

CP9/C01

***Unleash the power of your Yaesu FRG-9600
with***

CATPACK9600

***The software package that
puts YOU in control***

***A Product of
Yaesu Electronics Corporation***

***Developed by
Applied Solutions***

CATPACK9600/C64

Version 1.0

by Rob Neville

Commodore Version by Fred Milhorn

For YAESU FRG-9600

and

Commodore 64, 128

(AP64/9600 interface required)

A product of

YAESU ELECTRONICS CORPORATION


Developed by


APPLIED SOLUTIONS

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KEYBOARD CONVENTIONS

In the FRQ-FINDER9600/C64 portion of this manual, we refer to several keys on the Commodore keyboard. The names we use for these keys are ones that you may not be familiar with.

The arrow key (at the upper left of your  keyboard) is used in FRQ-FINDER9600 to 'back out' of certain functions. We call this key the <ESCAPE> key.

The cursor up/down (along the bottom row of  keys and towards the right-hand side of your keyboard) is used to move your cursor to the left during frequency entry. We call this key the LEFT-ARROW key.

The cursor left/right key (next to the cursor up/down key) is used to move your cursor to the right during frequency entry. We call this key the RIGHT-ARROW key.

We chose to use the cursor keys in this way so that you wouldn't have to press the <SHIFT> key to move your cursor.

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LICENSING

The purchase of this software package (CATPACK9600) entitles you to unlimited use of the CATCALLS9600 utility within programs written for YOUR PERSONAL USE. If you wish to use CATCALLS9600 in any program for distribution to other users, you must license the utility for this purpose. We encourage development of products using CATCALLS9600; Contact Applied Solutions for licensing information.

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What Is CATPACK9600?

CATPACK9600 is a collection of programs that allow you to greatly expand the capabilities of your Yaesu FRG-9600 VHF/UHF Communications Receiver. In order to use the CATPACK9600/C64 software, you will need a Yaesu AP64/9600 interface.

To use CATPACK9600/C64 on the Commodore 128, the computer must be in C-64 mode.

The programs contained on your CATPACK9600/C64 diskette are:

MENU

The program that allows you to select any of the files on the CATPACK9600/C64 diskette.

To use MENU, type
LOAD "MENU",8 <RETURN>
RUN <RETURN>

FROFINDER9600/C

A program that allows you to search a range of frequencies for activity and to log that activity.

CATCALLS9600/C

A set of machine-language routines used to control your FRG-9600 from BASIC.

SCANNER-1

An BASIC program that uses CATCALLS9600/C to scan a list of pre-defined frequencies (specified by DATA statements within the program).

SPECTRAN

An BASIC program that uses CATCALLS9600/C to scan a range of frequencies and display activity within that range as a graphic bar diagram (similar to a spectrum analyzer).

What Is FRQ-FINDER9600?

Information is valuable. Time is valuable. With a scanner that lacks intelligence, gathering information requires a large investment of your time. Your personal computer and FRG-9600 receiver combine to create the first really intelligent scanner, a scanner capable of collecting information on its own and recording that information for you.

FRQ-FINDER9600 is a program that allows you to scan a range of more than 21000 frequencies, in any mode and with any increment. FRQ-FINDER9600 allows you to log that scanning activity to your printer or to a file on diskette. With FRQ-FINDER9600, you can count up to 1000 transmissions on each of the frequencies you are scanning. You can let FRQ-FINDER9600 run unattended for an hour, a day, a week or longer and gather a detailed, concise analysis of the radio activity in your area.

There are two ways to begin a FRQ-FINDER9600 session:

- 1) selecting FRQ-FINDER9600 from the title screen/menu,

or

- 2) typing LOAD "FRQFINDER9600/C",8 (followed by <RETURN>) at your computer's READY prompt, and then typing RUN when your computer displays READY again.

Some FRQ-FINDER9600 Basics

Whenever FRQ-FINDER9600 is waiting for input from you, the first character of the field (for fields with fixed entries) or the character you are about to modify (for fields with variable entries) will be highlighted.

