

**MAC 1700 Control/Display Unit**

# Pilot's Operating Handbook & Flight Manual Supplement

Revision 4.0  
January, 1995

**MAC MFCOY AVIONICS CORP.**

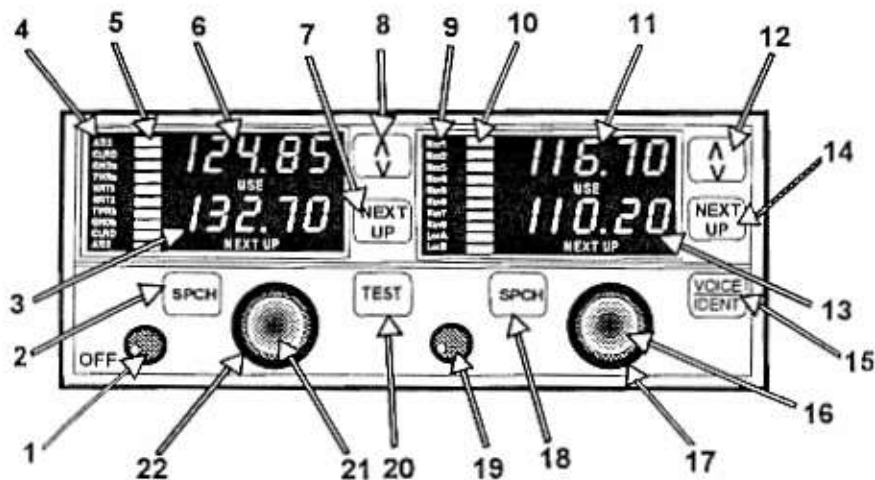
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**MAC MFCOY AVIONICS CORP.**



## DESCRIPTION OF MAC 1700 C/DU AND FUNCTIONS

### "USE" DISPLAY (#6 & #11)

Displays Nav and Comm frequencies currently in USE.

### "NEXT UP" DISPLAY (#3 & #13)

Displays Nav and Comm frequencies to be used next and also serves as a scratch pad to change frequencies. When a frequency has been changed, pressing the **NEXT UP** pushbutton, serves as an "ENTER" command, storing the frequency in the NEXT UP display. All frequencies are changed from and entered into MACMenu from the "NEXT UP" display.

### MACMenu (#4 & #9)

MACMenu provides legends to identify the location (10 Nav and 10 Comm) a particular frequency is stored. To aid in flight planning, the following prompts are used, however, any valid frequency from 108.00-135.975 MHz (136.975 MHz in 760-channel units) may be stored at any memory location.

Memory Position	Prompt	Defined As
1.	ATIS	Automatic Terminal Information System, departure airport
2.	CLRD	Clearance Delivery, departure airport
3.	GNDa	Ground Control, departure airport
4.	TWRa	Tower, departure airport
5.	NRT1	First enroute controller
6.	NRT2	Second enroute controller
7.	TWRb	Tower, arrival airport
8.	GNDb	Ground Control, arrival airport
9.	CLRD	Clearance Delivery, arrival airport
10.	ATIS	Automatic Terminal Information System, arrival airport

Nav MACMenu prompts are identified by "Nav" legends numbered from 1 through 8. Memory positions 9 and 10 are identified "Loc A" or "Loc B", for storage of localizer frequencies, however, enroute nav frequencies can also be stored in these memory positions.

### CURSOR (#5 & #10)

An LED annunciator (Cursor) indicates the memory location of the NEXT UP frequency. The pilot may select one of two methods of Cursor movement described later in the P.O.H. When the Et/tt Timer option is installed, the Cursor also serves as an expired time alerter by flashing until reset.

### TRANSFER **TRANSFER** PUSHBUTTON (#8 & #12)

Used to transfer frequencies in the "NEXT UP" window to the "USE" window.

### NEXT UP **NEXT UP** PUSHBUTTON (#7 & #14)

Used to "scroll" through the memory positions of MACMenu. Pressing the **NEXT UP** pushbutton advances the MACMenu Cursor. Pressing and holding the **NEXT UP** pushbutton for +1 second, causes the Cursor to "fast forward", eliminating the need to repeatedly press the **NEXT UP** pushbutton.

### COMM **SPCH** PUSHBUTTON (#2)

When momentarily pressed, **SPCH** activates the optional MACVoice voice synthesizer which "speaks" the Comm "USE" and "NEXT UP" frequencies over the cabin speaker or headphones. (Note: The voice synthesizer will be disabled and reset by any time squelch is broken.) When the Et/tt Timer option is installed, pressing and holding the Comm **SPCH** pushbutton will momentarily display elapsed time in the Comm frequency display and total time in the Nav frequency display.

### TEST **TEST** PUSHBUTTON (#20)

Functions identically to the Test function on the KX 170 Series. Pressing **TEST** breaks the automatic squelch circuit, functionally testing the Comm transceiver. Press **TEST** a second time to re-activate the automatic squelch feature. The **TEST** pushbutton is also used to activate the Option Selections discussed elsewhere in this P.O.H.

### NAV **SPCH** PUSHBUTTON (#18)

When pressed, **SPCH** activates the optional MACVoice speech synthesizer which "speaks" the Nav "USE" and "NEXT UP" frequencies and also annunciates time remaining when the countdown approach timer is in use. (Note: The voice synthesizer will be disabled and reset by any time squelch is broken.)

### VOICE/IDENT **VOICE IDENT** PUSHBUTTON (#15)

Functions identically to the Voice/Ident switch on the KX170A/KX175/KX175B/KX 170B. Pressing this button toggles the nav receiver between Voice

and Ident modes. In Voice mode, the Nav ident tone is filtered out on Nav frequencies. In Ident mode, the Nav ident tone filter is disabled. In MAC 1700 Series C/DU with 1.10 or later software, Voice and Ident modes are momentarily annunciated in the Nav NEXT UP display with either "Aud" annunciation for Voice selection or "Id" for Ident mode.

#### COMM ON/OFF/VOLUME KNOB (#1)

Clockwise rotation past the detent ("click") turns the Nav and Comm ON. Further clockwise rotation increases Comm volume.

#### CAUTION:

To avoid electrical surges that could damage your avionics, do *not* turn on any avionics until *after* engine start-up.

#### COMM FREQUENCY SELECTOR KNOB (#21 & #22)

A concentric knob, the larger, outer knob (#22) controls 1 and 10 MHz digits; the smaller, inner knob (#21) controls kHz from 000 to 975. (Note: In 720 and 760 channel Comm's, the third kHz digit is not displayed, i.e. 124.975 is displayed as 124.97.) Only frequencies displayed in the Comm NEXT UP window may be changed using the Comm Frequency Selector Knob.

#### NAV VOLUME KNOB (#19)

Clockwise rotation increases Nav volume. Counter-clockwise rotation decreases Nav volume.

#### NAV FREQUENCY SELECTOR KNOB (#16 & #17)

A concentric knob, the larger, outer knob (#16) controls 1 and 10 MHz digits; the smaller, inner knob (#17) controls kHz digits from 00 to 95. Only frequencies displayed in the Nav NEXT UP window can be changed with the Nav Frequency Selector Knob. When the countdown approach timer is selected, the larger, outer knob sets minutes; the smaller, inner knob sets seconds.

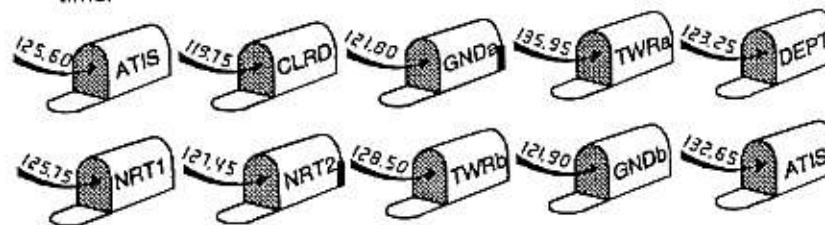
## MAC 1700 ORIENTATION EXERCISE

Although you may be tempted to rush headlong into using the MAC 1700, please take the time to do the following orientation exercise. It will quickly and painlessly familiarize you with the operational flexibility and pilot selectable operational options designed into the MAC 1700.

