f•8	f•5
f•9	f•5
f•10	f•5

AUDITORY Scan - Repeat with EARPHONE

In this method of AUDITORY Scanning, each message is spoken into the EARPHONE until a selection is made. Upon selection, the message being spoken is terminated and the MACAW will repeat the message at a louder (public) volume.

The SET VOLUME selection determines the public volume.

The EARPHONE volume is set by the VOLume Control on the right side of the unit.

The facilitator should verify that the EARPHONE volume is set properly before offering it to the user!

AUDITORY Scan - Separate CUES

An auditory CUE is a separate message that is used to prompt an associated main message. The CUE message alone will be played (either in the headphones only, or at lower volume on the speaker) to identify a message. Upon selecting a location, the main message alone will be played at normal volume on the speaker.

Each main message level has its CUEs in an associated, separate CUE LEVEL taken from the pool of available LEVELs. This means that the total number of message LEVELs available, when all use CUEs, will be one-half the normal number of LEVELs. The MACAW can have 16 CUEd levels, the *Green* MACAW can have 4. The CUE messages are separate messages taken from the standard pool of messages, which also cuts in half the number of useable main messages.

Two modes are available for CUEd auditory scan; speaker mode and headphone mode. Select as follows:

1. *Switch to RECORD Mode*
2. Press f•5 (SELECT MODE)
3. Press Key #14 [Key #22]
4. Press
   f•4 (Speaker Mode) or
   f•5 (Headphone Mode)
5. *Switch to PLAY Mode*

All other auditory scan modes and operations have not changed. Auditory scan may be disabled as before, by pressing f•10 (See page 7-25 for Setting Auditory Scan Modes).

Timing of the Auditory CUEs in automatic scan modes is different than that for Auditory Scan Repeat modes. Since separate messages are used for the CUEs, they will play in their entirety, then, after a fixed time (based on the speed setting), the scan will move to the next location. Timings used are the same as for normal, non-auditory automatic scanning.

The CUE LEVEL can be directly selected only in RECORD Mode, as follows:

1. *Switch to RECORD Mode*
2. Press f•4 (SET LEVEL)
3. Press f•16 (ALT)
4. Press Key # (The same Message Key assigned to the CUE LEVEL's associated Message LEVEL)
5. *Switch to PLAY Mode*

While recording the CUE LEVEL, the messages can be played by switching to PLAY Mode and playing them normally. New CUE messages can be added and existing ones can be re-recorded by just going back to RECORD Mode and recording. If the LEVEL is changed in PLAY Mode, or scanning is started, the MACAW defaults to a main message LEVEL as long as one has been defined for the same key as the current CUE LEVEL.

While Key Linking is supported under scanning, it is not for CUEs. Only the Message Key itself is CUEd. This is the same as for Repeat Auditory Scanning.

The key pattern for the Main and CUE LEVELs are always the same. Thus, when the key pattern is changed in either, it also is automatically changed in the associated LEVEL.

MORSE CODE

All user functions are available with this selection technique. Morse Code Key Access is useable ONLY in the [128-] 32-Message Area configuration.

Although this Morse Code strategy is not a scanning method, it is described in this section because it is a powerful alternate switch-access technique. It has been customary to use Auditory Scanning techniques for users who are blind or visually impaired so they cannot view the scanning display. As discussed in the Auditory Scan section, it is about the most inefficient scanning process. This Morse Code system has been designed to allow that same population to access every feature of the MACAW but at a rate approaching direct-selection methods.

In this approach, Morse Code characters are used to select keys on the front panel just as one might select them by touching them.

32-Key MACAW

The keys of the **32-Key MACAW** are labeled A through Z and 1 through 6.

Producing a Morse Code character will actuate the appropriate key; for example, sending the letter "E" (a single 'dot') will actuate Message Key #5 on the keyboard.

128-Key MACAW

The front panel of the **128-Key MACAW** is broken into four quadrants. In each 32-Key quadrant (8 Keys wide by 4 Keys high) the keys are labeled A through Z and 1 through 6. The upper left quadrant is labeled 0, upper right is 7, lower left is 8, and the lower right is 9.