Pressing the <ESCAPE> key will usually allow you to 'back up' to the previous field; pressing <RETURN> will usually accept your entry and move you to the next field.

The best way to become familiar with FRQ-FINDER9600 is to use it; after reading over these instructions, load FRQ-FINDER9600 (following the instructions above) and experiment with the program.

Using FRO-FINDER9600

When you begin a FRQ-FINDER9600 monitoring session, you will be prompted for a logging destination. The choices you have are NO LOG, PRINTER and NEW FILE. Pressing the left and right-arrow keys will display each of these options.

NO LOG - Activity will be displayed on-screen only.

PRINTER - Activity will be shown on-screen and directed to a printer.

NEW FILE - Activity will be shown on-screen and directed to a new file on your diskette. You will be prompted for a file name; if a file with that name already exists on your diskette, an error message will be displayed and you will be prompted for a different file name.

After determining a logging destination, the FRQ-FINDER9600 screen will appear. You will be prompted for the following information (pressing <RETURN> will accept an entry, pressing <ESC> will abort an entry and return you to the previous entry):

BEGIN - beginning frequency (in MHz). As you enter the digits of the beginning frequency, the cursor (inverse block) will move to the right. Left and right-arrow keys may be used to move the cursor to any digit position within the frequency entry.

END - ending frequency (in MHz). Frequency entry for END is the same as BEGIN; if your ending frequency is lower than your beginning frequency, FRQ-FINDER9600 will automatically exchange the two entries. If the two entries are equal, the cursor will remain on your END entry when you press <RETURN>.

STEP - step size (in MHz). Any entry other than 0 may be entered. Each frequency range has a standard channel spacing; channel spacings can be found in books on radio monitoring. Some popular spacings are 5 kHz (000.0050), 10 kHz (000.0100), 12.5 kHz (000.0125) and 25 kHz (000.0250).

After successfully selecting BEGIN, END and STEP, there will be a pause as FRQ-FINDER9600 clears the memory it needs to count activity. This may take anywhere from a fraction of

a second to a minute, depending on the amount of memory needed for the frequency range and increment you have selected. If there is not enough memory for the range you have selected, FRQ-FINDER9600 will display the upper limit of the frequency range allowed as the END. If, for example, you enter 300.0000 as your BEGIN, 325.0000 as your END and 000.0010 as your STEP, FRQ-FINDER9600 will clear memory up to 321.5030 and display that frequency as your END. Pressing <ESC> while FRQ-FINDER9600 is clearing memory will return you to STEP entry.

MODE - operating mode. Left and right-arrow keys will allow you to select LSB, USB, AM-N, AM-W, FM-N and FM-W.

TIMEOUT - maximum monitoring time, in seconds. Any value from 0-99 may be entered. FRQ-FINDER9600 will stay 'locked on' to an active frequency for the specified number of seconds and then continue scanning; a value of 10, for example, would cause FRQ-FINDER9600 to stay on a frequency for the duration of activity on that frequency, or 10 seconds, whichever is shorter.

There are two 'special' timeout values, 0 and 99. A value of 0 will cause FRQ-FINDER9600 to stay on a frequency for the duration of its activity. A value of 99 will cause FRQ-FINDER9600 to time out immediately. This 'intelligence mode' is useful if you wish to build up an activity count for a range of frequencies but do not wish to monitor the activity on those frequencies.

DELAY - maximum wait time after transmission, in seconds. Any value from 0-99 may be entered. After activity on a frequency, FRQ-FINDER9600 will wait this number of seconds for more activity. A value of 05 would cause FRQ-FINDER9600 to wait 5 seconds for more activity after activity on that frequency has ended.

SPEED - scan speed delay, in 1/100 second. Any value from 0-99 may be entered. A value of 0 instructs FRQ-FINDER9600 to scan at its highest speed; a value of 99 will cause FRQ-FINDER9600 to scan at a rate of about one frequency per second.