### THINGS TO REMEMBER

Before starting, there are a few things to remember that will make operating the MAC 1700 easy and aid in understanding how it "thinks".

- A. Think of each MACMenu memory location (i.e. ATIS, GNDa, TWRa, etc.) as a mailbox where frequencies are stored and can be retrieved at any time.



- B. The NEXT UP display window serves two purposes:

1. It serves as a scratch-pad, displaying the next frequency to be transferred into USE.
2. It also serves to display the frequencies recalled from MACMenu.

- C. The  pushbutton is actually a multi-purpose pushbutton.

1. It moves the Cursor to the various MACMenu memory locations.
2. It serves as an "Enter" command to store the desired frequency in the MACMenu memory location indicated by the Cursor. Any time you press  the frequency that's in the NEXT UP window will be stored at the MACMenu location of the Cursor.

- D. It follows that to store a frequency at a specific MACMenu memory location for later recall, simply press .





## GETTING STARTED

When shipped from the factory, the MAC 1700 is configured as follows:

Option Selection	Legend	Factory Setting
Prev. Elapsed Time*	Pr 1	Pr 1
Frequency Control:	FCy	Roll Over (rol)
Cursor Movement:	CSr	Bounce-Back (bb)
Leg or FPL Mode:	Typ	Leg
Et reminder*:	Et	Off
tt Reminder*:	tt	000
FPL Memory Store*:	Str	Str # 0

\*Available on the MAC 1700VTX.

For the purposes of this orientation lesson, your MAC 1700 should be configured this way. To make sure it is, do the following:

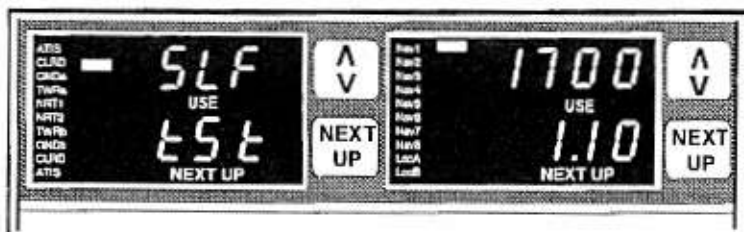
1. Turn the MAC 1700 OFF.
2. With MAC 1700 OFF, press and hold Comm  and .
3. While holding the Comm  and , turn unit ON.


You have just executed a "Cold Start". Cold starts are useful if you wish to erase all frequencies stored in memory along with pilot selected options. Notice that all Comm frequencies are reset to 121.50 MHz and all Nav frequencies are reset to 117.90 MHz.

## GETTING TO KNOW LEG MODE

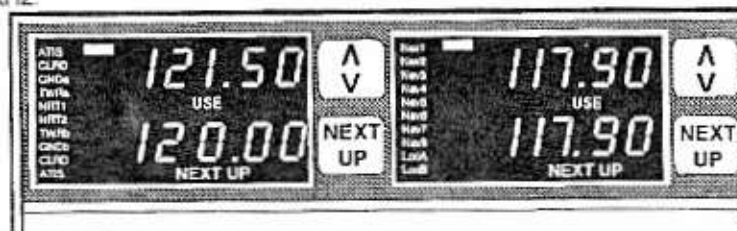
LEG MODE is especially useful on flights when you may not be able to anticipate all of the frequencies that will be assigned. LEG MODE can be most easily explained as a "get and put back" mode of operation. Just follow the exercise below and you'll see how simple LEG MODE makes frequency management. Be sure to follow the exercise exactly as outlined.


- A. Turn the MAC 1700 ON by rotating the ON/OFF/VOLUME knob clockwise past the OFF detent (click). This functional test of the display lets you know that all of the elements of the display are working.

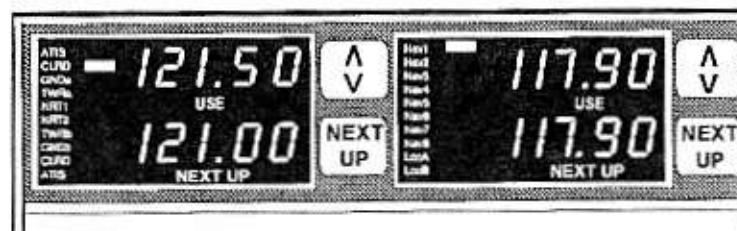



- B. If the Cursor isn't at the top of MACMenu (ATIS) after the display test is complete, press  to get it there.

- C. Using the Comm frequency selector knobs, select 120.00 MHz. The larger concentric knob controls MHz and the smaller concentric knob controls kHz.








- D. Press  (120.00 is now stored in the ATIS memory location). Notice however, that the USE frequency (121.50) is still displayed. Don't worry, 120.00 has been stored in the top ATIS memory location.
- E. Using the Comm frequency selector knobs, select 121.00 MHz.

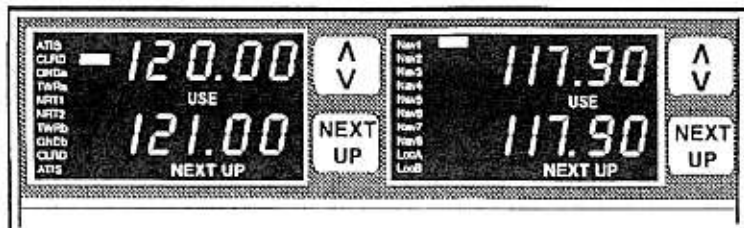


- F. Press  (121.00 is now stored in the CLRD memory location).
- G. Repeat the process using these frequencies:

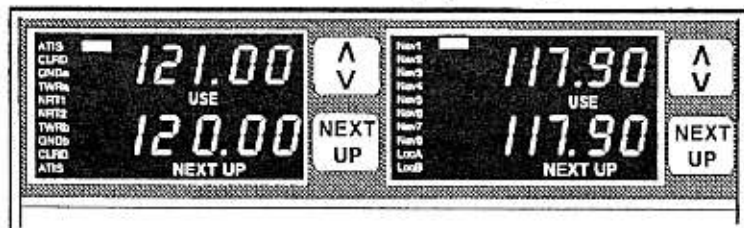
GNDa	122.00
TWRa	123.00
NRT1	124.00
NRT2	125.00
TWRb	126.00
GNDb	127.00
CLRD	128.00
ATIS	129.00

These frequencies are now stored in MACMenu. In order to confirm this, press and hold  to rapid advance the Cursor through all MACMenu memory locations.

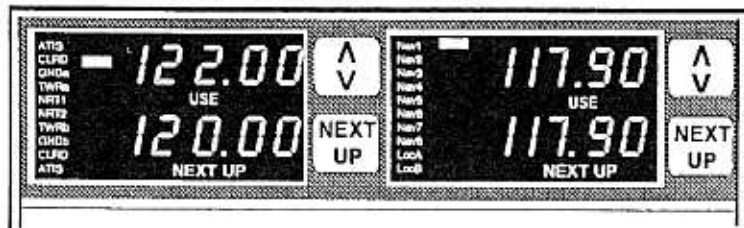
- H. Upon completing the review, return the Cursor to the top of MACMenu (120.00 should be displayed in the NEXT UP window).
- I. Press  to place 120.00 MHz in USE. (To prevent erasing 120.00, Press )
- J. To call up the next frequency you'll be using (in this case, 121.00), press  until the Cursor is lit next to CLRD (121.00).
- K. When you're ready to use CLRD, press .



- L. Notice that the Cursor jumped back up to the ATIS memory location and placed 120.00 MHz in the NEXT UP display for easy recall.