Operation is defaulted to the upper left quadrant. Producing a Morse Code character will actuate the appropriate key in that quadrant; for example, sending the letter "E" (a single 'dot') will actuate Message Key #5 on the keyboard.

Producing the Morse Code for 7, 8, or 9 will 'shift' the user to that quadrant. The next character sent will activate the appropriate key in that quadrant, and the unit will 'shift' back to the default quadrant, 0.

To stay in quadrants 7, 8, or 9, produce the quadrant number twice; i.e., 9 + 9 will 'shift-lock' into the lower-right quadrant.

To coordinate this manual's text with the visual representation of the code, the code will be referred to as 'dots' and 'dashes.' When describing the code verbally, it is referred to as "*dits*" and "*dahs*."

Three (3) Morse Code modes are provided:

1. One-Switch Input
   - The user actuates a single switch for short and long durations—short for ‘dots,’ long for ‘dashes.’ The coded character is entered after a confirmation time delay.
   - The user must have reasonably good timing of switch activation.
2. Two-Switch Input
   - The user actuates two switches for automatic production of sequential output—one switch for ‘dots,’ the other for ‘dashes.’ The coded character is entered after a confirmation time delay.
   - The user may have less timing ability of switch activation but needs two volitional switch sites.
3. Three-Switch Input
   - The user actuates two switches for automatic production of sequential output—one switch for ‘dots,’ the other for ‘dashes’ and a third switch for the ENTER function.
   - Timing becomes less of an issue with this method, but the user needs three volitional switch sites.

When KEY LINKing is used, the message will speak immediately upon selection of the last key in a LINK. However, a special code is needed to speak messages less than the full sequence. That code is 4 dashes (— — — —).

The International Morse Code

A	• —	T	—
B	— • • •	U	• • —
C	— • — •	V	• • • —
D	— • •	W	• — —
E	•	X	— • • —
F	• • — •	Y	— • — —
G	— — •	Z	— — • •
H	• • • •		
I	• •	1	• — — — —
J	• — — —	2	• • — — —
K	— • —	3	• • • — —
L	• — • •	4	• • • • —
M	— —	5	• • • • •
N	— •	6	— • • • •
O	— — —	7	— — • • •
P	• — — •	8	— — — • •
Q	— — • —	9	— — — — •
R	• — •	0	— — — — —
S	• • •		

Speak a LINK — — — —

32-Key MACAW
Message Key Labels

and

128-Key MACAW
Message Key Labels per Quadrant

A	B	C	D	E	F	G	H
I	J	K	L	M	N	O	P
Q	R	S	T	U	V	W	X
Y	Z	1	2	3	4	5	6

128-Key MACAW
Quadrant Labels

Quadrant 0

A	B	C	D	E	F	G	H
I	J	K	L	M	N	O	P
Q	R	S	T	U	V	W	X
Y	Z	1	2	3	4	5	6

Quadrant 7

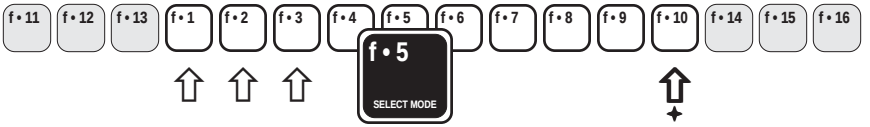
A	B	C	D	E	F	G	H
I	J	K	L	M	N	O	P
Q	R	S	T	U	V	W	X
Y	Z	1	2	3	4	5	6

Quadrant 8

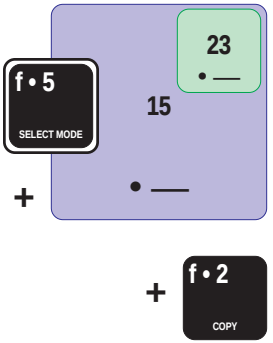
A	B	C	D	E	F	G	H
I	J	K	L	M	N	O	P
Q	R	S	T	U	V	W	X
Y	Z	1	2	3	4	5	6