FILTER - 'hit' delay, in 1/10 second. Any value from 0-9 may be entered. A value of 0 will cause activity on a frequency (a 'hit') to be considered valid immediately; any other value will cause FRQ-FINDER9600 to consider a

transmission valid only if it lasts at least as long as the filter value specifies (a FILTER of 5, for example, will accept transmissions as valid only if they are at least five-tenths (that is, one-half) of a second in duration). The FILTER allows you to avoid spurious noise caused by your computer or other equipment.

When you have provided all of the above information, you will be asked two questions: RESET COUNTER? and PRINT EACH HIT? (you will only be asked the second question if you are logging to a printer or a file). To answer these questions you may type 'Y' or 'N' or you may press left or right-arrow to toggle between YES and NO. If you answer YES to RESET COUNTER?, the current counter and hit counter will be reset. If you answer YES to PRINT EACH HIT?, each transmission will be logged to your logging destination (PRINTER or FILE). If you answer NO to this question, only the activity counts and program prompts are logged to your logging destination.

FRQ-FINDER9600 will begin to scan after you have entered all of the scanning parameters. As FRQ-FINDER9600 scans, you will notice that the current frequency is always printed at the CURRENT field of the FRQ-FINDER9600 screen and the current scan function (TIMEOUT, SCAN, etc.) is displayed in the upper right-hand corner of the FRQ-FINDER9600 screen. The TOTAL, CURRENT and HITS counters are updated as FRQ-FINDER9600 scans your selected frequency range.

There are several commands you can issue while FRQ-FINDER9600 is actively scanning; they are:

- <ESC> RETURN TO EDIT
Suspend scanning, return to EDIT mode.
- <H> HOLD ON CURRENT FREQUENCY
Suspend an active TIMEOUT or DELAY count, remain on current frequency until any key is pressed.
- <C> CONTINUE SCANNING
Abort an active TIMEOUT or DELAY count, continue scanning.
- <P> PRINT ACTIVITY COUNT
Print a list of all active frequencies and activity counts.
If you are logging to screen only (NO LOG), the list will pause after each line is printed (to give you a chance to see the information before it scrolls off the screen). Pressing <SPACE> will display the next line, pressing <ESC> will abort the listing and return to SCAN mode.
- <Z> ZERO (CLEAR) ACTIVITY COUNT
Reset activity counts to 0 for all frequencies in current range and begin scanning from BEGIN frequency.
- <R> RESTART SCAN
Start scanning from BEGIN frequency.
- <X> EXIT TO BASIC
Terminate FRQ-FINDER9600 session.
- <CTL><X> ... EXIT AND RESTART FRQ-FINDER9600
Terminate the current FRQ-FINDER9600 session, begin a new session (to change logging destination, for example).

CATCALLS9600

The simple, sophisticated way to communicate with your Yaesu FRG-9600

What Is CATCALLS9600?

CATCALLS9600 is a machine-language utility that adds CAT (Computer Aided Transceiver) commands to BASIC. With CATCALLS9600, you can simply and easily control your FRG-9600 from your own BASIC programs.

How Do I Load CATCALLS9600?

In order to use CATCALLS9600 commands in your programs, you must install the CATCALLS9600 utility in memory. To do this, the first lines of your program should be

```
10 IF (ZZ=0) THEN ZZ=1: LOAD "CATCALLS9600/C",8,1
20 CAT=40192 : SYSCAT,1 : REM INITIALIZE AP64/9600
```

When these commands are executed, CATCALLS9600 will be installed in memory at the top of BASIC program memory (of course, CATCALLS9600/C must be on your diskette in order for your computer to find it when this line is executed). The variable ZZ is used as a 'flag' variable, to indicate whether CATCALLS9600 has been loaded into memory. The first time this command is executed, ZZ is equal to 0 and CATCALLS9600 is loaded from diskette. After CATCALLS9600 is loaded, the program restarts from line 10. Since ZZ is now equal to 1, the LOAD is skipped and execution passes to line 20. CATCALLS9600 occupies 512 bytes of memory.

