

MODEL 258-IBM

PARAGON SERIAL CONTROL PROGRAM

INTRODUCTION The Model 258-IBM is a software package which, when used with the optional Model 258 RS232 Interface, permits an IBM PC or compatible computer to remotely communicate with the Ten-Tec PARAGON transceiver. *The program is written in *Microsoft® BASIC and requires that the user have the program BASICA.COM or equivalent installed on the IBM PC.*

PARTS SUPPLIED Enclosed in the Model 258-IBM package you should find the following items:

- 1 — #258-IBM program 5 1/4" disk
- 1 — #74189 Installation and Instruction manual.
- 1 — Software Registration Card

INSTALLATION INSTRUCTIONS

1. MAKE A BACKUP COPY The software provided is NOT Copy Protected and may easily be duplicated or installed on your hard disk. Refer to your computer DOS and user manuals for the steps required to backup disks and copy programs to your hard disk. Then place the Master disk in a safe place and only use the copy.

2. SYSTEM REQUIREMENTS Your IBM PC or compatible computer should have at least 256K of RAM and at least one RS232 Serial Communications Port available. You may use either a monochrome or color monitor, however, at this time color is not supported in the program. The primary requirement for

using the PARAGON program is that YOU MUST HAVE BASIC. If you have an IBM PC, this will be a program called BASICA.COM which came with the DOS. For IBM compatible computers this may be GWBASIC or some other form of BASIC.

3. WHAT'S ON YOUR DISK The enclosed software disk will contain the main program PARAGON.BAS which has been saved in standard ASCII file format. There is also a small batch file which can be used to automatically load BASIC and run the PARAGON.BAS program. This file is called PARAGON.BAT. Depending on your directory structures, you may have to modify this batch file so that DOS can locate your BASICA.COM file. See your computer users manual if you have questions. If you don't want to worry about directories and sub-directories, simply install the BASICA.COM and PARAGON.BAS files in your root directory and type "PARAGON" to execute the batch file. A third file on your disk, called MEM1, contains a sample set of memories which can be read into the PARAGON program. There may also be a fourth file called README.DOC, which will have any last minute corrections or instructions.

4. CONNECT YOUR COMPUTER TO THE PARAGON After you have installed your Model 258 Interface and constructed the required interconnecting cable you are ready to test everything. (If you have questions about installing your Model 258 or making the cable, see the Instructions provided with the

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Model 258). Connect the DB-25 Male connector to the mating connector on the rear of the PARAGON. Next locate the COM1 RS232 serial connector on your computer. This will normally be a DB-25 Male connector. (If it is not, you will have to change your connecting cable to match). Connect the free end of the interconnecting cable to this COM1 connector. *NOTE: You may also use COM2 if you wish, but you will have to change line 110 in the program to read OPEN "COM2:1200,N,8,1,CS,DS,RS,CD" AS #1.*

5. TESTING THE PROGRAM Apply power to your Computer and also to the PARAGON. Turn ON the POWER switch on the PARAGON. The transceiver should power up as usual and you should be able to manually control all functions of the PARAGON. If you have problems, disconnect the interconnect cable and try again. If you still

have problems refer to the Trouble Shooting section at the end of these instructions. Run the PARAGON program and you should see the screen shown below.

The FREQUENCY and VFO displayed may differ from that shown but they should be what is currently displayed on the PARAGON. If you get everything but the last line, then you may have a cabling problem and the computer is not receiving the status of the transceiver correctly (see Trouble Shooting section). If everything appears to be working you can select some of the menu items to exercise your PARAGON. The Menu Functions are covered in more detail in the next section.

MAIN MENU

- 1---ENTER FREQUENCY
- 2---CHANGE MODE
- 3---CHANGE CRYSTAL FILTER
- 4---ENTER ALPHA TAG
- 5---CHANGE AUX. DISPLAY
- 6---VFO FUNCTIONS
- 7---MEMORY FUNCTIONS
- 8---DISPLAY RADIO STATUS
- 9---AUX. FUNCTIONS

- C---CLEAR COMMAND
- D---DISPLAY PARAGON MEMORY TABLE
- E---EDIT MEMORY TABLE
- L---LOAD ALL PARAGON MEMORIES FROM DISK
- S---SAVE ALL PARAGON MEMORIES TO DISK

LEFT CURSOR---FREQUENCY TUNE DOWN
RIGHT CURSOR---FREQUENCY TUNE UP

SELECT DESIRED FUNCTION?
VFO A FREQUENCY= 07.33500 MHZ

MENU FUNCTIONS

MAIN MENU

- 1---ENTER FREQUENCY
- 2---CHANGE MODE
- 3---CHANGE CRYSTAL FILTER
- 4---ENTER ALPHA TAG
- 5---CHANGE AUX. DISPLAY
- 6---VFO FUNCTIONS
- 7---MEMORY FUNCTIONS
- 8---DISPLAY RADIO STATUS
- 9---AUX. FUNCTIONS

- C---CLEAR COMMAND
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- S---SAVE ALL PARAGON MEMORIES TO DISK

LEFT CURSOR---FREQUENCY TUNE DOWN
RIGHT CURSOR---FREQUENCY TUNE UP

SELECT DESIRED FUNCTION?
VFO A FREQUENCY= 07.33500 MHz

The PARAGON software is all menu driven. The MAIN MENU is the one you will see when you first run the program. It is also the one you will most often come back to. If you are in another menu, you can usually get back to the MAIN MENU by pressing the "M" key. Selections from the MAIN MENU are described below.

1---ENTER FREQUENCY Use this menu item to key in a new operating frequency for the PARAGON. When selected, it clears the screen and presents you with the following:

CURRENT FREQUENCY= 07.33500 MHz

ENTER FREQUENCY IN MHZ: ? |

The CURRENT FREQUENCY will be what is displayed on the PARAGON now. To enter a new frequency, simply key it in as usual and then hit the RETURN key. (Exception: To enter whole MHz i.e. 12.00000 MHz, you must enter the decimal point, not just the digits to the left of the decimal point {12.}). After pressing the RETURN key, the MAIN MENU will reappear.

2---CHANGE MODE This item will enable you to change the Mode setting of the PARAGON. When selected, the following change menu will be displayed:

MODE SELECT MENU

CURRENT MODE=

- 1---TUNE
- 2---CW
- 3---USB
- 4---LSB
- 5---AM
- 6---FM
- 7---RTTY

M---RETURN TO MAIN MENU

SELECT DESIRED MODE?

Upon pressing one of the selection numbers (1 - 7), the PARAGON Mode will be changed and the MAIN MENU will be displayed. Note: You do not have to press the RETURN key. Pressing the "M" key will return you to the MAIN MENU without changing the Mode.

3---CHANGE CRYSTAL FILTER Use this item to select a crystal filter setting on the PARAGON. When selected the following menu will be displayed:

CRYSTAL FILTER SELECT MENU

CURRENT FILTER= 2.4

- 1---6.0 KHZ
- 2---2.4 KHZ
- 3---1.8 KHZ
- 4---.50 KHZ
- 5---.25 KHZ

M---RETURN TO MAIN MENU

SELECT DESIRED FILTER?

Press one of the numbers and the appropriate filter will be selected and you will be returned to the MAIN MENU.

4---ENTER ALPHA TAG This menu item can be used to enter or change the TAG of any of the memories. Selecting this item will clear the screen and you will be presented with the following:

ENTER ALPHA TAG (UP TO 7 CHARACTERS)?

You should then key in any tag you want followed by the RETURN key. If the PARAGON is not in Memory mode (the MEM indicator is off), you will be prompted for the memory number to save the TAG in. If the MEM indicator is on, the TAG will be stored in the currently recalled memory.

5---CHANGE AUX. DISPLAY This menu item is used to scroll the Aux. Display between Time, Date, and Tag display modes. When selected the following menu will be displayed:

AUX. DISPLAY MENU

CURRENT AUX. DISPLAY= TAG

- 1---TIME
- 2---ALPHA TAG
- 3---DATE

M---RETURN TO MAIN MENU

SELECT DESIRED AUX. DISPLAY

Choosing the appropriate number will cause the selected Display mode to be shown on the PARAGON and you will then be returned to the MAIN MENU.

6---VFO FUNCTIONS Selecting this menu item will bring up the following menu, allowing you to change active VFOs, set the VFOs equal and control the SPLIT operating mode. After selecting the desired menu number, you will be returned to the MAIN MENU.

VFO FUNCTION MENU

- 1---CHANGE VFOS
 - 2---SET VFOS EQUAL
 - 3---CHANGE SPLIT MODE
 - M---RETURN TO MAIN MENU
- SELECT DESIRED FUNCTION?

7---MEMORY FUNCTIONS This menu selection gives you complete control over all memory functions in the PARAGON. When selected, the following menu will be displayed, allowing you to perform memory store, memory recall, memory lock/unlock, memory clear, and memory tune functions.

MEMORY FUNCTIONS MENU

- 1---MEMORY STORE
- 2---MEMORY RECALL
- 3---MEMORY LOCKOUT
- 4---MEMORY CLEAR
- 5---MEMORY TUNE
- C---CLEAR COMMAND
- M---RETURN TO MAIN MENU

SELECT DESIRED FUNCTION?

When you select menu items 1 through 4, you will be prompted for the memory number to be used for the selected operation. When item 5 is selected, the Memory Tune mode will be set on the PARAGON, and you will be presented with a new menu. This menu will display the current information for each memory, and will change as you use the left and right arrow keys to tune through the memories. The C menu item sends a clear key command to the PARAGON. This can be used to exit the Memory Tune mode if there are no memories currently programmed, otherwise you must select the Memory Tune function again to turn it off.