Quadrant 9

A	B	C	D	E	F	G	H
I	J	K	L	M	N	O	P
Q	R	S	T	U	V	W	X
Y	Z	1	2	3	4	5	6



Set Morse Code Mode



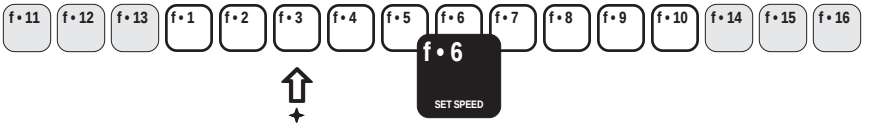
To set the Morse Code Mode desired:

1. *Switch to RECORD Mode*
2. Press f•5 (SELECT MODE), then
3. Press Key #15 [Key #23] (Morse Code • —), and then
4. Press

   f•1 One-Switch
   f•2 Two-Switch
   f•3 Three-Switch
   * * *
   f•10 Exit Morse Code Mode

   (f•10, Morse Code off, is the default setting)

5. *Switch to PLAY Mode*



Select Morse Code Scan SPEED

The Scan Speed setting determines the speed at which the 'dots' and 'dashes' are created by the MACAW when multiple switches are used.

1. *Switch to RECORD Mode*
2. Press f•6 (SET SPEED)
3. Press a Function Key from

   f•1 (slowest speed) to
   f•10 (fastest speed);

   (f•3 is the default value)
4. *Switch to PLAY Mode*

The Visual Scan Speed setting may have to be reset when Morse Code Mode is turned off.

Select Morse Code DELAY Time

The MACAW will wait a confirmation delay time after a Morse Code character is produced before the key is entered.

1. *Switch to RECORD Mode*
2. Press f•7 (SET DELAY)
3. Press a Function Key from

   f•1 (shortest delay) to
   f•10 (longest delay);

   (f•1 is the default value)
4. *Switch to PLAY Mode*

The Visual Scan Delay Time setting may have to be reset when Morse Code Mode is turned off.

One-Switch Morse Code

Set One-Switch Morse Code Mode and connect a switch to the SINGLE Switch Input jack. Actuate the switch to produce short and long tones according to the International Morse Code. After a short delay, the key will be entered.

The MACAW will automatically adjust to the user's sending rate if sent at an equivalent of 5-to-15 words per minute (wpm)—approximately 25-to-75 characters per minute (cpm). During initial operation or if the rate is dramatically changed, selections may be incorrectly interpreted by the MACAW until it adapts to the user's speed.

Two-Switch Morse Code

A two-switch adapter is required to be plugged into the Multiple Switch Input jack: one switch for ‘dots’ and one switch for ‘dashes.’ The MACAW will automatically “key” ‘dots’ and ‘dashes’ when a switch is held closed. The Scan Speed setting controls the rate at which the ‘dots’ or ‘dashes’ are created. The Message Key selected will be entered after the confirmation delay time.

Three-Switch Morse Code

A three-switch adapter is required to be plugged into the Multiple Switch Input jack: one switch for ‘dots,’ one switch for ‘dashes,’ and one switch for the ENTER function. The MACAW will automatically “key” 'dots' and 'dashes' when either the ‘dots’ or ‘dashes’ switch is held closed. The Scan Speed setting controls the rate at which the ‘dots’ or ‘dashes’ are created. The Message Key selected will be entered when the ENTER switch is actuated.

MAINTENANCE

The MACAW has been made to the highest possible standards and should not require any regular maintenance. However, make sure your warranty is effective by assuring that the Warranty Registration Card has been filled out and filed at the factory.

You should put a plan into effect to set aside or acquire annually approximately 10% to 15% of the purchase price to take care of routine repairs. If the monies are not used for maintenance this year, they may be needed for service in subsequent years or to apply towards the purchase of the next system a number of years hence.

Should you have difficulty with the MACAW, contact the Customer Service Department at the factory by phone or mail (see the SERVICE section of this manual). International customers should contact the ZYGO Agent in their countries or the factory in the U.S.A. for instructions.