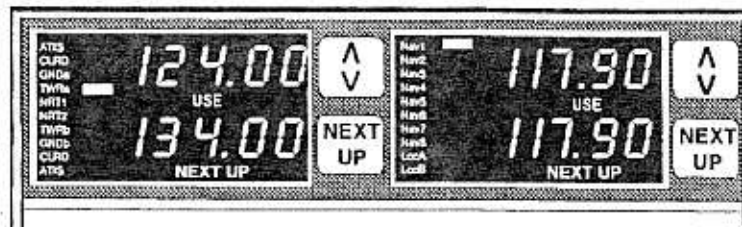


- M. To call up the next frequency you'll need (122.00), press **NEXT UP** until the Cursor is lit next to GNDa (122.00).  
 N. When you're ready to use GNDa, press **USE**.  
 O. Again, notice that the Cursor jumped back up to the CLRD memory location and placed 120.00 MHz in the NEXT UP display.



- P. Repeat this exercise for the other frequencies you've stored until you feel comfortable with the way **USE** and **NEXT UP** control the frequencies and Cursor. (By the way, Nav MACMenu works the same way).  
 Q. To better illustrate the effect **USE** and **NEXT UP** have on memory, do the following exercise and notice what happens:  
 1. Call up 122.00 (GNDa) using **NEXT UP**.  
 2. Press **USE**.  
 3. Call up 123.00 (TWRa) using **NEXT UP**.  
 4. Using the frequency selector knobs, change 123.00 to 134.00.  
 5. Put 134.00 into **USE** by pressing **USE**.  
 6. Press **NEXT UP** to call up 124.00 (NRT1).  
 7. Press **USE** to put 124.00 into **USE**.

8. Call up TWRa again, using **NEXT UP**.  
 9. Notice that TWRa's frequency is still 134.00. Only when **NEXT UP** is pressed after changing a frequency will the frequency be placed in the appropriate MACMenu memory location.



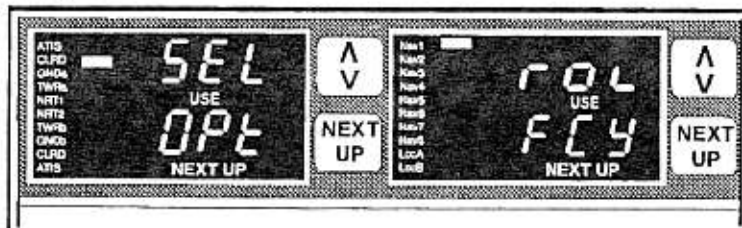
## FLIGHT PLAN MODE (FPL)

By now you're probably saying, "LEG MODE is nice, but I'm tired of pressing **NEXT UP** all the time. Isn't there a better way?" The answer is "YES". It's called **FLIGHT PLAN MODE (FPL MODE)** and it's especially useful on flights where the majority of the frequencies to be used are known in advance. In **FPL MODE**, when **USE** is pressed, the Cursor automatically advances to the next MACMenu memory location, displaying that frequency in the **NEXT UP** display window, ready for **USE**.

## SELECTING FLIGHT PLAN MODE

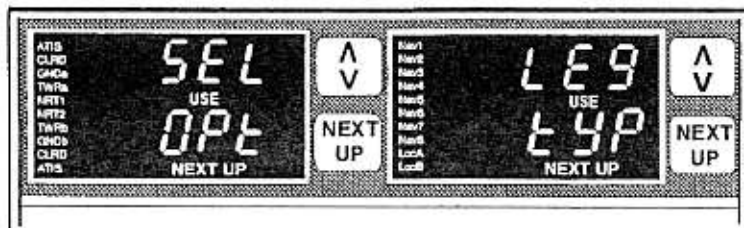
In order to select **FLIGHT PLAN MODE**, follow these easy steps:

- A. Turn the MAC 1700 OFF by rotating the ON/OFF/VOLUME knob counter-clockwise past the OFF detent (click). Don't worry about losing the stored frequencies, they're saved in a special memory circuit.  
 B. Hold **TEST** while turning the MAC 1700 ON, then release **TEST**.  
 C. Instead of going through the display test, you'll see the following message displayed:

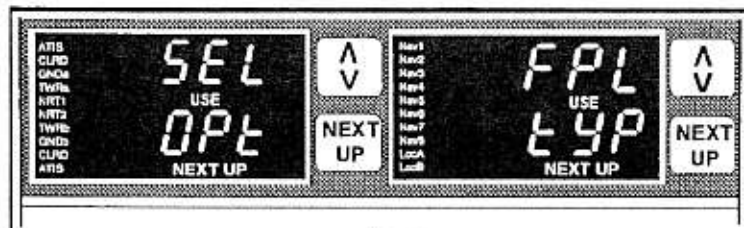


- D. To advance through the option selections, press Nav **NEXT UP**.  
 E. To change an option, press Nav **USE**.  
 F. Since the only option we want to change is the option titled "tyP", (LEG/FPL) MODE, we'll skip over the other options as follows:

1. Press Nav **NEXT UP** until "tyP" is displayed in the Nav NEXT UP display.



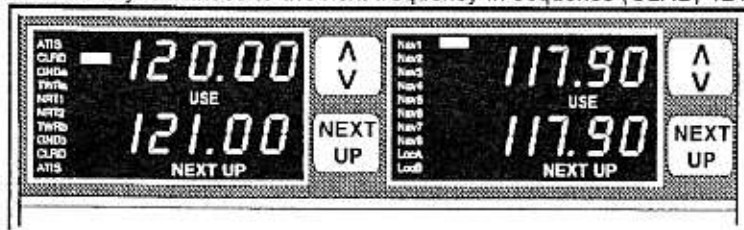
2. With SEL OPT "tyP" displayed, press Nav **↕** until "FPL" is displayed in the Nav USE display.



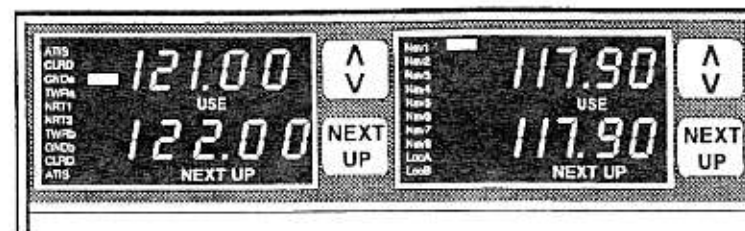
3. With "FPL" displayed, press Nav **NEXT UP** until the MAC 1700 begins its automatic display test. The options you've selected will be stored for future use.

## USING FLIGHT PLAN MODE

- A. First, review the frequencies stored in MACMenu by pressing and holding **NEXT UP**. This will rapidly advance through all memory locations. Notice that the frequencies you stored are still in memory.
- B. Upon completing the review, return the Cursor to the top of MACMenu (120.00 should be displayed in the NEXT UP display).
- C. Press Comm **↕** to place 120.00 in USE. Notice that the Cursor automatically advances to the next frequency in sequence (CLRDa, 121.00).



- D. Press Comm **↕** again to place 121.00 MHz in USE. Notice that the Cursor again automatically advanced to the next frequency in sequence (GNDa, 122.00).

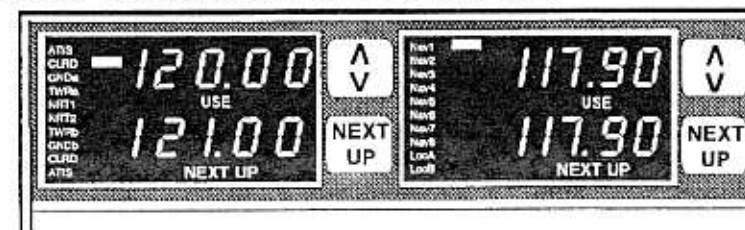


- E. Notice that in FPL MODE, each time **↕** is pressed, the Cursor automatically goes to the next frequency in sequence.