8---DISPLAY RADIO STATUS After selection of this menu item, there will be a short delay, followed by the display of the current status of the PARAGON as shown below.

SELECTED VFO = A
FREQUENCY = 0 7. 3 3 5 0 0 MHZ
OFFSET IS OFF
NO MEMORY CHANNEL SELECTED
ALPHA TAG =
MODE = LSB
CRYSTAL FILTER = 2.4 KHZ
TUNING STEP SIZE = 10 HZ
FAST TUNING = OFF
SPLIT = OFF

DATE = 7/19
TIME = 12:02:25

AUX. DISPLAY = TIME

PRESS M FOR MAIN MENU

To return to the MAIN MENU, press the "M" key.

9---AUX. FUNCTIONS This menu item will allow you to access all of the remaining functions of the PARAGON. These include Receive and Transmit Offset, Fast Tuning Rate, Voice Readout, Ham Band Up/Down, and Date and Time setting functions. These functions can be selected from the following menu:

AUX. FUNCTIONS SELECT MENU

- 1---RX OFFSET <OFF>
- 2---TX OFFSET <OFF>
- 3---FAST TUNING <OFF>
- 4---VOICE
- 5---HAM BAND DOWN
- 6---HAM BAND UP
- 7---SET DATE <7/19>
- 8---SET TIME <12:02>
- 9---DISPLAY RADIO STATUS

LEFT CURSOR---100 KHZ DOWN
RIGHT CURSOR---100 KHZ UP

M---RETURN TO MAIN MENU

SELECT DESIRED FUNCTION?

VFO A FREQUENCY= 0 7. 3 3 5 0 0 MHZ

Menu items 1 through 3, when selected, will toggle between ON and OFF, with the current status being shown in brackets to the right of the menu item. Menu item 4 (VOICE) will activate the optional Model 257 Voice Readout (if installed). Menu items 5 and 6 will allow you to tune up or down to the next Ham Band location. Menu item 7 (SET DATE), when selected will prompt you to enter a new date using the format "MM/DD", followed by hitting the RETURN key. The current Date is displayed in brackets to the right of the Menu Item. Selecting Menu Item 8 (SET TIME) will similarly allow you to enter a new time setting using the format "HH:MM", followed by hitting the RETURN key. The left and right cursor keys can be used to change the current frequency in steps of 100 kHz or 1 MHz, depending on the status of the FAST tuning menu item. The current VFO and Frequency are displayed below the menu list. After selecting any of the menu items, the PARAGON status and menu information are updated.

MAIN MENU COMMANDS (Cont.)

C---CLEAR COMMAND This menu item is used to send a CLEAR command to the PARAGON. This can be used to clear any pending operations that may have been mistakenly entered.

D---DISPLAY PARAGON MEMORY TABLE When selected, this menu item will permit you to either print out or display a listing of the currently loaded Memory Table as shown below. When this program is initially run this table will be empty. Information can be entered manually into this table using the "E" menu item, or can be recalled from previously stored disk files using the "L" menu item.

PARAGON MEMORY TABLE

MEMORY NO.	FREQUENCY	ALPHA TAG	MODE	CRYSTAL FILTER
0				
1				
2				
3	00.93000	WSEV AM	AM	6.0
4	07.04000	CW NET	CW	.50
5	15.00000	WWV CHU	USB	2.4
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				

PRESS RETURN FOR NEXT PAGE

E---EDIT MEMORY TABLE This menu item will allow you to enter or modify information in the current Memory Table. After selecting this item, you will be prompted to

enter the Memory Number you wish to edit. Upon entering the memory number followed by a RETURN, the following menu will be displayed:

CURRENT VALUES ARE:

MEMORY NO.	FREQUENCY	ALPHA TAG	MODE	CRYSTAL FILTER
4	07.04000	CW NET	CW	.50

MEMORY EDIT MENU

- 1---FREQUENCY
- 2---ALPHA TAG
- 3---MODE
- 4---CRYSTAL FILTER

- M---RETURN TO MAIN MENU
- N---NEXT MEMORY TO EDIT
- P---GO TO MEMORY LOAD/SAVE MENU

SELECT ITEM TO EDIT

The current values for the selected memory number are displayed along with a menu for editing each value in the memory. Selecting menu numbers 1 through 4 will bring up a corresponding menu dialog which will allow you to enter or change any of the values in the current memory. If you wish to edit another memory just press the "N" key and you will be prompted to enter a new memory number. If you wish to return to the MAIN MENU, enter "M". If you would like to save the memories to disk, load a new Memory Table, send the current Memory Table to the PARAGON or load the Memory Table from the PARAGON then press "P" and you will be presented with a new menu.

L---LOAD ALL PARAGON MEMORIES FROM DISK When selected, this item will give you access to the Memory Load/Save Menu shown below.

MEMORY LOAD/SAVE MENU

- 1---DISPLAY MEMORY TABLE
- 2---EDIT MEMORY TABLE
- 3---LOAD PARAGON MEMORIES
- 4---GET NEW DISK FILE
- 5---SAVE MEMORY TABLE TO DISK

- M---RETURN TO MAIN MENU

SELECT DESIRED FUNCTION?

Menu items 1 and 2 perform as described before, and allow you to display and edit the current Memory Table that is in the computer's RAM. Menu item 3 will send the current Memory Table to the PARAGON while displaying the following message:

NOW LOADING PARAGON MEMORY CHANNEL 3

Menu item 4 will allow you to read in a Memory Table data file that has been previously saved to disk. You will be prompted for the DISK DRIVE and FILENAME to be loaded, and after hitting the RETURN key you should see the following status line:

READING MEMORY CHANNEL 6

Menu item 5 is used to save the current Memory Table to disk. You will be prompted for the DISK DRIVE and a FILENAME. After hitting the RETURN key you will see a status line like the one below:

WRITING MEMORY CHANNEL 21

S---SAVE ALL PARAGON MEMORIES TO DISK When selected, this item will cause all of the memories in the PARAGON to be loaded into the Memory Table. This procedure may take several minutes, and you will be presented with the following dialog:

RECALLING ALL MEMORIES FROM PARAGON

**** PLEASE WAIT ****

RECALLING MEMORY NUMBER 7

When finished with the loading process, you will be presented with the Memory Load/Save Menu shown before. At this point you can display, edit or save the memories just loaded from the PARAGON. To save the Memory Table select menu item 5. You will be prompted for the DISK DRIVE and a FILENAME. After hitting the RETURN key you should see a status line like the one below:

WRITING MEMORY CHANNEL 21

PROGRAM DETAILS AND TIPS

Below is listed information about key parts of the PARAGON program and how it communicates with the transceiver. This information should help you understand the program better and enable you to customize the program for your particular needs.

1. Timing Considerations As mentioned before, this program and the Model 258 Interface do not support any form of handshaking, due to memory constraints in the Model 585 PARAGON's internal EPROM. This means that software timing loops have to be used. The program you received has been tested and optimized for use on an IBM PC or compatible computer operating at 4.77 MHz. If you will be using this program on a faster computer you will have to change the following program lines:

Line 2190: FOR T = 1 TO 200

Increase the "200" value to a proportionately higher value, depending on your comput-

ers clock speed. For example, on an 8 MHz computer the value should be 335 to 350.

Line 3150: FOR T = 1 TO 3000:NEXT T:RETURN

Increase the "3000" value to a proportionately higher value. For an 8 MHz computer this will typically be about 5000.

2. Command Codes All keyboard functions of the Model 585 PARAGON transceiver are controlled by sending codes in ASCII format to the PARAGON. These codes correspond to the values located in the Keyboard Lookup Table used in the PARAGON's internal firmware program. The command codes are shown below in TABLE 1. In the program, these codes are sent using the BASIC programming line: PRINT#1,D\$. This must then be followed by GOSUB 2170, which calls a delay subroutine. This delay is required to allow the transceiver enough time to complete the requested operation before sending it another code.

TABLE 1. RS232 PARAGON COMMAND CODE CHART

KEY FUNCTION	CHARACTER	ASCII CODE	KEY FUNCTION	CHARACTER	ASCII CODE
0	0	30	FAST	G	47
1	1	31	RX OFF.	H	48
2	2	32	TX OFF.	I	49
3	3	33	SPLIT	J	4A
4	4	34	MS/RATE	K	4B
5	5	35	FM	L	4C
6	6	36	AM	M	4D
7	7	37	LSB	N	4E
8	8	38	USB	O	4F
9	9	39	CW	P	50
RCL/GLC	:	3A	TUNE	Q	51
MLC/SET	;	3B	6.0 FILTER	R	52
STO/GL	<	3C	2.4 FILTER	S	53
CLEAR	=	3D	1.8 FILTER	T	54
VOICE	>	3E	.50 FILTER	U	55
SPOT	?	3F	.25 FILTER	V	56
ENTER	@	40	(DEC. PT.)	W	57
MT/10 HZ	A	41	SHIFT	X	58
DISP.>	B	42	DOWN/HBD	Y	59
LCK	C	43	UP/HBU	Z	5A
ML/MC	D	44	TUNE UP	[	5B
A=B	E	45	STATUS	\	5C
A/B	F	46	TUNE DOWN	]	5D

3. PARAGON Status Information You will note that in TABLE 1, the “\” character (ASCII code 5C) is assigned to the STATUS function. This command is used to retrieve thirty bytes of current operating status information from the PARAGON. Immediately after receiving the “\” character the PARAGON sends a continuous string of thirty (30) bytes back to the computer. The function of these thirty bytes of information is fully described below.