Keyboard

The keyboard is the most vulnerable part of the unit because it is the part that is continually acted upon by both the user and the facilitator. Remember that it is made of thin membranes to give maximum sensitivity and they are susceptible to damage by cutting, gouging, and deformation by sharp objects.

The major cause of keyboard damage has been the use of chemicals (e.g., from cut-down instant photographs) or adhesives which dissolve the keyboard itself. To be safe, use clear polycarbonate overlays for your graphics; they are impervious to most household chemicals.

Do not make the overlays too thick. Thick overlays will actuate the keyboard continuously and prevent normal operation.

Switches and Cables

Take exceptional care of the switches and their cables that are used with the scanning MACAW. Do not wrap the cable around the switch without leaving a considerable “service loop” to avoid excess strain. Spares will help reduce the “down time” associated with these expendable parts.

Cleaning

Wipe clean with a mild detergent and a soft cloth. Some “oil” based products are available that are designed to remove adhesives without damaging the primary surface. Ask the factory or your local agent for assistance in locating these products.

DO NOT USE HARSH CHEMICALS THAT ATTACK THE PLASTIC PARTS OF THE UNIT!

Technical Support

Technical support will be supplied by the factory and local agents, dealers and representatives. On request, circuit diagrams, component part lists and descriptions, etc. may be obtained from the factory on a confidential basis.

SERVICE

All needs for assistance are handled directly from the factory:

CUSTOMER SERVICE DEPARTMENT
ZYGO Industries, Inc.
16260 SW Upper Boones Ferry Road
Portland, OR 97224-7220

TEL: (503) 684-6006
FAX: (503) 684-6011
U.S.A. / Canada: (800) 234-6006

zygo@zygo-usa.com

International service is handled by local ZYGO Agents in each country. If needed, contact the factory for the name of your local agent or instructions for service or repair.

A phone call before sending the unit to the factory for repair can save much expense. If it is determined that the unit must be returned, a Repair Authorization Number will be assigned to enable ZYGO to track the repair and return it as soon as practical. Follow these simple guidelines to return the damaged equipment:

1. Always send back as much of the MACAW system as possible—at least the unit itself with the most used overlay installed, and any operating switch and cable used for scanning.

2. Turn off the Power Switch.

3. Package the items as protectively as possible. It's always a good idea to save the original packing materials for just such a need.

4. Enclose a note describing in as much detail as you can the nature of the problems you've experienced. Reference any personal interaction with technical staff from ZYGO Industries, Inc. The note should contain the name and phone number of a person who can be contacted to discuss the details of the problem and the details of the solution, like cost of repair, etc. Also, indicate if an estimate of cost is needed before repairs are made.

4. Send the package in the most gentle, expedient way. **ZYGO uses Federal Express as its carrier of choice.** Tracking misplaced shipments can be done immediately from the factory. UPS (United Parcel Service) **air service** and other overnight air services are excellent where very fast service is required, and the rates are not too extreme. Air freight through most airlines and bus freight (such as Greyhound's) are realistic alternatives for weekend and holiday transportation. Priority mail should be a last resort and the equipment should be insured, especially if this method is used.

MACAW's Signals

The MACAW will beep or chirp various kinds of information to the user, some as action feedback, some as cautions.

1. Long beep - When the unit (MemCard) is CLEARed (☒)

2. Single beep - In PLAY Mode, as key selection feedback of:
   Message Keys without messages
   Message Keys selected in SILENT SELECT Mode
   Message Keys selected in KEY LINK Mode
   Function Keys when VOLUME Control is operational

Single beeps will not occur in PLAY Mode if KEY BEEP has been turned off.

   - In RECORD Mode, as key selection feedback of:
   Function Keys except as described in Paragraph 3 (below)
   Message Keys that follow the Function Key commands of:
   COPY
   HIDE/FIND

3. Double beep - In RECORD Mode when selecting:
   SET LEVEL Key (f•4) and the LEVEL Keys selected
   SELECT MODE Key (f•5) and the special Message Keys that follow
   MOVE Key (f•10) and the selections which follow

4. 5-beep “chirp” - When attempting to select an action that is not allowed. This is the primary signal to tell you that you did something “not according to the rules.”