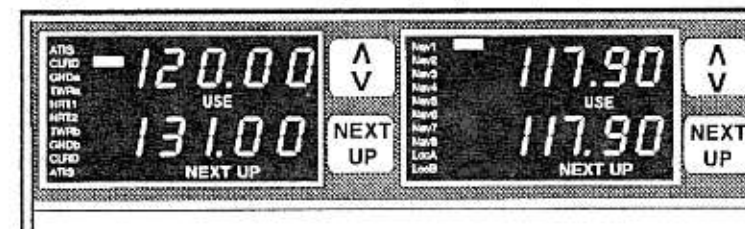
## LAST USED FREQUENCY RECALL

But what if you want to recall the last frequency used? Suppose ATC hands you off to a frequency that's not in use. To recall the last used frequency:

- A. Press and hold **↕** for +1 second. The last used frequency (120.00) is put back into the USE display and 121.00 is moved back to the NEXT UP display. The Cursor also moves back one step too.



- B. Now, you can re-contact ATC, get the proper frequency and enter it.



- C. To use the new frequency, press **↕**.
- D. Once the Last Used Frequency feature has been activated, the Cursor no longer automatically advances and the NEXT UP display becomes a scratch pad. This is useful during IFR flights when handed off to new but unknown frequencies.
- E. To reactivate the auto-sequencing feature of FPL MODE, press either **↕** or **NEXT UP**.

NOTE :

The Last Used Frequency feature will only back up one time and cannot be used to reverse the direction of the Cursor.

## SCRATCH PAD

The Scratch Pad feature is especially useful during enroute IFR flights where the pilot may not be able to anticipate what frequencies will be used. When the Scratch Pad is activated, any frequency can be entered into the NEXT UP display and then transferred into USE without disturbing the frequencies stored in MACMENU. No special actions are required to activate the Scratch Pad feature. Simply select the new frequency using the appropriate frequency selector knobs and scratch pad is activated.

To reactivate the auto-sequencing:

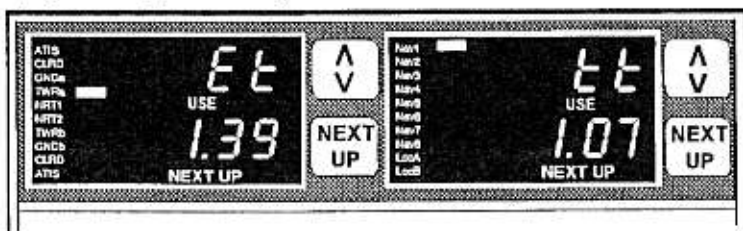
1. Press **NEXT UP** or **↓**

## Et/tt TIMER OPTION

When the Et/tt Timer option is installed, (standard on the MAC 1700VTX), the unit will automatically begin recording elapsed time and total time upon MAC 1700 power ON. Elapsed time (Et) will always be displayed in the Comm NEXT UP display in hours and hundredths of hours; total time (tt) will always be displayed in the Nav NEXT UP display to the whole hour.

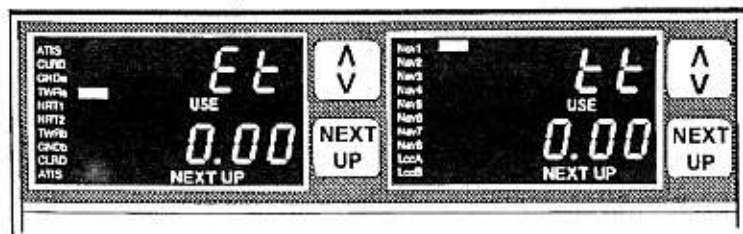
To Display Elapsed Time & Total Time:

- A. Press and hold Comm **SPCH** for +1 second, then release. Et/tt times will be displayed for approximately 3 seconds.



To Reset Elapsed Timer (Et)

- A. Press and hold Comm **SPCH** for approximately 7 seconds. This will return the Et timer to "0"—especially useful if you want to record elapsed time from take-off or some other point.



To continuously display Et/tt:

- A. Press and hold Comm **SPCH** until Et/tt is displayed then momentarily release and depress Comm **SPCH** and continue to depress the button. Upon release, the display will return to frequency display after approximately 3 seconds.

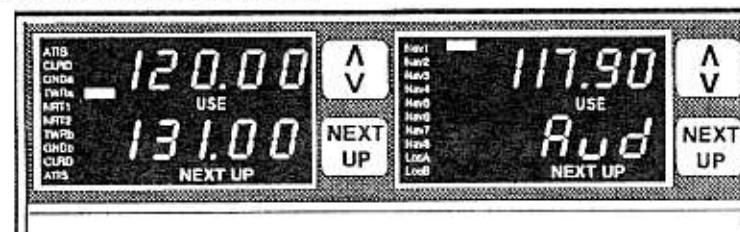
To Reset Total Timer (tt):

- A. Press and hold Comm **SPCH** for 14 seconds. After 7 seconds, the Et will reset to "0". Continue to hold the Comm **SPCH** for another 7 seconds until tt resets to "0".

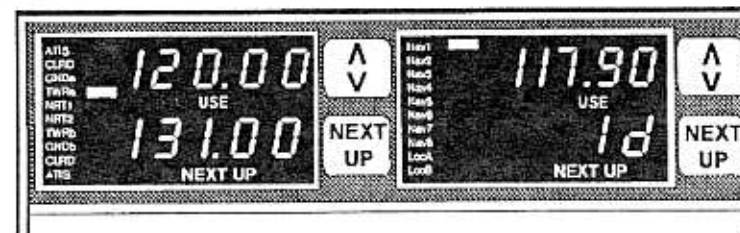
## VOICE/IDENT ANNUNCIATION

MAC 1700 Series units with 1.10 or later software will momentarily annunciate Voice or Ident mode when **VOICE IDENT** is pressed.

When Voice mode is selected:



When Ident mode is selected:

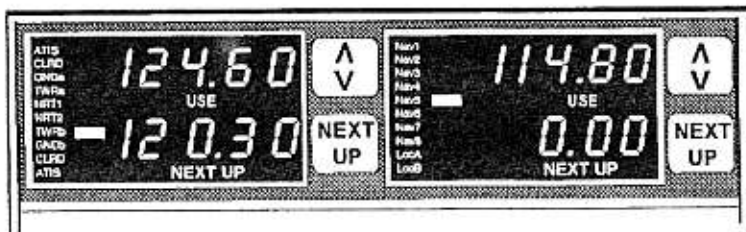


## COUNTDOWN APPROACH TIMER

All MAC 1700's come equipped with a Countdown Approach Timer. The timer has the capability to count down from 9 minutes, 59 seconds to zero. Upon reaching zero, the countdown time, which is displayed in the Nav NEXT UP display area, will continue to flash until cancelled. While the countdown timer is in use and being displayed, MACMenu frequencies are placed in blind storage but may still be called up and placed in use using **NEXT UP** and **↓**

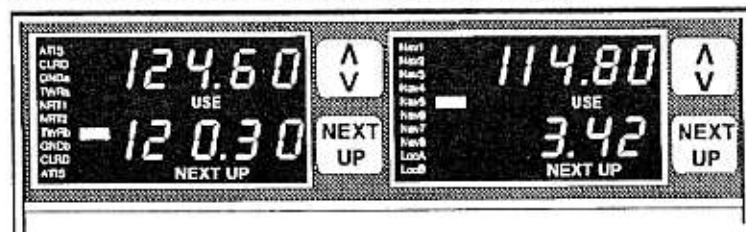
To call up the countdown approach timer:

- A. While pressing and holding Nav **SPCH**, press and release Nav **NEXT UP**, then release Nav **SPCH**. You will see:



**To set time:**

- A. Use the large, outer Nav frequency selector knob to select minutes. Use the small, inner Nav frequency knob to select seconds.



**To start countdown timer:**

- A. Press Nav **SPCH**

**To Stop/Cancel the countdown timer:**

- A. Press Nav **SPCH**

If the MAC 1700 is equipped with optional MACVoice, upon starting the countdown, the voice synthesizer will call out the time remaining in the approach (3:42 in this case). Time remaining will then be called out every minute until the last minute and then time remaining will be called out every 10 seconds. When time has run out, MACVoice will repeat "Zero, zero" (pause), "Zero, zero", until the Nav **SPCH** is pressed.