To better illustrate what this data string consists of and how it can be used, we will assume that the PARAGON is set up as follows:

VFO — A
FREQUENCY — 7.33500 MHz
TUNING STEP SIZE — 10 Hz
MODE — LSB
FILTER — 2.4 kHz
OFFSET — NONE
MEMORY — NONE
FAST — OFF
LOCK — OFF
AUX. DISPLAY — TIME
DATE — JULY 22
TIME — 12:05:35

The first seven (7) bytes of information contain the currently displayed frequency read out to 10 Hz resolution. The most significant digit is sent first and there are no decimal points in this string. This information is read in and stored using program lines 1570-1610. The frequency information is further broken down in lines 2440-2460. For the above example settings these seven (7) bytes will be: 00 07 03 03 05 00 00. These values are shown in Hex format.

The next four (4) bytes contain information pertaining to the status of the PARAGON's 32 bit driver IC, which is used to activate the Mode, Filter, LED and relay control lines. These four (4) bytes are decoded as shown below (most significant bit first). For all of

these control bits, a “1” denotes a line that is active or turned on. The information in these four bytes is read in and stored using program lines 1620-1650.

Byte #1:

- Bit 7 — FAST LED
- Bit 6 — RTTY OUTOUT LINE
- Bit 5 — FM OUTPUT LINE
- Bit 4 — AM OUTPUT LINE
- Bit 3 — LSB OUTPUT LINE
- Bit 2 — USB OUTPUT LINE
- Bit 1 — CW OUTPUT LINE
- Bit 0 — TUNE OUTPUT LINE

The information contained in this byte is extracted in program lines 2590-2730. For the example, this byte would have a value of 08.

Byte #2:

- Bit 7 — 6.0 kHz FILTER OUTPUT
- Bit 6 — 2.4 kHz FILTER OUTPUT
- Bit 5 — 1.8 kHz FILTER OUTPUT
- Bit 4 — .50 kHz FILTER OUTPUT
- Bit 3 — .25 kHz FILTER OUTPUT
- Bit 2 — RX OFFSET LED OUTPUT
- Bit 1 — TX OFFSET LED OUTPUT
- Bit 0 — LOCK LED OUTPUT

The information in this data byte is extracted in program lines 2750-2890. For the example, this byte would have a value of 40.

Byte #3:

- Bit 7 — DATE LED OUTPUT
- Bit 6 — TIME LED OUTPUT
- Bit 5 — OFFSET LED OUTPUT
- Bit 4 — MEMORY LED OUTPUT
- Bit 3 — VFO A LED OUTPUT
- Bit 2 — VFO B LED OUTPUT
- Bit 1 — SPLIT LED OUTPUT
- Bit 0 — TAG LED OUTPUT

The information in this data byte is extracted in program lines 2250-2420. For the example, this byte would have a value of 48.

Byte #4:

- Bit 7 — BAND RELAY #8 (22-30 MHz)

- Bit 6 — BAND RELAY #7 (15-22 MHz)
- Bit 5 — BAND RELAY #6 (10.5-15 MHz)
- Bit 4 — BAND RELAY #5 (6.5-10.5 MHz)
- Bit 3 — BAND RELAY #4 (4-6.5 MHz)
- Bit 2 — BAND RELAY #3 (2.5-4 MHz)
- Bit 1 — BAND RELAY #2 (1.7-2.5 MHz)
- Bit 0 — BAND RELAY #1 (0.1-1.7 MHz)

The information in this data byte is not used by the program. For the example, this byte would have a value of 10.

The next byte contains the current memory channel number. If the PARAGON is not in MEMory mode and no memory channel is shown, this value is set to 63. If all memories are full this value is set to FE. This byte is read in and stored using program lines 1660-1670. The value is extracted in program line 2540. For the example, this byte would have a value of 63.

Byte number thirteen contains the tuning step size that is currently in use. The relationship between this data byte and a given step size is shown below:

<u>Step Size</u>	<u>Byte Value</u>
10 Hz	00
20 Hz	01
50 Hz	02
100 Hz	03
500 Hz	04

This byte is read in and stored using program lines 1680-1690. The information is extracted in lines 2920-2980. For the given example, this byte would have a value of 00.

The next five (5) bytes contain the offset information. The first byte in this group tells whether the offset is positive or negative. If this byte has a value >1, then the offset is negative, otherwise it is positive. Byte number two is the tens of kilohertz digit. Byte number three is the kilohertz digit. Bytes four and five are the 100 hertz and 10 hertz digits respectively. For example, if the offset were +45.32

kHz, then the data bytes would be 00 04 05 03 02. These five bytes are read in and stored using program lines 1700-1740. The information they contain is extracted in lines 2480-2510. For the original example, these data bytes would be 00 00 00 00 00.

The next seven (7) bytes contain the alphanumeric tag information that is currently being displayed. These data bytes are in standard ASCII Hex format. For example, if the tag was PARAGON, then the data bytes would be (most significant character first) 50 41 52 41 47 4F 4E. These seven bytes are read in and stored using program lines 1750-1770. The tag information is extracted in lines 2560-2570. For the original example, these data bytes would be 20 20 20 20 20 20 20.

The next byte (number 26) contains the month information. This byte will be in the range of 01 to 12, 01 being January and 12 being December. This byte is read in and stored in program lines 1780-1790. The information is extracted in line 3010. For the given example, this byte would be 07.

The next byte contains the day of the month information. This will be in the range of 01 to 31. This byte is read in and stored in program lines 1800-1810. The information is extracted in lines 3020-3040. For the example, this byte would have a value of 22.

Byte number 28 contains the hours information for the current time. This will range between 00 and 23. This byte is read in and stored in lines 1820-1830. The information is extracted in line 3070. For the example, it would have the value of 12.

The next byte contains the minutes information. This will be in the range of 00 to 59. This byte is read in and stored in lines 1840-1850. The information is extracted in program

lines 3080-3100. For the given example, this byte would be 05.

The last byte contains the seconds information. This will be in the range of 00 to 59. This byte is read in and stored using lines 1860-1870. The information is extracted in program lines 3110-3130. For the given example, this byte would be 35.

TROUBLE SHOOTING

Below are listed some of the more common symptoms and their possible causes and most appropriate solutions.

1. Program hangs up. VFO and FREQUENCY are not displayed at bottom of MAIN MENU.

The most likely cause is a cabling error between the PARAGON and your computer. Make sure that the Tx Data and Rx Data lines are connected correctly.

Try resetting the PARAGON (See owner's manual) and restarting the program.

If the problem persists, stop the program (hit control-break) and edit line 260 to read 'GOSUB 10090. The (') at the beginning of the line will cause it to be interpreted as a remark and therefore will not be executed. Run the program again and try selecting MAIN MENU items 2 or 3 to change the Mode or Crystal Filter in the PARAGON. If you can change these parameters, you know that the PARAGON is receiving commands from the computer and the problem lies with data being sent back to the computer from the PARAGON. If the PARAGON does not respond, recheck your cable connections and make sure that you have installed the latest version of the Eprom in the PARAGON (Version 3-7 or higher). If you can send data to the transceiver but can't receive, check the Rx Data pin on the computer end of the cable.

NOTE: Be sure to change line 260 back to GOSUB 10090 after this test.

2. Numeric menu selections work but the alpha menu items don't. Since responses to the menus are case sensitive, make sure you have the CAPS LOCK key on your computer keyboard pressed when responding with alpha letter menu selections.

3. PARAGON misses some of the computer commands. Because of memory restrictions in the PARAGON Eprom, there is not any hardware or software handshaking between the computer or transceiver. Operations are controlled solely by means of timing loops in the programs. Therefore, it is possible that on a faster than normal computer (i.e. IBM AT, etc.) the timing loops may have to be changed. The important thing to remember is that you must allow enough time between commands for the PARAGON to execute each requested operation before sending another request. The key timing loop for sending data to the PARAGON is located in lines 2170-2210. In particular line 2190 which reads FOR T= 1 TO 200. If the PARAGON appears to be missing some commands, try making this timing loop longer, perhaps up to 500 or so.

4. Program hangs up when VOICE command is given to PARAGON. This is another possible timing loop problem which may appear on a faster computer. The problem occurs because the VOICE operation on the PARAGON can take varying amounts of time to complete, depending on which numbers are articulated. If the Voice Readout is still busy when the built-in program timing loop thinks it should be finished, then the program may hang. To correct this, try changing line 3150 which now reads FOR T= 1 TO 3000:NEXT T:RETURN. Increase the value to 5000 and try running the program again.