To install CATCALLS9600 in memory from BASIC's immediate mode, type

```
LOAD "CATCALLS9600/C",8,1 <RETURN>
CAT=40192
SYSCAT,1
```

What Can I Do With CATCALLS9600?

CATCALLS9600 lets you remotely tune your FRG-9600, set the reception mode, measure signal strength and check the SQUELCH line for signal activity. CATCALLS9600 can be thought of as a 'scanner construction set' that you can use to 'build' a scanner to your exact specifications.

CATCALLS9600 Commands

All CATCALLS9600 commands begin with 'SYSCAT,' (this calls a machine-language SYStem program at the memory location specified by the variable 'CAT' (actually 'CA', since BASIC only recognizes the first two characters of a variable name as being unique)). The parameters that follow 'SYSCAT,' are different for each CATCALLS9600 command.

The variable CAT must be defined (CAT=40192) before any CATCALLS9600 commands are executed.

CATCALLS9600 adds the following commands to BASIC:

SYSCAT,1 INITIALIZE AP64/9600 INTERFACE

This command sets up the AP64/9600 for proper communication to the FRG-9600. You should execute this command before any other CATCALLS9600 commands.

SYSCAT,> SEND A FREQUENCY TO THE FRG-9600

To tune the FRG-9600, you must store the frequency in a string variable. That string variable must be specified after the 'SYSCAT,>' command.

If you wish to tune the FRG-9600 to 460.2250 MHz, you would execute the following commands:

```
FR$="460.2250" : SYSCAT,>FR$
```

Any acceptable BASIC string variable can be used as a frequency string. You can send ANY frequency in the range of 000.0000 to 999.9999 MHz to the FRG-9600, but the FRG-9600 will only receive frequencies in the range 060.0000 to 905.0000 MHz.

SYSCAT,# SET THE FRG-9600'S MODE.

You can use either a floating-point variable or a single-digit constant to program the FRG-9600's mode. The acceptable numbers, and the modes they represent, are:

0 LSB	Lower Sideband	1 USB	Upper Sideband
2 AM-N	AM Narrow	3 AM-W	AM Wide
4 FM-N	FM Narrow	5 FM-W	FM Wide

SYSCAT,< MEASURE SIGNAL STRENGTH AND SQUELCH.

This command allows you to measure the relative strength of the signal you are receiving, and to determine whether the SQUELCH line is high (signal present) or low (no signal present).

The signal strength is measured by the built-in analog input circuitry in your computer. Although this circuitry is designed to measure game-paddle position, it provides a fairly accurate representation of signal strength level from your FRG-9600. Of course, the signal range will vary depending on your computer and FRG-9600, but the effective range should be from about 20 (for no signal) to 255 (for a very strong signal). You will probably want to experiment to determine the functional range for your equipment.

The SQUELCH status is indicated by the sign of the number returned when you execute the 'SYSCAT,<' signal/SQUELCH command. If the number is negative, the squelch is low (no signal present). If the number is positive, the squelch is high (signal present).

If you wish to measure the signal strength and SQUELCH, and you wish to return these signals to the variable SS, you would execute the following command:

```
SYSCAT,<SS
```

The following commands will print either "SIGNAL PRESENT" or "NO SIGNAL PRESENT" followed by the signal strength:

```
IF (SS<0) THEN PRINT "NO ";
PRINT "SIGNAL PRESENT ";
PRINT ABS (SS) : REM SIGNAL STRENGTH
```

How Do I Program With CATCALLS9600?