**NOTE :**

On MAC 1700 Series C/DU's with software 1.10 or later, the countdown approach timer will automatically retain the time set upon expiration of time or reset. Earlier software versions will reset the countdown approach timer to "0:00" upon expiration of time or reset.

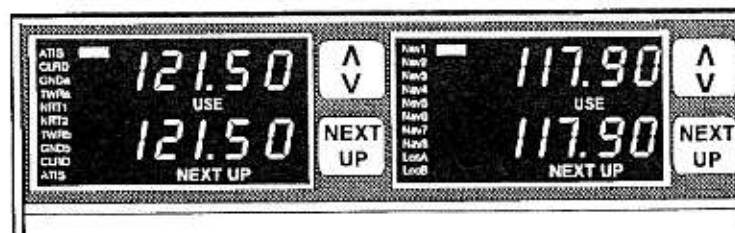
**COLD START**

The term cold start is used to refer to a MAC 1700 Series C/DU that has no frequencies stored in memory. It also provides a way to clear memory of any frequencies that are stored and returns factory programmed Option Selections to memory. Upon initial power up, the unit may display 121.50 in all Comm memory locations and 117.90 in all Nav memory locations.

A cold start is also recommended after the initial conversion of the radio. This will normally be accomplished by your Authorized MAC Sales and Service Center. At other times, the pilot may simply wish to "erase" those frequencies stored in memory along with pilot selected options. In order to cold start the MAC 1700, the following procedure should be followed:

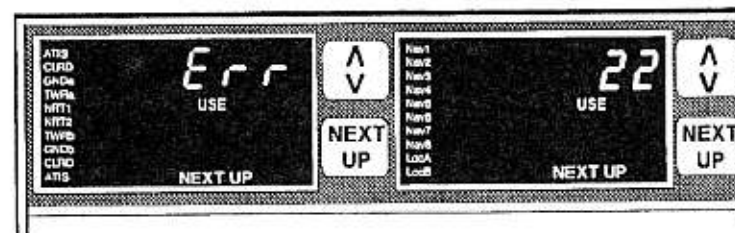
**Cold Start Procedure:**

- A. Turn the MAC 1700 OFF.
- B. With the unit OFF, press and hold Comm **TEST** and **↓** simultaneously.
- C. With **TEST** and **↓** depressed, turn the MAC 1700 ON.
- D. Release **TEST** and **↓**.
- E. The MAC 1700 will display the following:



**ERROR MESSAGE CODES**

The MAC 1700 is capable of certain self-checks. When an error is detected, the MAC 1700 will display an error message ("Err") accompanied by an error code (for example "22"). The error code should be noted since it will aid your Authorized MAC Sales and Service Center in diagnosing the source of the problem.



**WARNING :**

**DO NOT USE** the MAC 1700 if an error message has been displayed.



## PILOT SELECTABLE FEATURES

The MAC 1700 Series is designed to allow the pilot to select and review certain operational features. These pilot selectable features have been incorporated so that operation of the MAC 1700 can be configured to more nearly reflect the owner's piloting preferences. The sequence in which the Option Selections appear will depend upon the MAC 1700 model owned.

### MAC 1700X Selectable Options:

Option Selection	Sequence	Legend/Default	Option
Frequency Control	1	FCy/rol	StP
Cursor Control	2	CSr/bb	rol
Leg/FPL Mode	3	tyP/LEg	FPL

### MAC 1700VTX Selectable Options:

Option Selection	Sequence	Legend/Default	Option
Prev. Elapsed Time	1	Pr1/Pr 1	---
Frequency Control	2	FCy/rol	Stp
Cursor Control	3	CSr/bb	rol
Leg/FPL Mode	4	tyP/LEg	FPL
Et Time Reminder	5	EV/OFF	0.5/1.0
Total time Reminder	6	tt/0	0-999
Expanded Memory	7	Str/0	0-5

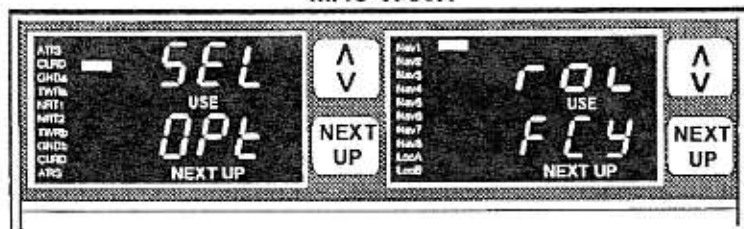
## ACTIVATING SET UP MODE

SET UP MODE is used to activate pilot selectable features and is accessed using the following procedure:

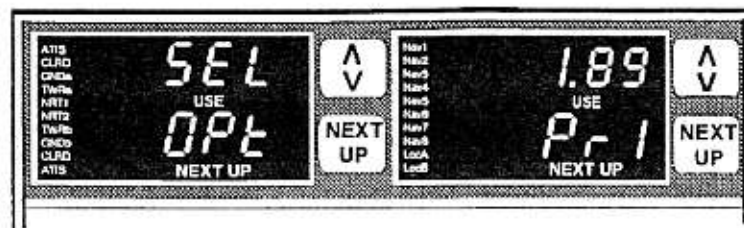
### To activate SET UP MODE:

- Rotate the VOL/ON/OFF knob to OFF.
- While the unit is OFF, press and hold **TEST** while turning the unit ON.
- Depending on the MAC model you own, one of the two following messages will be displayed:

MAC 1700X



MAC 1700VTX



- In Option Select Mode, Nav **↓** turns the various features ON or OFF (enters them in memory). Nav **NEXT UP** advances through the options. Once options have been selected, they are permanently stored in memory and can only be changed by reactivating Option Select Mode or cold start.

## OPTION SELECTION-- PREVIOUS ELAPSED TIME (Pr 1-8)

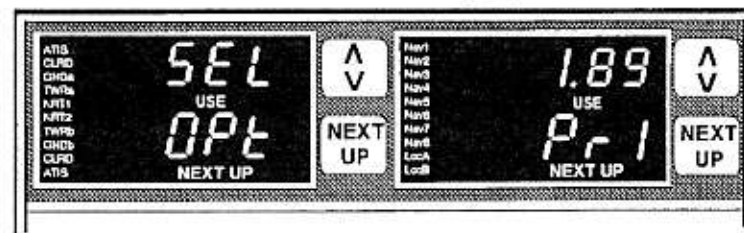
Any MAC 1700 Series equipped with the optional Et/tt Timer has the ability to record, store and recall the elapsed time for the last eight (8) flights.

### IMPORTANT

MAC 1700 "elapsed time" is based on MAC 1700 power ON to power OFF of the unit measured in real time. As a result, MAC 1700 elapsed time and tachometer time (which is based on engine RPM) may vary depending on the delay between engine start and MAC 1700 turn-on. Et/tt times may not be useable for logbook or maintenance purposes.

### To Review Previous Elapsed Time:

- Turn unit OFF.
- With unit OFF, press and hold **TEST** while turning the unit ON.
- When SEL OPT is displayed, release **TEST**.



- Rotate the Nav kHz frequency selector knob clockwise to review previous elapsed flight times.

## NOTE

Previous elapsed times are displayed in "reverse" order i.e. Pr 1: most recent flight, Pr 2: the flight prior to PR 1, Pr 3: the flight prior to Pr 2. Example: For a multi-leg flight from CMH to STL, STL to MEM, MEM to BNA, BNA to CMH, upon Et review the displayed sequence would be as follows:

First Leg	CMH > STL	Pr 4
Second Leg	STL > MEM	Pr 3
Third Leg	MEM > BNA	Pr 2
Fourth Leg	BNA > CMH	Pr 1

In reviewing the above, PR 1 would be displayed first, then Pr 2, then Pr 3, then Pr 4 (the reverse order in which the legs were flown with the most recent elapsed time displayed first).