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1060 LOCATE 13,30:PRINT "6—FM"
1070 LOCATE 14,30:PRINT "7—RTTY"
1080 LOCATE 16,25:PRINT "M—RETURN TO MAIN MENU"
1090 LOCATE 18,25:PRINT "SELECT DESIRED MODE?"
1100 C$=INKEY$:IF C$="" GOTO 1100
1110 LOCATE 18,48:PRINT C$
1120 IF C$="1" THEN D$="Q":GOTO 1210 ELSE
1130 IF C$="2" THEN D$="P":GOTO 1210 ELSE
1140 IF C$="3" THEN D$="O":GOTO 1210 ELSE
1150 IF C$="4" THEN D$="N":GOTO 1210 ELSE
1160 IF C$="5" THEN D$="M":GOTO 1210 ELSE
1170 IF C$="6" THEN D$="L":GOTO 1210 ELSE
1180 IF C$="7" THEN D$="X":DD$="P":GOTO 1240 ELSE
1190 IF C$="M" THEN GOTO 250 ELSE
1200 LOCATE 18,25:PRINT "WRONG NUMBER, TRY AGAIN"
1210 PRINT #1,D$
1220 GOSUB 2170
1230 GOTO 250
1240 PRINT #1,D$
1250 GOSUB 2170
1260 PRINT #1,DD$
1270 GOSUB 2170
1280 GOTO 250
1290 '
1300 'CRYSTAL FILTER SELECT ROUTINE
1310 CLS:LOCATE 4,25:PRINT "CRYSTAL FILTER SELECT MENU"
1320 LOCATE 6,30:PRINT "CURRENT FILTER= ";CF$
1330 LOCATE 8,30:PRINT "1—6.0 KHZ"
1340 LOCATE 9,30:PRINT "2—2.4 KHZ"
1350 LOCATE 10,30:PRINT "3—1.8 KHZ"
1360 LOCATE 11,30:PRINT "4—.50 KHZ"
1370 LOCATE 12,30:PRINT "5—.25 KHZ"
1380 LOCATE 14,25:PRINT "M—RETURN TO MAIN MENU"
1390 LOCATE 18,25:PRINT "SELECT DESIRED FILTER?"
1400 C$=INKEY$:IF C$="" GOTO 1400
1410 LOCATE 18,48:PRINT C$
1420 IF C$="1" THEN D$="R":GOTO 1490 ELSE
1430 IF C$="2" THEN D$="S":GOTO 1490 ELSE
1440 IF C$="3" THEN D$="T":GOTO 1490 ELSE
1450 IF C$="4" THEN D$="U":GOTO 1490 ELSE
1460 IF C$="5" THEN D$="V":GOTO 1490 ELSE
1470 IF C$="M" THEN GOTO 250 ELSE
1480 LOCATE 18,25:PRINT "WRONG NUMBER, TRY AGAIN"
1490 PRINT #1,D$
1500 GOSUB 2170
1510 GOTO 250
1520 '
1530 'RADIO STATUS DISPLAY ROUTINE
1540 CLS:LOCATE 10,20:PRINT "GETTING COMPLETE PARAGON STATUS":GOSUB
1550:GOTO 1910
1550 D$=""
1560 PRINT #1,D$
1570 FOR X=1 TO 7
1580 F$(X)=INPUT$(1,#1)

```

```

1590 F(X)=ASC(F$(X))
1600 G$(X)=STR$(F(X))
1610 NEXT X
1620 FOR X=1 TO 4
1630 DV$(X)=INPUT$(1,#1)
1640 DV(X)=ASC(DV$(X))
1650 NEXT X
1660 MC$=INPUT$(1,#1)
1670 MC=ASC(MC$)
1680 SP$=INPUT$(1,#1)
1690 SP=ASC(SP$)
1700 FOR X=1 TO 5
1710 OS$(X)=INPUT$(1,#1)
1720 OS(X)=ASC(OS$(X))
1730 SO$(X)=STR$(OS(X))
1740 NEXT X
1750 FOR X=1 TO 7
1760 AP$(X)=INPUT$(1,#1)
1770 NEXT X
1780 MO$=INPUT$(1,#1)
1790 MO=ASC(MO$)
1800 DM$=INPUT$(1,#1)
1810 DM=ASC(DM$)
1820 HR$=INPUT$(1,#1)
1830 HR=ASC(HR$)
1840 MN$=INPUT$(1,#1)
1850 MN=ASC(MN$)
1860 SC$=INPUT$(1,#1)
1870 SC=ASC(SC$)
1880 RETURN
1890 '
1900 'EXTRACT DATA
1910 GOSUB 2230
1920 GOSUB 1960
1930 GOTO 2120
1940 '
1950 'PARAGON STATUS PRINTOUT
1960 CLS:PRINT "SELECTED VFO = ";VF$
1970 PRINT "FREQUENCY = ";F1$;" ";F2$,"MHZ"
1980 PRINT OT$;OL$
1990 IF CH$="63" THEN PRINT "NO MEMORY CHANNEL SELECTED" ELSE PRINT "MEMORY
CHANNEL = ";CH$;ML$
2000 PRINT "ALPHA TAG = ";TG$
2010 PRINT "MODE = ";MD$
2020 PRINT "CRYSTAL FILTER = ";CF$;" KHZ"
2030 PRINT "TUNING STEP SIZE = ";SZ$;" HZ"
2040 PRINT "FAST TUNING = ";FT$
2050 PRINT "SPLIT = ";ST$
2060 PRINT
2070 PRINT "DATE = ";MM$;" / ";DD$
2080 PRINT "TIME = ";HH$;" : ";MT$;" : ";SS$
2090 PRINT
2100 PRINT "AUX. DISPLAY = ";AD$
2110 RETURN

```

```

2120 LOCATE 18,25:PRINT"PRESS M FOR MAIN MENU"
2130 C$=INKEY$:IF C$="" GOTO 2130
2140 IF C$<>"M" THEN GOTO 2130
2150 GOTO 250
2160 '
2170 'DELAY ROUTINE
2180 'MAKE LONG ENOUGH FOR PARAGON TO EXECUTE COMMANDS
2190 FOR T = 1 TO 200
2200 NEXT T
2210 RETURN
2220 '
2230 'ROUTINE TO EXTRACT REQUIRED DATA
2240 '
2250 'GET SELECTED VFO
2260 V$=HEX$(DV(3))
2270 V2$=RIGHT$(V$,1)
2280 IF V2$="8" OR V2$="9" OR V2$="A" OR V2$="B" THEN VF$="A" ELSE VF$="B"
2290 '
2300 'GET SPLIT STATUS
2310 IF V2$="6" OR V2$="7" OR V2$="A" OR V2$="B" THEN ST$="ON" ELSE ST$="OFF"
2320 '
2330 'GET OFFSET STATUS
2340 V3$=LEFT$(V$,1)
2350 V=LEN(V$)
2360 IF V<2 THEN OL$="OFF":GOTO 2390 ELSE
2370 IF V3$="2" OR V3$="6" OR V3$="A" THEN OL$="ON" ELSE OL$="OFF"
2380 '
2390 'GET AUX. DISPLAY STATUS
2400 IF V<2 THEN AD$="TAG":GOTO 2440 ELSE
2410 IF V3$="8" OR V3$="9" OR V3$="A" THEN AD$="DATE":GOTO 2440 ELSE
2420 IF V3$="4" OR V3$="5" OR V3$="6" THEN AD$="TIME":GOTO 2440 ELSE AD$="TAG"
2430 '
2440 'GET DISPLAYED FREQUENCY
2450 F1$=G$(1)+G$(2)
2460 F2$=G$(3)+G$(4)+G$(5)+G$(6)+G$(7)
2470 '
2480 'GET OFFSET VALUE IF IT IS ON
2490 IF OL$="OFF" THEN GOTO 2530 ELSE
2500 IF OS(1)>1 THEN K$="-":GOTO 2510 ELSE K$="+"
2510 OL$=K$+SO$(2)+SO$(3)+"."+SO$(4)+SO$(5)+" KHZ"
2520 '
2530 'GET MEMORY CHANNEL
2540 CH$=HEX$(MC)
2550 '
2560 'GET ALPHA TAG
2570 TG$=AP$(1)+AP$(2)+AP$(3)+AP$(4)+AP$(5)+AP$(6)+AP$(7)
2580 '
2590 'GET CURRENT OPERATING MODE
2600 M$=HEX$(DV(1))
2610 IF M$="1" OR M$="81" THEN MD$="TUNE":GOTO 2690 ELSE
2620 IF M$="2" OR M$="82" THEN MD$="CW":GOTO 2690 ELSE
2630 IF M$="4" OR M$="84" THEN MD$="USB":GOTO 2690 ELSE
2640 IF M$="8" OR M$="88" THEN MD$="LSB":GOTO 2690 ELSE
2650 IF M$="10" OR M$="90" THEN MD$="AM":GOTO 2690 ELSE
2660 IF M$="20" OR M$="A0" THEN MD$="FM":GOTO 2690 ELSE
2670 IF M$="40" OR M$="C0" THEN MD$="RTTY"
2680 '

```

MODEL 258-IBM PROGRAM LISTING

```

10 KEY OFF:CLS:CLOSE
20 DEFINT A-Z
30 '
40 'READ IN ALPHANUMERIC CONVERSION ARRAY
50 DIM AP(26)
60 FOR X= 1 TO 26
70 READ AP(X)
80 NEXT X
90 '
100 'OPEN SERIAL PORT
110 OPEN "COM1:1200,N,8,1,CS,DS,RS,CD" AS #1
120 LOCATE 5,18:PRINT"TEN-TEC PARAGON SERIAL INTERFACE CONTROL PROGRAM"
130 LOCATE 8,31:PRINT "COPYRIGHT 1988"
140 LOCATE 9,37:PRINT "BY"
150 LOCATE 10,33:PRINT "TEN-TEC,INC."
160 LOCATE 13,32:PRINT "IBM VERSION 1.1":LOCATE 15,34:PRINT "MARCH 22,1989":GOSUB
3150
170 '
180 'CLEAR OUT MEMORY TABLE ARRAY
190 DIM F1$(63),F2$(63),TG$(63),MD$(63),CF$(63),CH$(63)
200 FOR Q=0 TO 62
210 F1$(Q)="" : F2$(Q)="" : TG$(Q)="" : MD$(Q)="" : CF$(Q)=""
220 NEXT Q
230 '
240 'PRINT MAIN MENU AND GET PARAGON STATUS
250 GOSUB 560
260 GOSUB 10090
270 C$=INKEY$:IF C$="" GOTO 270
280 IF LEN(C$)=2 THEN C$=RIGHT$(C$,1):GOTO 440
290 LOCATE 21,50:PRINT C$
300 IF C$="1" THEN GOTO 780
310 IF C$="2" THEN GOTO 980
320 IF C$="3" THEN GOTO 1300
330 IF C$="4" THEN GOTO 5430
340 IF C$="5" THEN GOTO 3270
350 IF C$="6" THEN GOTO 3730
360 IF C$="7" THEN GOTO 3910
370 IF C$="8" THEN GOTO 1530
380 IF C$="9" THEN GOTO 5930
390 IF C$="C" THEN GOTO 500
400 IF C$="D" THEN GOTO 8180
410 IF C$="E" THEN GOTO 10130
420 IF C$="L" THEN GOTO 8720
430 IF C$="S" THEN GOTO 9790
435 IF C$="X" THEN SYSTEM
440 IF C$=CHR$(75) THEN GOTO 3170 ELSE
450 IF C$=CHR$(77) THEN GOTO 3220 ELSE
460 GOTO 250
470 '
480 'DATA FOR ALPHANUMERIC CONVERSION ARRAY
490 DATA 76,77,78,79,80,81,82,83,84,85,86,72,73,66,62,67,63,68,59,69,60,58,70,65,75,74
500 D$=""
510 PRINT #1,D$
520 GOSUB 2170

```