You now have all the information you need to use CATCALLS9600 in your own programs. The following program will demonstrate usage of CATCALLS9600 (The programs SCANNER-1 and SPECTRAN are included on your CATPACK9600 disk as further examples of CATPACK9600 usage).

```
10 IF (ZZ=0) THEN ZZ=1: LOAD "CATCALLS9600/C",8,1
20 CAT=40192 : SYSCAT,! : REM INITIALIZE AP64/9600
30 PRINT CHR$(147); : REM CLEAR SCREEN, HOME CURSOR
40 INPUT "ENTER A FREQUENCY:";F$
50 INPUT "    ENTER A MODE:";M
60 SYSCAT,>F$ : SYSCAT,#M : REM SET FREQUENCY AND MODE
70 SYSCAT,<SL : REM MEASURE THE SIGNAL LEVEL AND SQUELCH
80 PRINT "    SIGNAL LEVEL:";SL
90 PRINT "PRESS A KEY TO CONTINUE"
100 GET A$ : IF (A$="") THEN 100: REM WAIT FOR KEYPRESS
110 GOTO 30 : REM GO DO IT ALL AGAIN
```

To enter and test this program, type 'NEW' to clear your computer's memory then enter each line listed above (pressing <RETURN> after each line). After entering line 110, type 'LIST' and make sure that you haven't made any errors. Type 'RUN', followed by <RETURN>. When the program asks you to ENTER A FREQUENCY, type the frequency of your favorite FM radio station ('89.9', for example) and press <RETURN>. When asked to ENTER A MODE:, press '5' followed by <RETURN>. If you don't hear your station, make sure that your equipment is set up properly and that there is no error in the program you entered (you can press <RUN/STOP> to stop your program). When you DO hear your station, you have just entered your first successful CATCALLS9600 program!

CATCALLS9600 Programming Tips

Example 1: Scanning from 300 MHz to 400 MHz in 0.250 MHz increment.

Here is a sample program that does NOT perform the function specified in Example 1, although it seems that it should (we'll explain why it doesn't in a moment):


```

10 IF (ZZ=0) THEN ZZ=1: LOAD "CATCALLS9600/C",8,1
20 CAT=40192 : SYSCAT,1 : REM INITIALIZE AP64/9600
30 PRINT CHR$(147); : REM CLEAR SCREEN AND HOME CURSOR
40 FOR I = 300 TO 400 STEP 0.250
50 N$ = STR$(I) : REM CONVERT I TO A STRING (FOR FREQUENCY)
60 SYSCAT,>N$
70 NEXT

```

The problem is that BASIC will sometimes convert the variable I to a value slightly different than what it should be (322.24999, for example). A slight modification to the program above avoids this problem:

```

10 IF (ZZ=0) THEN ZZ=1: LOAD "CATCALLS9600/C",8,1
20 CAT=40192 : SYSCAT,1 : REM INITIALIZE AP64/9600
30 PRINT CHR$(147); : REM CLEAR SCREEN AND HOME CURSOR
35 BF = 300: EF = 400: IC = 0.250
37 NF = (EF - BF) / IC : REM NUMBER OF FREQUENCIES TO SCAN
38 NF = INT (.5+NF) : REM ROUND UP TO NEAREST INTEGER
40 FOR I = 0 TO NF
45 FI = BF + (IC * I) : REM THIS AVOIDS ACCUMULATING ERROR
50 N$ = STR$(FI) : REM CONVERT FI TO A STRING VARIABLE
60 SYSCAT,>N$
70 NEXT

```

This program avoids the cumulative error introduced in the first program, and actually makes your frequency-range loop more flexible by using variables instead of constants for begin (BF), end (EF) and step increment (IC).

Example 2: Fine-tuning the signal strength reading by averaging.

You can improve the accuracy of signal strength measurement by taking several measurements and averaging them (you could also take several readings and simply add them -- 10 readings, for example, would give you a range of 0 - 2550). The following subroutine demonstrates this:

```

10 IF (ZZ=0) THEN ZZ=1: LOAD "CATCALLS9600/C",8,1
20 CAT=40192 : SYSCAT,1 : REM INITIALIZE AP64/9600
30 PRINT CHR$(147); : REM CLEAR SCREEN AND HOME CURSOR
40 GOSUB 2500
50 PRINT CHR$(19);"AGC=";STR$(SG);" "
60 GOTO 40