## OPTION SELECTION-- FREQUENCY CONTROL (FCy)

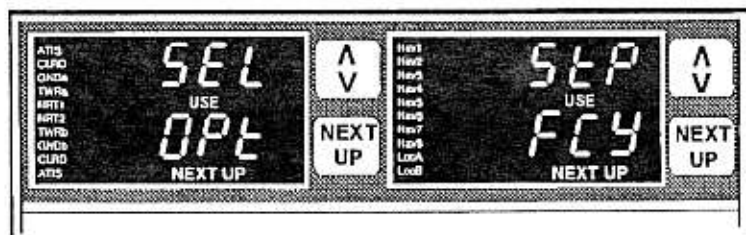
Rotation of the Frequency Selector Knobs in a clockwise direction will always increment (increase) the frequency displayed. Counter-clockwise rotation of the Frequency Selector Knobs will always decrement (decrease) the displayed frequency.

### Frequency Stop (StP)

When "StP" is displayed, upon reaching the highest or lowest frequency (136.97 or 117.95 for Comm; 117.95 or 108.00 for Nav), further rotation of the Frequency Selector Knobs in the same direction will not increment or decrement the displayed frequency--the frequency display is said to be against a "Stop".

### To select STOP MODE:

- A. With Option Select "FCy" displayed in the Nav NEXT UP display window, press Nav  until "StP" is displayed in the Nav USE display window. Pressing  automatically advances to the next options while storing "StP".




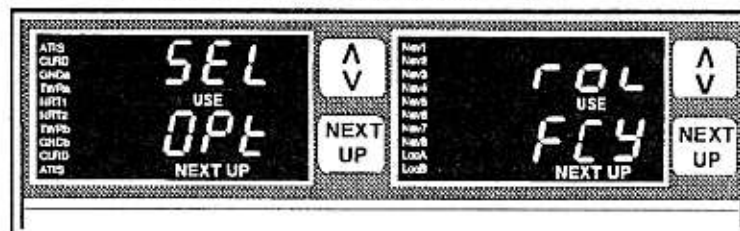
### Roll Over Mode (rol)

When "rol" is displayed as Option Select "FCy", upon reaching the highest or lowest frequency (136.97 or 118.00 for Comm; 117.95 or 108.00 for Nav), further rotation of the Frequency Selector Knobs in the same direction will continue to increment or decrement the displayed frequency--the frequency

display "rolls over". For example, upon reaching 136.97 MHz, further clockwise rotation of the Frequency Selector Knob will cause the displayed frequency to "roll over" to 118.00 MHz. All MAC 1700's are shipped from the factory with Option Select "FCy" in Frequency Roll Over Mode.

### To Select Roll Over Mode:

- A. With Option Select "FCy" displayed in the Nav NEXT UP display window, press Nav  until the "rol" is displayed in the option.

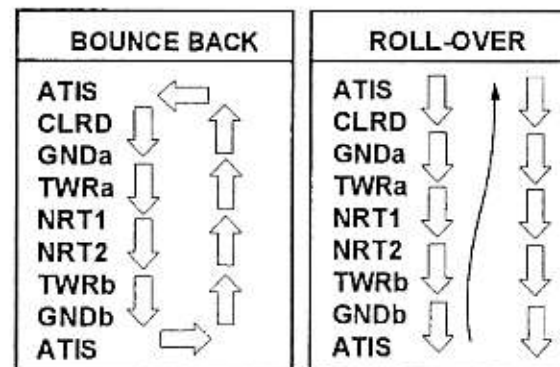


## OPTION SELECTION-- CURSOR CONTROL (CSr)

An LED annunciator (Cursor) next to the menu indicates the memory location of the NEXT UP frequency. The pilot may select one of two methods of Cursor movement:

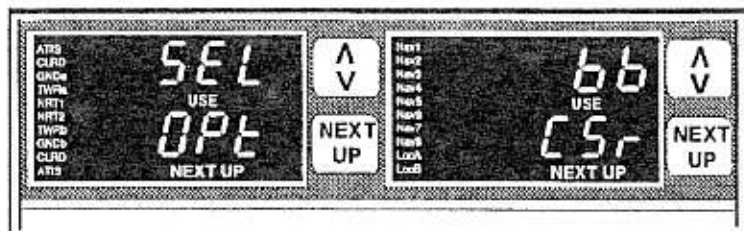
### Bounce-Back Mode

In bounce-back mode, the Cursor moves from top to bottom. Upon reaching the bottom of the menu, the Cursor moves from bottom to top, thereby reversing the order of the frequencies for the return flight. This method of operation is ideal for round robin flights. All MAC 1700's are set in the bounce-back mode at the factory.



### To select Bounce Back Mode:

- A. Press Nav **NEXT UP** until "CSr" is displayed in the Nav NEXT UP display window.
- B. Press Nav **↓** until "bb" is displayed in the Nav USE display window.  
Pressing **NEXT UP** automatically enters the selected option and advances to the next option.

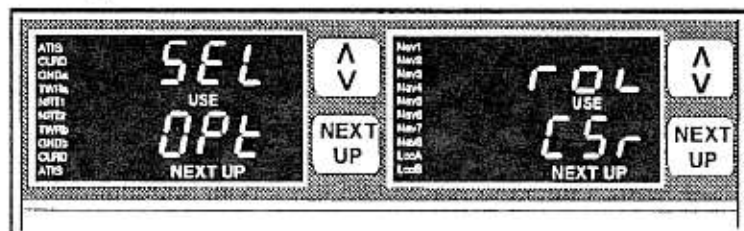


### Roll-Over Mode

In roll-over mode the cursor moves from top to bottom. Upon reaching the bottom of the menu, the cursor instantly returns to the top of the menu and moves from top to bottom again.

To Select Roll Over Mode:

- A. With Option Select "CSr" displayed in the Nav NEXT UP display window, press Nav **↓** until "rol" is displayed in the Nav USE display window.  
Pressing **NEXT UP** automatically enters the selected options and advances to the next option.



## OPTION SELECTION-- LEG/FLIGHT PLAN MODE (tyP)

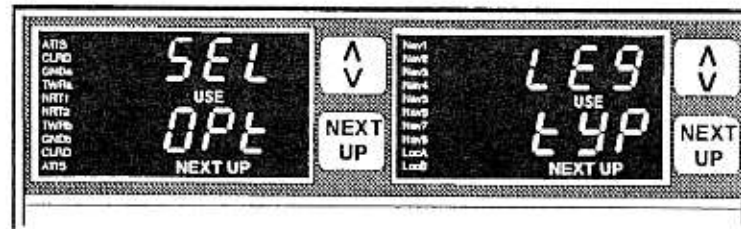
### LEG MODE (LEg)

LEG MODE is especially useful on flights where the pilot may not be able to anticipate the frequencies to be assigned. It is recommended LEG MODE be used until the pilot is familiar with the frequency management capabilities of the MAC 1700, therefore, all MAC 1700's are shipped from the factory in LEG MODE. In simplest terms, LEG MODE "gets and puts back" stored frequencies. Using **NEXT UP** and Cursor, the desired NEXT UP frequency is located and displayed in the NEXT UP window. When **↓** is pressed, the NEXT UP frequency is moved into USE and the old USE frequency is moved to the NEXT UP display (the two frequencies simply "swap" places). The Cursor also moves to the memory location where the old USE frequency was

stored. In order to call up some other frequency, the **NEXT UP** and Cursor must be used to locate the desired frequency. In this manner, LEG MODE "gets and puts back" stored frequencies.

To Select LEG MODE:

- A. Press Nav **NEXT UP** until "tyP" is displayed in the Nav NEXT UP display window.
- B. Press Nav **↓** until "LEg" is displayed in the Nav USE display window.  
Pressing **NEXT UP** automatically enters the selected option and advances to the next option.