```

2690 'GET FAST TUNING STATUS
2700 M=LEN(M$)
2710 IF M<2 THEN FT$=" OFF":GOTO 2750 ELSE
2720 LM$=LEFT$(M$,1)
2730 IF LM$="8" OR LM$="9" OR LM$="A" OR LM$="C" THEN FT$=" ON " ELSE FT$=" OFF"
2740 '
2750 'GET SELECTED CRYSTAL FILTER
2760 FL$=HEX$(DV(2))
2770 LF=LEN(FL$)
2780 IF LF<2 GOTO 2840
2790 FF$=LEFT$(FL$,1)
2800 IF FF$="8" THEN CF$="6.0":GOTO 2860 ELSE
2810 IF FF$="4" THEN CF$="2.4":GOTO 2860 ELSE
2820 IF FF$="2" THEN CF$="1.8":GOTO 2860 ELSE
2830 IF FF$="1" THEN CF$=".50":GOTO 2860 ELSE
2840 CF$=".25"
2850 '
2860 'GET TYPE OF OFFSET IF ON
2870 IF OL$="OFF" THEN OT$="OFFSET IS ":GOTO 2910
2880 FR$=RIGHT$(FL$,1)
2890 IF FR$="2" OR FR$="3" OR FR$="A" OR FR$="B" THEN OT$="TX OFFSET = ":GOTO 2910
ELSE OT$="RX OFFSET = "
2900 '
2910 'GET TUNING STEP SIZE
2920 SP=SP+1
2930 ON SP GOTO 2940,2950,2960,2970,2980
2940 SZ$="10":GOTO 3000
2950 SZ$="20":GOTO 3000
2960 SZ$="50":GOTO 3000
2970 SZ$="100":GOTO 3000
2980 SZ$="500"
2990 '
3000 'EXTRACT CORRECT DATE
3010 MM$=HEX$(MO)
3020 DD$=HEX$(DM)
3030 IF DM>9 GOTO 3060
3040 DD$="0"+DD$
3050 '
3060 'EXTRACT CORRECT TIME
3070 HH$=HEX$(HR)
3080 MT$=HEX$(MN)
3090 IF MN>9 GOTO 3110
3100 MT$="0"+MT$
3110 SS$=HEX$(SC)
3120 IF SC>9 GOTO 3140
3130 SS$="0"+SS$
3140 RETURN
3150 FOR T = 1 TO 3000:NEXT T:RETURN
3160 '
3170 'FREQUENCY DOWN TUNING ROUTINE
3180 D$="J"
3190 PRINT #1,D$
3200 GOTO 260
3210 '

```

```

3220 'FREQUENCY UP TUNING ROUTINE
3230 D$="I"
3240 PRINT #1,D$
3250 GOTO 260
3260 '
3270 'CHANGE AUX. DISPLAY ROUTINE
3280 CLS:LOCATE 5,20:PRINT "GETTING PARAGON AUX. DISPLAY STATUS"
3290 GOSUB 1550
3300 GOSUB 2230
3310 CLS:LOCATE 7,30:PRINT "AUX. DISPLAY MENU"
3320 LOCATE 9,30:PRINT "CURRENT AUX. DISPLAY=";AD$
3330 LOCATE 11,30:PRINT "1—TIME"
3340 LOCATE 12,30:PRINT "2—ALPHA TAG"
3350 LOCATE 13,30:PRINT "3—DATE"
3360 LOCATE 15,25:PRINT "M—RETURN TO MAIN MENU"
3370 LOCATE 18,25:PRINT"SELECT DESIRED AUX. DISPLAY
3380 C$=INKEY$:IF C$="" GOTO 3380
3390 LOCATE 18,55:PRINT C$
3400 IF C$="1" GOTO 3450 ELSE
3410 IF C$="2" GOTO 3540 ELSE
3420 IF C$="3" GOTO 3630 ELSE
3430 IF C$="M" THEN GOTO 250 ELSE
3440 LOCATE 18,25:PRINT" WRONG NUMBER,TRY AGAIN
3450 IF AD$=" TIME" GOTO 3710
3460 IF AD$=" DATE" GOTO 3500
3470 D$="B"
3480 PRINT #1,D$
3490 GOSUB 2170
3500 D$="B"
3510 PRINT #1,D$
3520 GOSUB 2170
3530 GOTO 3710
3540 IF AD$=" TAG" GOTO 3710
3550 IF AD$=" TIME" GOTO 3590
3560 D$="B"
3570 PRINT #1,D$
3580 GOSUB 2170
3590 D$="B"
3600 PRINT #1,D$
3610 GOSUB 2170
3620 GOTO 3710
3630 IF AD$=" DATE" GOTO 3710
3640 IF AD$=" TAG" GOTO 3590
3650 D$="B"
3660 PRINT #1,D$
3670 GOSUB 2170
3680 D$="B"
3690 PRINT #1,D$
3700 GOSUB 2170
3710 GOTO 250
3720 '
3730 'VFO CONTROL FUNCTIONS
3740 CLS:LOCATE 10,30:PRINT "VFO FUNCTION MENU"
3750 LOCATE 13,25:PRINT "1—CHANGE VFO'S"

```

"GOSUB 3150:GOTO 3370

```

530 GOTO 250
540 END
550 '
560 'MAIN MENU PRINTOUT
570 CLS:LOCATE 1,30
580 PRINT "MAIN MENU"
590 LOCATE 2,25:PRINT "1—ENTER FREQUENCY"
600 LOCATE 3,25:PRINT "2—CHANGE MODE"
610 LOCATE 4,25:PRINT "3—CHANGE CRYSTAL FILTER"
620 LOCATE 5,25:PRINT "4—ENTER ALPHA TAG"
630 LOCATE 6,25:PRINT "5—CHANGE AUX. DISPLAY"
640 LOCATE 7,25:PRINT "6—VFO FUNCTIONS"
650 LOCATE 8,25:PRINT "7—MEMORY FUNCTIONS"
660 LOCATE 9,25:PRINT "8—DISPLAY RADIO STATUS"
670 LOCATE 10,25:PRINT "9—AUX. FUNCTIONS"
680 LOCATE 12,25:PRINT "C—CLEAR COMMAND"
690 LOCATE 13,25:PRINT "D—DISPLAY PARAGON MEMORY TABLE"
700 LOCATE 14,25:PRINT "E—EDIT MEMORY TABLE"
710 LOCATE 15,25:PRINT "L—LOAD ALL PARAGON MEMORIES FROM DISK"
720 LOCATE 16,25:PRINT "S—SAVE ALL PARAGON MEMORIES TO DISK"
725 LOCATE 17,25:PRINT "X—EXIT TO DOS"
730 LOCATE 19,20:PRINT "LEFT CURSOR—FREQUENCY TUNE DOWN"
740 LOCATE 20,20:PRINT "RIGHT CURSOR—FREQUENCY TUNE UP"
750 LOCATE 22,25:PRINT "SELECT DESIRED FUNCTION?"
760 RETURN
770 '
780 'FREQUENCY ENTRY ROUTINE
790 CLS:LOCATE 17,20:PRINT "CURRENT FREQUENCY= ";F1$;" ";F2$,"MHZ"
800 K=0
810 LOCATE 20,20:INPUT "ENTER FREQUENCY IN MHZ: ";FM$
820 IF FM$="" THEN GOTO 250
830 X=LEN (FM$)
840 FOR N=1 TO X
850 D$=MID$(FM$,N,1)
860 IF D$="." THEN D$="W":K=1 ELSE
870 IF K>5 THEN GOTO 250
880 PRINT #1,D$
890 IF K>0 THEN K=K+1
900 GOSUB 2170
910 NEXT N
920 IF K<6 THEN GOTO 940
930 GOTO 250
940 D$="@" :PRINT #1,D$
950 GOSUB 2170
960 GOTO 250
970 '
980 'MODE CHANGE ROUTINE
990 CLS:LOCATE 4,30:PRINT "MODE SELECT MENU"
1000 LOCATE 6,30:PRINT "CURRENT MODE= ";MD$
1010 LOCATE 8,30:PRINT "1—TUNE"
1020 LOCATE 9,30:PRINT "2—CW"
1030 LOCATE 10,30:PRINT "3—USB"
1040 LOCATE 11,30:PRINT "4—LSB"
1050 LOCATE 12,30:PRINT "5—AM"