RECORDING:

Reached the limit of 1023 allowable messages

VOLUME:

In RECORD:

- VOLUME cannot be set to f•1
- The SELECT VOLUME key cannot be enabled if another user-accessible key function has been MOVEd to that location
- The SELECT VOLUME key may be enabled only in the 32-Key [128-, 64-, 32-Key] pattern[s]

In PLAY:

- With the SELECT VOLUME key enabled, only Message Keys in Row 1 may be selected

KEY LINK:

Reached the limit of allowed resources.

Cannot access KEY LINKs if Auditory Scanning is enabled

LEVELs:

In RECORD:

- Cannot create more than 32 [8] LEVELs
- The SELECT LEVEL key cannot be enabled if in single-key LEVEL selection mode
- The SELECT LEVEL key cannot be enabled if another user-accessible key function has been MOVEd to that location

In PLAY:

- Cannot select an invalid LEVEL key

AUDITORY SCAN:

- The proper keys and key sequences must be used for selection of Auditory Scan
- If Auditory Scan is enabled, KEY LINKs will not be accessible

SELECT MODE:

- The proper keys and key sequences must be used for selection of SWITCH FEEDBACK
- The SILENT SELECT key cannot be enabled except in the 32-Key pattern
- The TALK / REPEAT key cannot be enabled except in the 32-Key pattern
- The 2x2, 1x4, and 1x2 Enlarged-Key patterns cannot be used with BLOCK / ROW / COLUMN or ROW / COLUMN scanning
- The SILENT SELECT, TALK / REPEAT, and VOLUME keys cannot be enabled if another user-accessible key function has been MOVEd to those locations

SILENT SELECT:

- The SILENT SELECT key cannot be enabled if another user-accessible key function has been MOVEd to that location
- The SILENT SELECT key cannot be enabled except in the 32-Key [128-, 64-, 32-Key] pattern[s]

TALK / REPEAT:

- The TALK / REPEAT key cannot be enabled if another user-accessible key function has been MOVEd to that location
- The TALK / REPEAT key cannot be enabled except in the 32-Key [128-, 64-, 32-Key] pattern[s]

MOVE:

- No user-accessible key functions may be MOVEd to a Message Key where another user-accessible key function exists
- Only user-accessible key functions may be MOVEd
- The VOLUME key may not be MOVEd to Message Keys in Row 1
- The SELECT LEVEL key cannot be MOVEd if the single-key LEVEL selection is active
- The SILENT SELECT key may not be MOVEd to the TALK / REPEAT key

5. Triple beep (every 10 seconds) - Battery is low and requires changing very soon

6. Slow beeps: • **15** MACAW's internal memory is corrupted—the unit may work normally but may do something unusual.

MACAW 3 / MACAW Green
System Error Key Assignments

ZYGO INDUSTRIES, INC. PORTLAND, OREGON U.S.A.

1 Memory Full Cannot Record	2 All LEVELs are Used	3 All LINKs are Used	4 TALK / REPEAT String is Full	5 LEVEL is Undefined	6 Cannot LINK in Auditory Scan	7 REPEAT has been Terminated by the User	8
9	10 Hard Disk Error	11 Main Battery Low	12 MemCard Battery Low	13 MemCard does not Match the Unit	14 Not a Valid ZYGO MemCard	15 Speech Data Error	16 ROM Error
17 Undefined Keystroke Sequence	18 Morse Code Disallowed (Not Full Key Pattern)	19 Key Pattern Prevents Function	20 Enabled Function Prevents Key Pattern	21 Attempted Two Functions on Same Key	22 Cannot Use Old LEVEL Style	23 TALK / REPEAT Operation Error	24
25	26	27 Keyboard I.D. Read Error	28 MOVE Function Disallowed	29 Miscellaneous Software Error	30 Speech Chip error	31 X-Modem Transfer Error	32 Hard Disk Format Failed

NOTES:
1) Key Numbers, NOT THE KEY LOCATIONS, apply to both 32-Key (MACAW 3) and 128-Key (Green MACAW) units
2) K27, I..D. Read Error, not implemented as of V1.14

OPTIONAL ACCESSORIES

A variety of optional accessories is available from ZYGO Industries, Inc. for the MACAW. They include:

- Keyboard overlays
- Keyguards
- Panel graphics
- Application programs
- Computer-based voice and sound resources
- Mounting systems and adaptive fixtures
- Carry cases
- Switches—single and multiple
- Cables and connector adapters to match other brands
- Microphones, speakers, and amplifiers
- Headpointers
- Rechargable NiMH AA battery cells and chargers

And, of course, a complete line of communication systems is also available to match the future capability of the user.