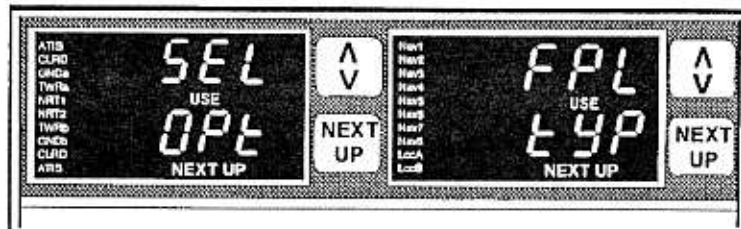


## FLIGHT PLAN MODE (FPL)

FLIGHT PLAN MODE is especially useful on flights where the majority of the frequencies to be used are known to the pilot, i.e.; IFR flights, regularly flown routes, etc. In FPL MODE, when **↓** is pressed, FPL MODE automatically sequences to the next stored frequency and displays it in the NEXT UP display window. The Cursor does not follow the old USE frequency back to its memory location as it does in LEG MODE, but advances, in sequence, to the next stored frequency.

To Select FPL MODE:

- A. With Option Select "tyP" displayed in the Nav NEXT UP display window, press Nav **↓** until "FPL" is displayed in the Nav USE display window.  
Press **NEXT UP** to automatically enter FPL and advance to the last option.







In addition to the auto-sequencing feature, FPL MODE incorporates two operational features to aid the pilot should the need arise to use frequencies that weren't anticipated:

### Last Used Frequency Recall--

Since there may be instances when it's necessary to recall the last frequency used (such as to recontact ATC to verify a frequency that was assigned), in FPL MODE the last used frequency may be recalled from a "recall" memory cell. In simplest terms, last used frequency recall reverses the auto-sequencing process one step.

Functionally, activation of this feature recalls the last used frequency from "recall" memory; transferring the frequency in USE back to NEXT UP; and moving the Cursor one position backwards so the Cursor position corresponds with the memory location of the NEXT UP frequency being displayed.



#### To activate Last Used Frequency Recall

- In normal radio operations, press and hold  for +1 second. (Comm  controls Comm frequencies; Nav  controls the Nav frequencies.)
- Using the Frequency Selector Knobs, change the NEXT UP frequency to the desired frequency.
- Press  to transfer the new NEXT UP frequency into USE.

#### FPL Scratch Pad--

The NEXT UP display can also serve as a scratch pad. The FPL Scratch Pad is especially useful during enroute IFR flights where the pilot can anticipate being handed off to several different, but unknown ATC frequencies.



To reactive auto-sequencing:

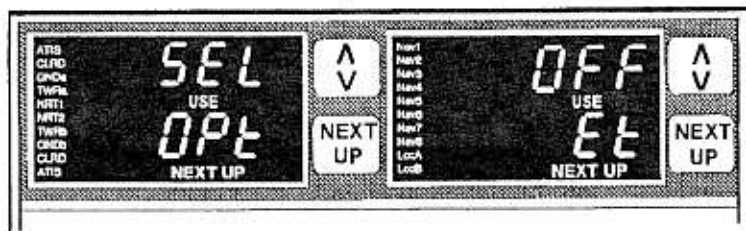
- Press , scrolling the Cursor to the next frequency in memory or press .

## OPTION SELECTION-- ELAPSED TIMER REMINDER SET

The Et Timer may be programmed to display a reminder every 30 minutes (0.5 hrs.), every hour (1.0 hrs.) or turned OFF. The Et Reminder is especially useful in fuel management purposes.

#### To Select Et Reminder

- With the MAC 1700 in SEL OPt mode, and Et selected (by pressing Nav  until "Et" is displayed in the Nav NEXT UP display) press Nav  to select the reminder time desired (OFF, 0.5, 1.0)



**NOTE**

In normal operation, the Et display will annunciate whether OFF, 0.5 or 1.0 hrs have been selected by displaying dashes either before or after the Et as follows:


When OFF is selected: *ET*

When 0.5 is selected: *ET-*

When 1.0 is selected: *-ET-*

Upon expiration of the preset Et time reminder, the Comm Cursor will begin to flash.

#### To reset Et Time Reminder:

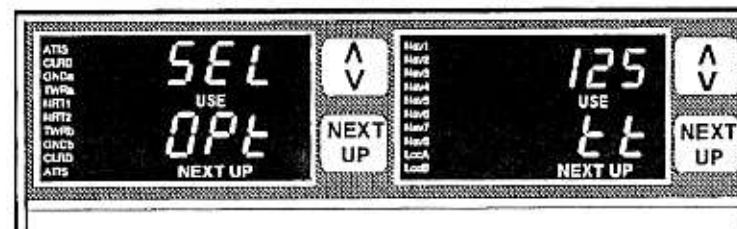
- Press and release Comm  to reset.

## OPTION SELECTION-- TOTAL TIME REMINDER SET

The total timer (tt) simply adds elapsed times up to 999 hours. The tt timer can also be set to remind the pilot that a preset total time up to 999 hours has elapsed. The total time reminder is useful for periodic maintenance oriented items like oil changes or 100 hour inspections.


#### To set the Total Time (tt) Reminder:

- With the MAC 1700 in SEL OPt "tt", select the desired reminder time. Use the Nav MHz frequency selector knob (large, outer knob) to select 100's and the Nav kHz frequency selector knob (small, inner knob) to selection 10's and 1's.



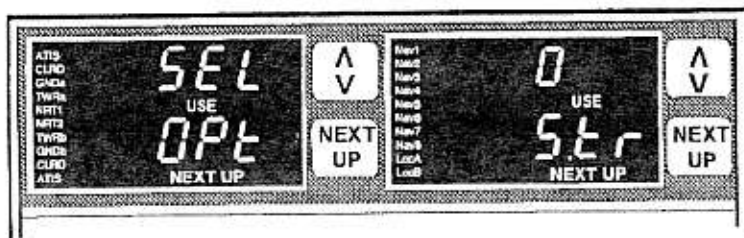
- Upon expiration of the preset total time, the Nav Cursor will begin to flash.

#### To reset the tt Timer:

- Press and release Comm  to reset.

## OPTION SELECTION-- EXPANDED MEMORY STORAGE (Str)

If you own the MAC 1700VTX, upon reaching the Expanded Memory Storage Option Selection, your display will look like this:



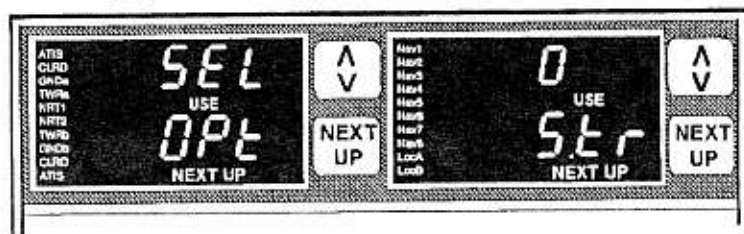
To pass Option Select:

- A. Press Nav **NEXT UP**

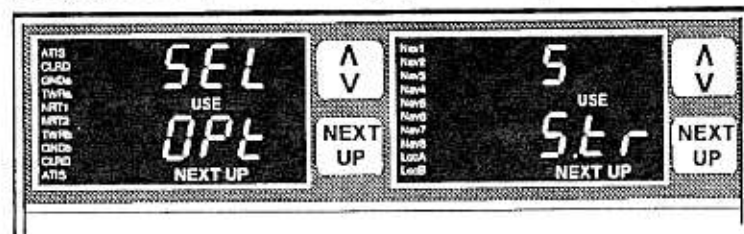
If you have a MAC 1700V or MAC 1700VT, you can access any of the six flight plan memory banks of 20 frequencies each using the following procedure:

To Select Flight Plan Memory Banks:

- A. Using Nav **NEXT UP** select "Str".



- B. Press **0-5** to call up the various flight plan memory banks (numbered 0-5)



- C. When the desired flight plan memory bank is displayed, press Nav **NEXT UP**.

Notice that upon pressing Nav **NEXT UP**, the MAC 1700 automatically goes through the automatic display test cycle. Upon completion of the automatic test sequence, the unit is ready for use.