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```

4300 LOCATE 12,20:INPUT "ENTER DESIRED MEMORY NUMBER (00-61)";CN$
4310 GOSUB 4330
4320 GOTO 1530
4330 D$=":"
4340 PRINT #1,D$
4350 GOSUB 2170
4360 D$=LEFT$(CN$,1)
4370 PRINT #1,D$
4380 GOSUB 2170
4390 D$=RIGHT$(CN$,1)
4400 PRINT #1,D$
4410 GOSUB 2170
4420 RETURN
4430 '
4440 'MEMORY LOCKOUT ROUTINE
4450 CLS:LOCATE 10,30:PRINT "MEMORY LOCK/UNLOCK MENU"
4460 LOCATE 13,25:PRINT "1—LOCK OUT SELECTED MEMORY CHANNEL"
4470 LOCATE 14,25:PRINT "2—UNLOCK SELECTED MEMORY CHANNEL"
4480 LOCATE 15,25:PRINT "3—LOCK OUT ALL MEMORY CHANNELS"
4490 LOCATE 16,25:PRINT "4—UNLOCK ALL MEMORY CHANNELS"
4500 LOCATE 18,25:PRINT "M—RETURN TO MAIN MENU"
4510 LOCATE 20,25:PRINT "SELECT DESIRED FUNCTION?"
4520 C$=INKEY$:IF C$="" GOTO 4520
4530 LOCATE 20,50:PRINT C$
4540 IF C$="1" THEN GOTO 4610 ELSE
4550 IF C$="2" THEN GOTO 4690 ELSE
4560 IF C$="3" THEN GOTO 4770 ELSE
4570 IF C$="4" THEN GOTO 4870 ELSE
4580 IF C$="M" THEN GOTO 250 ELSE
4590 LOCATE 18,25:PRINT "WRONG NUMBER, TRY AGAIN"      ":GOSUB 3150:GOTO 4510
4600 '
4610 'SELECTIVE MEMORY LOCKOUT ROUTINE
4620 CLS:LOCATE 12,20:INPUT "ENTER DESIRED MEMORY NUMBER (00-61)";CN$
4630 GOSUB 4330
4640 D$="D"
4650 PRINT #1,D$
4660 GOSUB 2170
4670 GOTO 250
4680 '
4690 'SELECTIVE MEMORY UNLOCK ROUTINE
4700 CLS:LOCATE 12,20:INPUT "ENTER DESIRED MEMORY NUMBER (00-61)";CN$
4710 GOSUB 4330
4720 D$=":"
4730 PRINT #1,D$
4740 GOSUB 2170
4750 GOTO 250
4760 '
4770 'GLOBAL MEMORY LOCKOUT ROUTINE
4780 CLS:LOCATE 12,20:PRINT "LOCKING OUT ALL MEMORY CHANNELS"
4790 D$="X"
4800 PRINT #1,D$
4810 GOSUB 2170
4820 D$="<"
4830 PRINT #1,D$

```

```

3760 LOCATE 14,25:PRINT "2—SET VFOS EQUAL"
3770 LOCATE 15,25:PRINT "3—CHANGE SPLIT MODE"
3780 LOCATE 17,25:PRINT "M—RETURN TO MAIN MENU"
3790 LOCATE 19,25:PRINT "SELECT DESIRED FUNCTION?"
3800 C$=INKEY$:IF C$="" GOTO 3800
3810 LOCATE 19,50:PRINT C$
3820 IF C$="1" THEN D$="F":GOTO 3870
3830 IF C$="2" THEN D$="E":GOTO 3870
3840 IF C$="3" THEN D$="J":GOTO 3870
3850 IF C$="M" THEN GOTO 250 ELSE
3860 LOCATE 19,25:PRINT "WRONG NUMBER, TRY AGAIN"
3870 PRINT #1,D$
3880 GOSUB 2170
3890 GOTO 250
3900 '
3910 'MEMORY FUNCTION ROUTINES
3920 CLS:LOCATE 4,30:PRINT "MEMORY FUNCTIONS MENU"
3930 LOCATE 7,25:PRINT "1—MEMORY STORE"
3940 LOCATE 8,25:PRINT "2—MEMORY RECALL"
3950 LOCATE 9,25:PRINT "3—MEMORY LOCKOUT"
3960 LOCATE 10,25:PRINT "4—MEMORY CLEAR"
3970 LOCATE 11,25:PRINT "5—MEMORY TUNE"
3980 LOCATE 13,25:PRINT "C—CLEAR COMMAND"
3990 LOCATE 14,25:PRINT "M—RETURN TO MAIN MENU"
4000 LOCATE 19,25:PRINT "SELECT DESIRED FUNCTION?"
4010 C$=INKEY$:IF C$="" GOTO 4010
4020 LOCATE 19,50:PRINT C$
4030 IF C$="1" THEN GOTO 4120
4040 IF C$="2" THEN GOTO 4280
4050 IF C$="3" THEN GOTO 4440
4060 IF C$="4" THEN GOTO 4970
4070 IF C$="5" THEN GOTO 5080
4080 IF C$="C" THEN GOTO 500
4090 IF C$="M" THEN GOTO 250
4100 LOCATE 19,25:PRINT "WRONG NUMBER, TRY AGAIN"
4110 '
4120 'MEMORY STORE ROUTINE
4130 CLS:LOCATE 10,20:PRINT "MEMORY STORE ROUTINE"
4140 LOCATE 12,20:INPUT "ENTER DESIRED MEMORY NUMBER (00-61)";CN$
4150 GOSUB 4170
4160 GOTO 250
4170 D$="<"
4180 PRINT #1,D$
4190 GOSUB 2170
4200 D$=LEFT$(CN$,1)
4210 PRINT #1,D$
4220 GOSUB 2170
4230 D$=RIGHT$(CN$,1)
4240 PRINT #1,D$
4250 GOSUB 2170
4260 RETURN
4270 '
4280 'MEMORY RECALL ROUTINE
4290 CLS:LOCATE 10,20:PRINT "MEMORY RECALL ROUTINE"

```

"GOSUB 3150:GOTO 3790
 "GOSUB 3150:GOTO 4000

```

5380 D$="A"
5390 PRINT #1,D$
5400 GOSUB 2170
5410 GOTO 250
5420 '
5430 'ALPHA TAG ENTRY ROUTINE
5440 CLS:LOCATE 5,20:PRINT "SETTING AUX. DISPLAY TO TAG"
5450 GOSUB 1550
5460 GOSUB 2230
5470 GOSUB 5490
5480 GOTO 5610
5490 IF AD$=" TAG" GOTO 5570
5500 IF AD$=" TIME" GOTO 5540
5510 D$="B"
5520 PRINT #1,D$
5530 GOSUB 2170
5540 D$="B"
5550 PRINT #1,D$
5560 GOSUB 2170
5570 D$="@"
5580 PRINT #1,D$
5590 GOSUB 2170
5600 RETURN
5610 CLS:LOCATE 20,20:INPUT "ENTER ALPHA TAG (UP TO 7 CHARACTERS)";A$
5620 XX=LEN (A$)
5630 IF XX>7 THEN XX=7
5640 FOR N=1 TO XX
5650 DD$=MID$(A$,N,1)
5660 GOSUB 5850
5670 PRINT #1,D$
5680 GOSUB 2170
5690 NEXT N
5700 IF XX=7 THEN GOTO 5740 ELSE
5710 D$="@"
5720 PRINT #1,D$
5730 GOSUB 2170
5740 IF CH$<>"63" THEN GOTO 5820
5750 CLS:LOCATE 20,20:INPUT "ENTER DESIRED MEMORY NUMBER (00-61)";CH$
5760 D$=LEFT$(CH$,1)
5770 PRINT #1,D$
5780 GOSUB 2170
5790 D$=RIGHT$(CH$,1)
5800 PRINT #1,D$
5810 GOSUB 2170
5820 CLS:LOCATE 20,15:PRINT "STORING TAG "";A$," IN MEMORY CHANNEL ";CH$
5830 GOSUB 3150
5840 GOTO 250
5850 Y=ASC(DD$)
5860 IF Y>47 AND Y<58 THEN D$=CHR$(Y):RETURN
5870 X=Y-64
5880 IF X>26 OR X<1 THEN D$="G":GOTO 5910
5890 D=AP(X)
5900 D$=CHR$(D)
5910 RETURN

```

```

4840 GOSUB 2170
4850 GOTO 250
4860 '
4870 'GLOBAL MEMORY UNLOCK ROUTINE
4880 CLS:LOCATE 12,20:PRINT "UNLOCKING ALL MEMORY CHANNELS"
4890 D$="X"
4900 PRINT #1,D$
4910 GOSUB 2170
4920 D$="."
4930 PRINT #1,D$
4940 GOSUB 2170
4950 GOTO 250
4960 '
4970 'SELECTIVE MEMORY CLEAR ROUTINE
4980 CLS:LOCATE 12,20:INPUT "ENTER DESIRED MEMORY NUMBER (00-61)";CN$
4990 GOSUB 4330
5000 D$="X"
5010 PRINT #1,D$
5020 GOSUB 2170
5030 D$="D"
5040 PRINT #1,D$
5050 GOSUB 2170
5060 GOTO 250
5070 '
5080 'MEMORY TUNE ROUTINE
5090 CLS:LOCATE 5,30:PRINT "MEMORY TUNE MENU"
5100 D$="A"
5110 PRINT #1,D$
5120 GOSUB 2170
5130 LOCATE 8,25:PRINT "M—RETURN TO MAIN MENU"
5140 LOCATE 10,25:PRINT "LEFT CURSOR—MEMORY TUNE DOWN"
5150 LOCATE 11,25:PRINT "RIGHT CURSOR—MEMORY TUNE UP"
5160 LOCATE 20,25:PRINT "SELECT DESIRED FUNCTION? "
5170 C$=INKEY$:IF C$="" GOTO 5170
5180 IF LEN(C$)=2 THEN C$=RIGHT$(C$,1):GOTO 5210
5190 LOCATE 20,50:PRINT C$
5200 IF C$="M" THEN GOTO 5380 ELSE
5210 IF C$=CHR$(75) THEN GOTO 5240 ELSE
5220 IF C$=CHR$(77) THEN GOTO 5340 ELSE
5230 LOCATE 20,25:PRINT "WRONG FUNCTION,TRY AGAIN "
5240 D$="J"
5250 PRINT #1,D$
5260 GOSUB 2170
5270 GOSUB 1550
5280 GOSUB 2230
5290 GOSUB 1960
5300 LOCATE 20,25:PRINT "M—RETURN TO MAIN MENU"
5310 LOCATE 22,25:PRINT "LEFT CURSOR—MEMORY TUNE DOWN"
5320 LOCATE 23,25:PRINT "RIGHT CURSOR—MEMORY TUNE UP"
5330 GOTO 5170
5340 D$="I"
5350 PRINT #1,D$
5360 GOSUB 2170
5370 GOTO 5270