PICTURES / SYMBOLS REFERENCES

PICTURE COMMUNICATION SYMBOLS - by Mayer-Johnson Co.

PICK 'N STICK - by Imaginart Communication Products
TOUCH 'N TALK - by Imaginart Communication Products

Gus! Communication Symbols - by Gus! Communications, Inc.

MACAW Mates - by Imaginart Communication Products
WordWise Stickers - by Attainment Company, Inc.
Pictogram Symbols - by Pictocom International

Available from:
ZYGO Industries, Inc.
PO Box 1008
Portland, OR 97207-1008
TEL: +1 (503) 684-6006
FAX: +1 (503) 684-6011
E-mail: zygo@zygo-usa.com

GLOSSARY

Auditory scanning: An item selection method in which whole messages, parts of messages or cue words are heard sequentially by the user to aid in correct item selection.

Digitized speech: A type of electronic speech where natural speech has been recorded, stored, then spoken. The speech is recorded through a microphone and passed through filters and an analog to digital converter. This type of speech very closely replicates the original speech input. Any sounds, therefore any language, may be recorded.

Direct selection: A method of accessing the Message Keys by directly pressing them through one of several ways: finger, mouth or head stick, pointer, etc.

Facilitator: The individual responsible for programming, setup and device interaction with the end user.

Key-Link: A method by which the selection of a number of Message Keys is combined to provide additional messaging capability.

LED: Light Emitting Diodes. The small red lights in the corner of the Message Keys that are used to indicate item selection either through direct selection or scanning.

Levels: A method used to expand the number of available messages without increasing the number of keys. They are like layered "copies" of the keyboard arranged as pages or separate sheets of information that can be programmed and be available for immediate interactive communication.

MemCard: A solid-state memory card that houses all the vocabulary, parameters, setup, and operating instructions—called the unit's Active Personality.

Morse Code access: A selection approach in which Morse Code characters are used to identify the Message Keys. The Message Keys are selected by sending the appropriate code using 1 to 3 switches. Selected keys perform the same actions as if they were pressed.

Personality: The entire characteristic content of the working memory—all the recorded messages and parameter settings, including levels, key patterns, scan modes, etc.

Scanning: A method of accessing a system by users who are unable to directly touch the Message Keys. The scanning options are presented by a series of moving lights or changing auditory cues and the user indicates a selection by activating a switch or switches.

Silent Selection: A setup that permits the user to select a string of individual messages, including Key-Linked messages, without having them speak until a "talk" key is actuated.

Synthesized speech: An electronic speech output method whereby selected text is converted to a code that is used to create speech via a digital to analog converter. Even the best synthesized speech has robotic sound quality. The number of languages for which synthesized speech is available is limited.

Talk/Repeat: A method for repeating a string of messages that have been selected and stored.

Certifications

The MACAW is presently being tested for various certifications. For a listing of those certifications that it meets, contact:

ZYGO Industries, Inc.
PO Box 1008
Portland, Oregon 97207-1008

TEL: +1 (503) 684-6006
FAX: +1 (503) 684-6011
E-mail: zygo@zygo-usa.com

NOTICE

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause harmful interference with radio communications equipment.

There is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Relocate the equipment with respect to the receiver.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to a different outlet so that the equipment and receiver are on different branch circuits.

If necessary, consult ZYGO Industries, Inc., one of its representatives or an experienced radio/television technician for additional suggestions.