## OPERATIONAL HINTS

Obviously, you can store any Comm frequency at any Comm memory location and any Nav frequency at any Nav memory location, the MACMenu prompts simply help you remember where you've stored the frequency. Although the last two memory positions on the Nav menu are labeled as Localizer memory positions, any Nav frequency can be stored in these positions. Again, the prompts are simply a memory aid.

## CAUTION

When using MACMenu, be sure to visually or aurally (using the optional speech feature) confirm the frequency being called up.

The MAC 1700 Series C/DU features a special software "watchdog" circuit that will automatically reset software should there be a software "hang-up" or "glitch". However, should the "Watchdog" circuit fail, full operation of the MAC 1700 can, in many instances, also be restored by simply turning the unit OFF and then ON again. Upon completion of the flight, have the unit checked by your nearest Authorized MAC Sale and Service Center.

Should the voice synthesizer circuit be in operation when an incoming transmission is received, the incoming transmission will take priority over the voice synthesizer and override it. To reactivate the voice synthesizer, simply press the appropriate **SPCH** pushbutton.

Because of the MAC 1700 Series C/DU's "open architecture" design, if you have purchased a MAC 1700X without voice synthesis or Et/t Timer options, they can be added at any time for a nominal cost. Contact your nearest Authorized MAC Sales and Service Center for details.

## CAUTION

To protect your avionics from electrical surges which could damage them, always turn on avionics after engine start-up.

The Et/t timer option is activated by MAC 1700VTX turn on and is measured in real time. Depending on the delay between engine start and MAC 1700VTX turn on, Et/t times may vary from tachometer time (which is based on engine RPM). As a result, Et/t times may not be applicable for logbook or maintenance purposes.

The MAC 1700X can be upgraded to a MAC 1700VTX at any time with the addition of VTX software. Contact your nearest MAC Dealer or the factory for details.

## FAST REFERENCE PROGRAMMING GUIDE

### NORMAL OPERATIONS

To turn MAC 1700 ON:

1. Rotate Comm VOL/ON/OFF knob clockwise past the OFF detent (click).

To SELECT A FREQUENCY:

1. Rotate the respective (Nav or Comm) frequency selector knob clockwise to increment (increase) the number or counter-clockwise to decrement (decrease) the number. The outer knob controls MHz; the inner knob controls kHz.

To STORE A FREQUENCY:

1. Press **NEXT UP** until the Cursor is located next to the desired MACMenu location.
2. Select the frequency using frequency selector knobs.
3. Press **NEXT UP**.

#### To ADVANCE THE CURSOR:

1. Press **NEXT UP**.

#### To FAST FORWARD THE CURSOR:

1. Press and hold the **NEXT UP** for +1 second.

#### To USE A FREQUENCY:

1. Using **NEXT UP** and Cursor, locate the desired frequency, or use the frequency selector knobs to select a frequency.
2. Press **^**.

#### To ERASE STORED FREQUENCIES:

See "Cold Start".

#### To RESET "SET UP" MODES:

See "Cold Start".

#### COLD START:

1. Turn unit OFF.
2. With unit OFF, press and hold Comm **^** and **TEST**.
3. While holding Comm **^** and **TEST**, turn unit ON.
4. Release Comm **^** and **TEST**.

#### To ADJUST COMM VOLUME:

1. Rotate the Comm VOL/ON/OFF knob clockwise, past the OFF detent. Further clockwise rotation increases Comm volume.

#### To ADJUST NAV VOLUME:

1. With the Nav VOL/DIMMING knob in its normal position (out), rotate the knob clockwise to increase volume.

#### To activate COMM TEST:

1. Press **TEST**, until "background noise" can be heard over cabin speaker or headphones. (Be sure Comm volume is properly set to an audible level).
2. Press **TEST** a second time to end test.

#### To activate VOICE/IDENT:

1. Pressing **VOICE IDENT** alternately "toggles" the VOICE/IDENT feature on and off ("Aud" or "Id" will be displayed in the Nav NEXT UP display).

#### To activate LAST USED FREQUENCY RECALL (FPL MODE only):

1. In normal radio operations with FPL MODE selected, press and hold **^** for +1 second.

#### To reactive AUTO-SEQUENCING (FPL MODE only):

1. Press **NEXT UP**, scrolling the Cursor to the next frequency in memory.

### ELAPSED TIMER & TOTAL TIME OPERATION

#### To display ELAPSED TIME & TOTAL TIME:

1. Press and hold Comm **SPCH** for +1 second.

#### To reset ELAPSED TIMER (Et):

1. Press and hold Comm **SPCH** for 7 seconds.

#### To continuously display Et/tt TIMES:

1. Press and hold Comm **SPCH** for +1 second.
2. When Et/tt is displayed, quickly release the depress and hold Comm **SPCH**.

#### To reset Et REMINDER:

1. Press and release Comm **SPCH**.

#### To reset TOTAL TIMER (tt)

1. Press and hold Comm **SPCH** for 14 seconds. (Et will automatically reset at 7 seconds.)

#### To reset TOTAL TIME REMINDER:

1. Press and release Comm **SPCH**.

### COUNTDOWN APPROACH TIMER

#### To call up COUNTDOWN APPROACH TIMER:

1. While pressing and holding Nav **SPCH**, press and release Nav **NEXT UP**, then release Nav **SPCH**.

#### To Set COUNTDOWN TIMER:

1. Use Nav frequency selector knobs to select minutes (large, outer knob), and seconds (small, inner knob.)

#### To Start COUNTDOWN TIMER:

1. Press Nav **SPCH**.

#### To Stop/Cancel the COUNTDOWN TIMER:

1. Press Nav **SPCH**.

### PILOT SELECTABLE OPTION PROCEDURES

#### To activate SET UP MODE:

1. Rotate the VOL/ON/OFF knob to OFF
2. Turn unit OFF
3. Press and hold Comm **TEST** while turning the unit ON.
4. In Option Select Mode, Nav **^** turns the various features ON or OFF. The Nav **NEXT UP** advances through the options.



#### To select FREQUENCY STOP MODE:

1. With Option Select "FCy" displayed in the Nav NEXT UP display window, press Nav **^** until "StP" is displayed in the Nav USE display window.


#### To Select FREQUENCY ROLL OVER MODE:

1. With Option Select "FCy" displayed in the Nav NEXT UP display window, press Nav **^** until the "rol" is displayed in the Nav USE display window.

**To select CURSOR BOUNCE BACK MODE:**

1. Press Nav  until "CSr" is displayed in the Nav NEXT UP display window.
2. Press Nav  until "bb" is displayed in the Nav USE display window.


**To Select CURSOR ROLL OVER MODE:**

1. With Option Select "CSr" displayed in the Nav NEXT UP display window, press Nav  until "roI" is displayed in the Nav USE display window.




**To Select LEG MODE:**

1. Press Nav  until "tyP" is displayed in the Nav NEXT UP display window.
2. Press Nav  until "LEg" is displayed in the Nav USE display window.

**To Select FPL MODE:**

1. With Option Select "tyP" displayed in the Nav NEXT UP display window, press Nav  until "FPL" is displayed in the Nav USE display window.

**To select FLIGHT PLAN MEMORY BANK (MAC 1700VTX):**

1. Use Nav  to reach option "Str".
2. Press Nav  to select desired FPL Memory Bank (0-5).
3. Press Nav  to activate desired FPL Memory Bank.

**To Review PREVIOUS ELAPSED TIMER:**

1. With Option Select "Pr 1", turn Nav kHz frequency selector knob (small, inner knob) clockwise to review Previous Et's.

**To select Et REMINDER:**

1. In Option Select "Et", press  to select OFF, 0.5 or 1.0 hours.

**To select TOTAL TIME REMINDER:**

1. With Option Select "tt", select time using Nav MHz frequency selector knob (large, outer knob) to select 100's and Nav kHz knob (small, inner knob) to select tens and ones.