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```

6450 '
6460 'FAST TUNING ON/OFF ROUTINE
6470 D$="G"
6480 PRINT #1,D$
6490 GOSUB 2170
6500 GOTO 5950
6510 '
6520 'VOICE READOUT ROUTINE
6530 D$=">"
6540 PRINT #1,D$
6550 GOSUB 2170
6560 GOSUB 3150:GOSUB 3150:GOSUB 3150
6570 GOTO 5950
6580 '
6590 'HAM BAND DOWN ROUTINE
6600 D$="X"
6610 PRINT #1,D$
6620 GOSUB 2170
6630 D$="Y"
6640 PRINT #1,D$
6650 GOSUB 2170
6660 GOSUB 3150
6670 GOTO 5950
6680 '
6690 'HAM BAND UP ROUTINE
6700 D$="X"
6710 PRINT #1,D$
6720 GOSUB 2170
6730 D$="Z"
6740 PRINT #1,D$
6750 GOSUB 2170
6760 GOSUB 3150
6770 GOTO 5950
6780 '
6790 'DATE SETTING ROUTINE
6800 CLS:LOCATE 10,25:PRINT "CURRENT DATE =";MM$;"/";DD$
6810 LOCATE 15,25:INPUT "ENTER NEW DATE (MM/DD) :";NN$
6820 IF LEN(NN$) <>5 THEN GOTO 7480
6830 NM$=LEFT$(NN$,2)
6840 ND$=RIGHT$(NN$,2)
6850 NM=VAL(NM$)
6860 IF NM<1 OR NM>12 THEN GOTO 7480
6870 ND=VAL(ND$)
6880 IF ND<1 OR ND>31 THEN GOTO 7480
6890 IF AD$=" DATE" GOTO 6970
6900 IF AD$=" TAG" GOTO 6940
6910 D$="B"
6920 PRINT #1,D$
6930 GOSUB 2170
6940 D$="B"
6950 PRINT #1,D$
6960 GOSUB 2170
6970 D$="X"
6980 PRINT #1,D$