```

```

2500 REM AVERAGE 10 SIGNAL STRENGTH READINGS
2510 SG = 0 : REM SET SIGNAL VALUE TO ZERO
2520 FOR SL = 1 TO 10 : REM SIGNAL LOOP
2530 SYSCAT,<SI : REM MEASURE SIGNAL LEVEL (AND SQUELCH)
2540 SG = SG + ABS(SI) : REM ADD THE SIGNAL LEVEL TO TOTAL
2550 NEXT
2560 SG = INT (SG/10) : REM NOW WE HAVE AN AVERAGED SIGNAL
2570 RETURN : REM 'GOSUB 2500' TO STORE AGC IN 'SG'

```

You can use any number of signal readings for signal averaging -- remember, though, the time needed to average the signal will increase with the number of readings taken.

Your CATPACK9600 diskette contains two BASIC programs (SPECTRAN, SCANNER-1) which demonstrate a few of CATCALLS9600's many applications. By LISTing and RUNning these programs, you can get some ideas for using CATCALLS9600 and some examples of how to use CATCALLS9600's simple commands.

You can use the MENU program to select the CATCALLS9600 BASIC demonstration programs. Type

```

LOAD "MENU",8 <RETURN>
RUN

```

to use MENU.

The purchase of this software (CATPACK9600) gives you the right to unlimited use of the CATCALLS9600 routines in your own programs written for your own personal use. If you develop software incorporating CATCALLS9600 that you plan to distribute (either commercially or non-commercially), contact Yaesu Electronics Corporation or Applied Solutions for full licensing information.

Be sure to return your Software Registration Card, and please feel free to send us any suggestions to improve CATPACK9600 or any questions you have about specific CATPACK9600 applications.

Welcome to the future of radio monitoring!

1. The purpose of this document is to provide a comprehensive overview of the current state of the project and to outline the key findings and recommendations.

2. The project has been conducted in accordance with the established protocols and procedures, and the results have been carefully reviewed and analyzed.

3. The findings indicate that the project has achieved its primary objectives, and the data collected is consistent with the initial hypotheses.

4. It is recommended that the project be continued, with a focus on further refining the methodology and expanding the scope of the research.

5. The next steps include the completion of the data analysis, the preparation of a final report, and the dissemination of the findings to the relevant stakeholders.

6. The project team is committed to ensuring the highest quality of work and to maintaining open communication throughout the process.

7. The results of this project will be used to inform future research and to guide the development of new initiatives.

8. The project has been a success, and the team is proud of the work they have accomplished.

9. The project has provided valuable insights into the current state of the field, and the findings will be used to inform future research.

10. The project has been a valuable experience, and the team is grateful for the support and guidance provided throughout the process.

CATCALLS9600/C64 Quick Reference

To install CATCALLS9600 in memory in immediate mode, type

```
LOAD "CATCALLS9600/C",8,1
CAT=40192 : SYSCAT,1
```

To install CATCALLS9600 in memory from an BASIC program, execute the following lines in your program (BEFORE any variables are used or DIMensioned!):

```
10 IF (ZZ=0) THEN ZZ=1: LOAD "CATCALLS9600/C",8,1
20 CAT=40192 : SYSCAT,1 : REM INITIALIZE AP64/9600
```

CATCALLS9600/C64 Command Summary

All CATCALLS9600 commands begin with 'SYSCAT,'. The parameters that follow 'SYSCAT,' are different for each CATCALLS9600 command. The variable CAT must be defined (CAT=40192) before any CATCALLS9600 commands are executed.

SYSCAT,1 INITIALIZE THE AP64/9600 INTERFACE

No parameters follow this command.
SYSCAT,1

SYSCAT,> CHANGE THE FRG-9600'S FREQUENCY

A string variable should follow this command.
FR\$="506.3875" : SYSCAT,>FR\$

SYSCAT,# CHANGE THE FRG-9600's MODE

A floating-point variable or a constant (that is, a number) should follow this command (0=LSB, 1=USB, 2=AM-N, 3=AM-W, 4=FM-N, 5=FM-W).
SYSCAT,#5 : REM Set mode to FM-Wide

SYSCAT,< MEASURE SIGNAL STRENGTH AND SQUELCH

A floating-point variable should follow this command. The AGC value is returned as a number from 1-255. If the AGC value is negative, the squelch line was low (no signal present); if the AGC value is positive, the squelch line was high (valid signal present).