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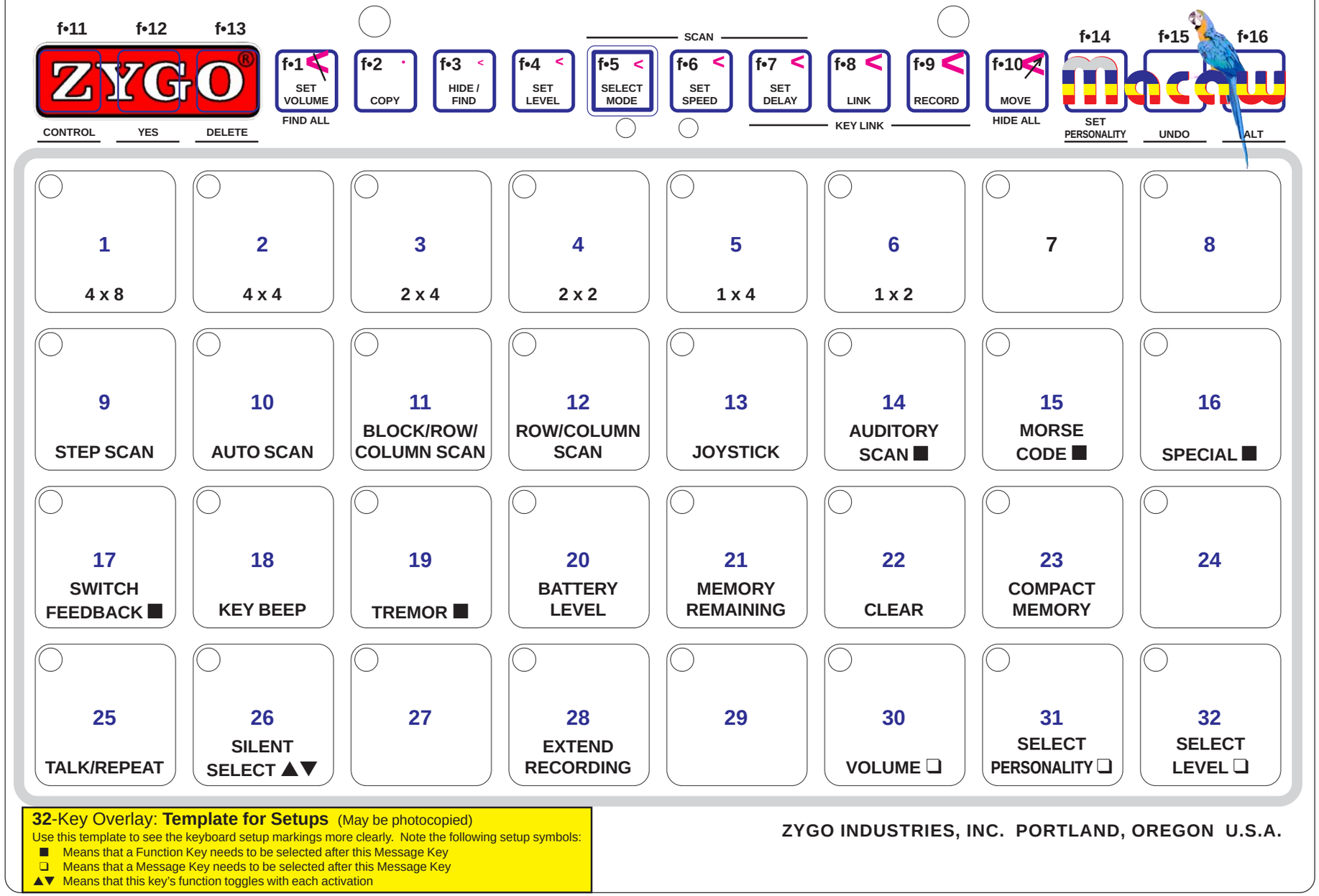

32-Key Overlay: **Template for Setups** (May be photocopied)

Use this template to see the keyboard setup markings more clearly. Note the following setup symbols:

■ Means that a Function Key needs to be selected after this Message Key

❑ Means that a Message Key needs to be selected after this Message Key

▲▼ Means that this key's function toggles with each activation

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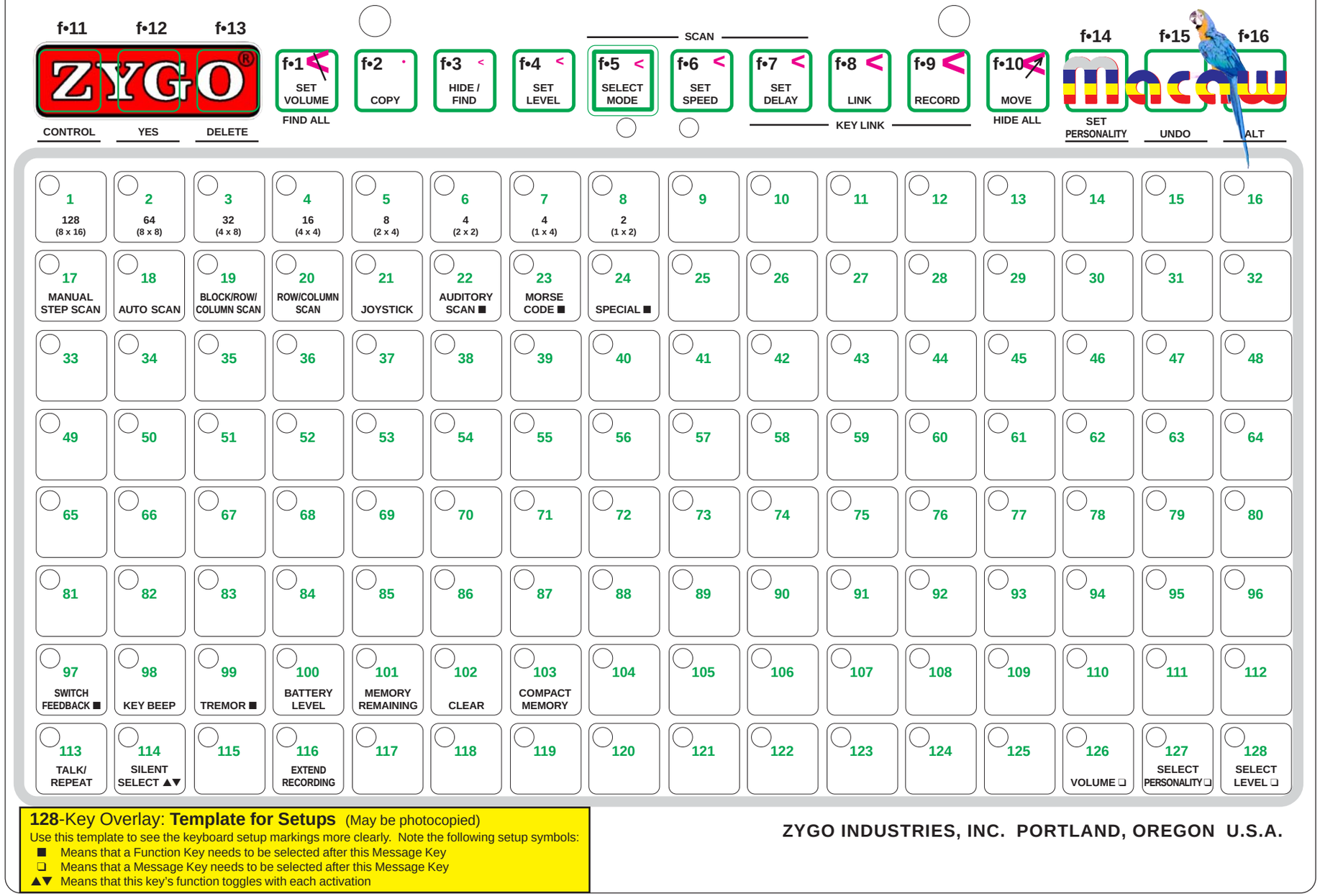

128-Key Overlay: **Template for Setups** (May be photocopied)

Use this template to see the keyboard setup markings more clearly. Note the following setup symbols:

■ Means that a Function Key needs to be selected after this Message Key

❑ Means that a Message Key needs to be selected after this Message Key

▲▼ Means that this key's function toggles with each activation

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