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5920 '
5930 'AUX. FUNCTIONS MENU
5940 CLS:LOCATE 3,25:PRINT "AUX. FUNCTIONS SELECT MENU"
5950 GOSUB 1550
5960 GOSUB 2230
5970 LOCATE 21,50:PRINT " "
5980 IF OL$="OFF" THEN RX$="OFF":TX$="OFF":GOTO 6010
5990 IF OT$="TX OFFSET = " THEN TX$="ON ":RX$="OFF":GOTO 6010
6000 TX$="OFF":RX$="ON "
6010 LOCATE 6,30:PRINT "1—RX OFFSET <";RX$;">"
6020 LOCATE 7,30:PRINT "2—TX OFFSET <";TX$;">"
6030 LOCATE 8,30:PRINT "3—FAST TUNING <";FT$;">"
6040 LOCATE 9,30:PRINT "4—VOICE
6050 LOCATE 10,30:PRINT "5—HAM BAND DOWN"
6060 LOCATE 11,30:PRINT "6—HAM BAND UP"
6070 LOCATE 12,30:PRINT "7—SET DATE <";MM$;" ";DD$;">"
6080 LOCATE 13,30:PRINT "8—SET TIME <";HH$;" ";MT$;">"
6090 LOCATE 14,30:PRINT "9—DISPLAY RADIO STATUS"
6100 IF FT$=" ON " THEN SZ$="1 MHZ":GOTO 6120
6110 SZ$="100 KHZ"
6120 LOCATE 16,30:PRINT "LEFT CURSOR—";SZ$;" DOWN"
6130 LOCATE 17,30:PRINT "RIGHT CURSOR—";SZ$;" UP"
6140 LOCATE 19,30:PRINT "M—RETURN TO MAIN MENU"
6150 LOCATE 21,25:PRINT "SELECT DESIRED FUNCTION?"
6160 LOCATE 23,20:PRINT "VFO ";VF$;" FREQUENCY= ";F1$;" ";F2$;"MHZ"
6170 C$=INKEY$:IF C$="" GOTO 6170
6180 IF LEN(C$)=2 THEN C$=RIGHT$(C$,1):GOTO 6300
6190 LOCATE 21,50:PRINT C$
6200 IF C$="1" THEN GOTO 6340
6210 IF C$="2" THEN GOTO 6400
6220 IF C$="3" THEN GOTO 6460
6230 IF C$="4" THEN GOTO 6520
6240 IF C$="5" THEN GOTO 6590
6250 IF C$="6" THEN GOTO 6690
6260 IF C$="7" THEN GOTO 6790
6270 IF C$="8" THEN GOTO 7710
6280 IF C$="9" THEN GOTO 7620
6290 IF C$="M" THEN GOTO 250
6300 IF C$=CHR$(75) THEN GOTO 7500
6310 IF C$=CHR$(77) THEN GOTO 7560
6320 LOCATE 21,25:PRINT "WRONG NUMBER, TRY AGAIN
23120
6330 '
6340 'RX OFFSET ON/OFF ROUTINE
6350 D$="H"
6360 PRINT #1,D$
6370 GOSUB 2170
6380 GOTO 5950
6390 '
6400 'TX OFFSET ON/OFF ROUTINE
6410 D$="T"
6420 PRINT #1,D$
6430 GOSUB 2170
6440 GOTO 5950

```

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:GOSUB 12100:GOTO

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7530 GOSUB 2170
7540 GOTO 5950
7550 '
7560 'MHZ(KHZ) UP ROUTINE
7570 D$="Z"
7580 PRINT #1,D$
7590 GOSUB 2170
7600 GOTO 5950
7610 '
7620 'DISPLAY RADIO STATUS ROUTINE
7630 GOSUB 1550
7640 GOSUB 2230
7650 GOSUB 1960
7660 LOCATE 18,25:PRINT "PRESS P FOR PREVIOUS (AUX.) MENU
7670 C$=INKEY$:IF C$="" GOTO 7670
7680 IF C$<>"P" THEN GOTO 7670
7690 GOTO 5930
7700 '
7710 'TIME SETTING ROUTINE
7720 CLS:LOCATE 10,25:PRINT "CURRENT TIME =";HH$;":";MT$
7730 LOCATE 15,25:INPUT "ENTER NEW TIME (HH:MM) ";TT$
7740 IF LEN(TT$) <>5 THEN GOTO 8160
7750 NH$=LEFT$(TT$,2)
7760 NT$=RIGHT$(TT$,2)
7770 NH=VAL(NH$)
7780 IF NH<0 OR NH>23 THEN GOTO 8160
7790 NT=VAL(NT$)
7800 IF NT<0 OR NT>59 THEN GOTO 8160
7810 IF AD$=" TIME" GOTO 7890
7820 IF AD$=" DATE" GOTO 7860
7830 D$="B"
7840 PRINT #1,D$
7850 GOSUB 2170
7860 D$="B"
7870 PRINT #1,D$
7880 GOSUB 2170
7890 D$="X"
7900 PRINT #1,D$
7910 GOSUB 2170
7920 D$=","
7930 PRINT #1,D$
7940 GOSUB 2170
7950 TH$=LEFT$(NH$,1)
7960 UH$=RIGHT$(NH$,1)
7970 TH=ASC(TH$)
7980 UH=ASC(UH$)
7990 D$=CHR$(TH)
8000 PRINT #1,D$
8010 GOSUB 2170
8020 D$=CHR$(UH)
8030 PRINT #1,D$
8040 GOSUB 2170
8050 TM$=LEFT$(NT$,1)
8060 UM$=RIGHT$(NT$,1)
8070 TM=ASC(TM$)

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```
6990 GOSUB 2170
7000 D$=":"
7010 PRINT #1,D$
7020 GOSUB 2170
7030 IF NM>VAL(MM$) THEN GOTO 7060
7040 IF NM<VAL(MM$) THEN GOTO 7140
7050 GOTO 7210
7060 X=NM-VAL(MM$)
7070 FOR L= 1 TO X
7080 D$="Z"
7090 PRINT #1,D$
7100 GOSUB 2170
7110 GOSUB 2170
7120 NEXT L
7130 GOTO 7210
7140 X=VAL(MM$)-NM
7150 FOR L=1 TO X
7160 D$="Y"
7170 PRINT #1,D$
7180 GOSUB 2170
7190 GOSUB 2170
7200 NEXT L
7210 D$="@"
7220 PRINT #1,D$
7230 GOSUB 2170
7240 GOSUB 2170
7250 IF ND>VAL(DD$) THEN GOTO 7280
7260 IF ND<VAL(DD$) THEN GOTO 7360
7270 GOTO 7430
7280 X=ND-VAL(DD$)
7290 FOR L=1 TO X
7300 D$="Z"
7310 PRINT #1,D$
7320 GOSUB 2170
7330 GOSUB 2170
7340 NEXT L
7350 GOTO 7430
7360 X=VAL(DD$)-ND
7370 FOR L=1 TO X
7380 D$="Y"
7390 PRINT #1,D$
7400 GOSUB 2170
7410 GOSUB 2170
7420 NEXT L
7430 D$="@"
7440 PRINT #1,D$
7450 GOSUB 2170
7460 GOSUB 2170
7470 GOTO 5930
7480 LOCATE 15,25:PRINT "WRONG FORMAT OR NUMBERS, TRY AGAIN":GOSUB 3150:GOTO
6790
7490 '
7500 'MHZ(KHZ) DOWN ROUTINE
7510 D$="Y"
7520 PRINT #1,D$
```

```

8600 DN$=INKEY$:IF DN$="" THEN GOTO 8600 ELSE
8610 LOCATE 20,45:PRINT DN$
8620 LOCATE 22,20:INPUT "ENTER FILENAME";NM$
8630 FILE$=DN$+"."+NM$
8640 OPEN "I",#2,FILE$
8650 IF ERR=53 THEN LOCATE 22,20:PRINT "FILE NOT FOUND"      ":GOSUB 3150:RESUME
8620
8660 CLS
8670 FOR Q=0 TO 61
8680 INPUT #2,F1$(Q),F2$(Q),TG$(Q),MD$(Q),CF$(Q)
8690 LOCATE 20,20:PRINT "READING MEMORY CHANNEL ";Q
8700 NEXT Q
8710 CLOSE #2
8720 CLS:LOCATE 10,25:PRINT "MEMORY LOAD/SAVE MENU"
8730 LOCATE 12,25:PRINT "1—DISPLAY MEMORY TABLE
8740 LOCATE 13,25:PRINT "2—EDIT MEMORY TABLE"
8750 LOCATE 14,25:PRINT "3—LOAD PARAGON MEMORIES
8760 LOCATE 15,25:PRINT "4—GET NEW DISK FILE
8770 LOCATE 16,25:PRINT "5—SAVE MEMORY TABLE TO DISK"
8780 LOCATE 18,25:PRINT "M—RETURN TO MAIN MENU"
8790 LOCATE 20,25:PRINT "SELECT DESIRED FUNCTION?"
8800 C$=INKEY$:IF C$="" THEN GOTO 8800 ELSE
8810 LOCATE 20,50:PRINT C$
8820 IF C$="1" THEN GOTO 8890 ELSE
8830 IF C$="2" THEN GOTO 10130 ELSE
8840 IF C$="3" THEN GOTO 8940 ELSE
8850 IF C$="4" THEN GOTO 8570 ELSE
8860 IF C$="5" THEN GOTO 9960
8870 IF C$="M" THEN GOTO 250 ELSE
8880 LOCATE 20,25:PRINT "WRONG NUMBER, TRY AGAIN"      ":GOSUB 3150:GOTO 8790
8890 GOSUB 8230
8900 LOCATE 24,25:PRINT "PRESS P TO RETURN TO PREVIOUS MENU"
8910 C$=INKEY$:IF C$="" THEN GOTO 8910 ELSE
8920 IF C$<>"P" THEN GOTO 8910 ELSE GOTO 8720
8930 '
8940 'ROUTINE TO SEND MEMORY DATA TO PARAGON
8950 CLS
8960 FOR Q= 0 TO 61
8970 CF$=CF$(Q)
8980 IF CF$="" THEN GOTO 9040
8990 LOCATE 20,20:PRINT "NOW LOADING PARAGON MEMORY CHANNEL ";Q
9000 GOSUB 9070
9010 GOSUB 9270
9020 GOSUB 9460
9030 GOSUB 9620
9040 NEXT Q
9050 GOTO 8720
9060 '
9070 'FREQUENCY TRANSFER ROUTINE
9080 F1$=F1$(Q):F2$=F2$(Q)
9090 IF VAL(F1$)=0 THEN GOTO 9170
9100 IF VAL(F1$)<10 THEN GOTO 9140
9110 D$=MID$(F1$,2,1)
9120 PRINT #1,D$
9130 GOSUB 2170

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```

8080 UM=ASC(UM$)
8090 D$=CHR$(TM)
8100 PRINT #1,D$
8110 GOSUB 2170
8120 D$=CHR$(UM)
8130 PRINT #1,D$
8140 GOSUB 2170
8150 GOTO 5930
8160 LOCATE 15,25:PRINT "WRONG FORMAT OR NUMBERS, TRY AGAIN":GOSUB 3150:GOTO
7710
8170 '
8180 'MEMORY TABLE DISPLAY ROUTINE
8190 GOSUB 8230
8200 LOCATE 24,25:PRINT "PRESS M TO RETURN TO MAIN MENU"
8210 C$=INKEY$:IF C$="" THEN GOTO 8210 ELSE
8220 IF C$<>"M" THEN GOTO 8210 ELSE GOTO 250
8230 CLS:LOCATE 10,25:PRINT "PRINT MEMORY TABLE (Y/N)?"
8240 C$=INKEY$:IF C$="" THEN GOTO 8240
8250 IF C$="Y" THEN GOTO 11180
8260 IF C$="N" THEN GOTO 8270 ELSE GOTO 8230
8270 GOSUB 8510
8280 FOR Q= 0 TO 19
8290 IF CF$(Q)="" THEN PRINT Q:GOTO 8310 ELSE
8300 PRINT Q;"    ";F1$(Q);". ";F2$(Q),TG$(Q),MD$(Q),CF$(Q)
8310 NEXT Q
8320 GOSUB 8530
8330 GOSUB 8510
8340 FOR Q=20 TO 39
8350 IF CF$(Q)="" THEN PRINT Q:GOTO 8370 ELSE
8360 PRINT Q;"    ";F1$(Q);". ";F2$(Q),TG$(Q),MD$(Q),CF$(Q)
8370 NEXT Q
8380 GOSUB 8530
8390 GOSUB 8510
8400 FOR Q= 40 TO 59
8410 IF CF$(Q)="" THEN PRINT Q:GOTO 8430 ELSE
8420 PRINT Q;"    ";F1$(Q);". ";F2$(Q),TG$(Q),MD$(Q),CF$(Q)
8430 NEXT Q
8440 GOSUB 8530
8450 GOSUB 8510
8460 FOR Q= 60 TO 61
8470 IF CF$(Q)="" THEN PRINT Q:GOTO 8490 ELSE
8480 PRINT Q;"    ";F1$(Q);". ";F2$(Q),TG$(Q),MD$(Q),CF$(Q)
8490 NEXT Q
8500 RETURN
8510 CLS:LOCATE 1,25:PRINT "PARAGON MEMORY TABLE"
8520 LOCATE 3,1:PRINT "MEMORY NO.":LOCATE 3,15:PRINT "FREQUENCY":LOCATE
3,28:PRINT "ALPHA TAG":LOCATE 3,42:PRINT "MODE":LOCATE 3,52:PRINT "CRYSTAL
FILTER":RETURN
8530 LOCATE 24,25:PRINT "PRESS RETURN FOR NEXT PAGE"
8540 C$=INKEY$:IF C$="" THEN GOTO 8540 ELSE
8550 IF C$<>CHR$(13) THEN GOTO 8540 ELSE RETURN
8560 '
8570 'ROUTINE TO LOAD ALL PARAGON MEMORIES FROM DISK FILE
8580 ON ERROR GOTO 8650
8590 CLS:LOCATE 20,20:PRINT "ENTER DRIVE LETTER (A-D)"

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9140 D$=MID$(F1$,4,1)
9150 PRINT #1,D$
9160 GOSUB 2170
9170 D$="W"
9180 PRINT #1,D$
9190 GOSUB 2170
9200 FOR N=2 TO 8 STEP 2
9210 D$=MID$(F2$,N,1)
9220 PRINT #1,D$
9230 GOSUB 2170
9240 NEXT N
9250 RETURN
9260 '
9270 'MODE TRANSFER ROUTINE
9280 MD$=MD$(Q)
9290 IF MD$="FM" THEN D$="L":GOTO 9420 ELSE
9300 IF MD$="AM" THEN D$="M":GOTO 9420 ELSE
9310 IF MD$="LSB" THEN D$="N":GOTO 9420 ELSE
9320 IF MD$="USB" THEN D$="O":GOTO 9420 ELSE
9330 IF MD$="CW" THEN D$="P":GOTO 9420 ELSE
9340 IF MD$="RTTY" THEN GOTO 9350 ELSE RETURN
9350 D$="P"
9360 PRINT #1,D$
9370 GOSUB 2170
9380 D$="X"
9390 PRINT #1,D$
9400 GOSUB 2170
9410 D$="P"
9420 PRINT #1,D$
9430 GOSUB 2170
9440 RETURN
9450 '
9460 'CRYSTAL FILTER TRANSFER ROUTINE
9470 CF$=CF$(Q)
9480 IF CF$="6.0" THEN D$="R":GOTO 9530 ELSE
9490 IF CF$="2.4" THEN D$="S":GOTO 9530 ELSE
9500 IF CF$="1.8" THEN D$="T":GOTO 9530 ELSE
9510 IF CF$=".50" THEN D$="U":GOTO 9530 ELSE
9520 IF CF$=".25" THEN D$="V":GOTO 9530 ELSE RETURN
9530 PRINT #1,D$
9540 GOSUB 2170
9550 CN$=STR$(Q)
9560 CN$=RIGHT$(CN$,2)
9570 IF Q>9 THEN GOTO 9590
9580 CN$="0"+CN$
9590 GOSUB 4170
9600 RETURN
9610 '
9620 'ALPHA TAG TRANSFER ROUTINE
9630 GOSUB 1550
9640 GOSUB 2230
9650 GOSUB 5490
9660 XX=LEN(TG$(Q))
9670 FOR N=1 TO XX
9680 DD$=MID$(TG$(Q),N,1)

```