SYSCAT,<S : PRINT "THE SIGNAL VALUE IS: ";STR\$(S)

A Sample CATCALLS9600 Program

```
10 IF (ZZ=0) THEN ZZ=1: LOAD "CATCALLS9600/C",8,1
20 CAT=40192 : SYSCAT,1 : REM INITIALIZE AP64/9600
30 WF$="162.55" : SYSCAT,>WF$ : REM Tune to NOAA Weather
40 SYSCAT,#4 : REM Set mode to FM-NARROW
50 SYSCAT,<S : REM Measure AGC / SQUELCH
60 PRINT " NOAA WEATHER AGC / SQUELCH IS ";STR$(S);"      "
70 GOTO 50 : REM Print AGC / SQUELCH repeatedly
```


FRQ-FINDER9600/C64 Quick Reference

BEGIN 460.0000	EDIT	00:00
END 460.5000	TOTCNT	00467263
STEP 000.0250	CURCNT	00023493
MODE FM-N	HITCNT	00000983
TIMEOUT 05 DELAY 01 SPEED 05 FILTER 0		
CURRENT 460.2750 ZERO COUNTERS?NO		

Active frequencies are displayed
in this window.

The window above this one is where
all scan parameters are entered
and displayed.

FRQ-FINDER 9600/C64 BY FRED MILHORN
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To begin FRQ-FINDER9600/C64, either select it from the
CATPACK9600 menu or type

LOAD "FRQFINDER9600/C",8,1 <RETURN>
RUN

The left-arrow and right-arrow keys will allow you to move
the cursor left and right during text and frequency entry.
Pressing <RETURN> will accept an entry. Pressing <ESC> will
generally abort an entry (and place you at the previous
entry).

FRQ-FINDER9600/C64 Command Summary

While FRQ-FINDER9600 is in SCAN mode, you may enter any of
the following commands:

<ESC> RETURN TO EDIT
<H> HOLD ON CURRENT FREQUENCY
<C> CONTINUE SCANNING
<P> PRINT ACTIVITY COUNT
<Z> ZERO (CLEAR) ACTIVITY COUNT
<R> RESTART SCAN
<X> EXIT TO BASIC
<CTL><X> ... EXIT AND RESTART FRQ-FINDER9600

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AP64/9600
Assembly Instructions

The Yaesu AP64/9600 Interface makes it possible for you to use Yaesu/Applied Solutions software with your Yaesu FRG-9600 VHF/UHF Communications Receiver and your Commodore C-64, C-128 or VIC-20 computer.

Your AP64/9600 Parts Kit contains the following items:

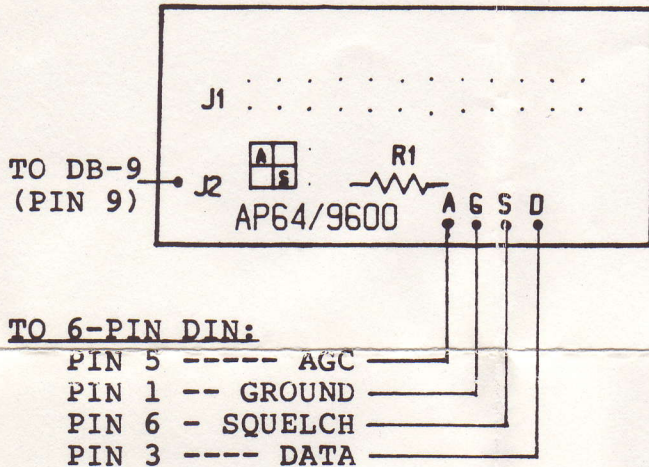
AP64/9600 PC BOARD (ASSEMBLED)
6-PIN DIN MALE CONNECTOR
ASSEMBLY INSTRUCTIONS (THIS SHEET)

You will need a length of 4-conductor shielded cable to complete assembly of your AP64/9600 (color-coded cable will make assembly easier). Be sure to make this cable long enough to reach from your computer to your Yaesu FRG-9600. If you wish to use the FRG-9600's AGC (signal strength) capabilities, you will also need a DB-9 female connector and a 2' insulated wire.

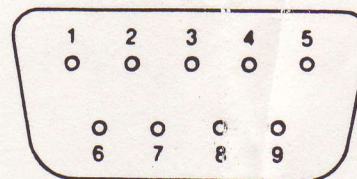
The AP64/9600 PC Board has four holes drilled along the rear edge and one hole drilled along the left edge; these holes are where you will connect the 6-pin DIN and the (optional) DB-9 connector.

Assemble the AP64/9600 as follows:

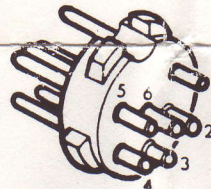
AP64/9600 PC BOARD
(COMPONENT SIDE UP)



DB-9 CONNECTOR
(VIEWED FROM REAR)



6-PIN DIN CONNECTOR



When you have assembled your AP64/9600 interface as shown above, attach the PC Board (component side UP) to your computer's USER port. If you have installed the AGC option, attach the DB-9 connector to your computer's CONTROL PORT 1. Connect the 6-pin DIN connector to your FRG-9600's CAT port.

If you've followed these instructions and made it this far, you are now ready to put your Yaesu FRG-9600 under computer control. Enjoy!

Software for your
Commodore C-64, C-128
(diskette)
CP9/C01
(Yaesu AP64/9600 interface required)

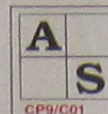
Unleash the power of your Yaesu FRG-9600
with

CATPACK9600

The software package that
puts YOU in control

A Product of
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CATPACK9600

CP9/C01

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Applied Solutions

CATCALLS9600/C64 Quick Reference

To install CATCALLS9600 in memory in immediate mode, type
LOAD "CATCALLS9600/C",8,1
CAT=40192 : SYSCAT,1

To install CATCALLS9600 in memory from an BASIC program,
execute the following lines in your program (BEFORE any
variables are used or DIMensioned!):

```
10 IF (ZZ=0) THEN ZZ=1: LOAD "CATCALLS9600/C",8,1
20 CAT=40192 : SYSCAT,1 : REM INITIALIZE AP64/9600
```

CATCALLS9600/C64 Command Summary

All CATCALLS9600 commands begin with 'SYSCAT,'. The
parameters that follow 'SYSCAT,' are different for each
CATCALLS9600 command. The variable CAT must be defined
(CAT=40192) before any CATCALLS9600 commands are executed.

SYSCAT,1 **INITIALIZE THE AP64/9600 INTERFACE**
No parameters follow this command.
SYSCAT,1

SYSCAT,> **CHANGE THE FRG-9600'S FREQUENCY**
A string variable should follow this command.
FRF="506.3875" : SYSCAT,>FRF

SYSCAT,# **CHANGE THE FRG-9600'S MODE**
A floating-point variable or a constant (that is,
a number) should follow this command (0=LSB,
1=USB, 2=AM-N, 3=AM-W, 4=FM-N, 5=FM-W).
SYSCAT,#5 : REM Set mode to FM-Wide

SYSCAT,< **MEASURE SIGNAL STRENGTH AND SQUELCH**
A floating-point variable should follow this
command. The AGC value is returned as a number
from 1-255. If the AGC value is negative, the
squelch line was low (no signal present); if the
AGC value is positive, the squelch line was high
(valid signal present).
SYSCAT,<S : PRINT "THE SIGNAL VALUE IS: ";STR\$(S)

A Sample CATCALLS9600 Program

```
10 IF (ZZ=0) THEN ZZ=1: LOAD "CATCALLS9600/C",8,1
20 CAT=40192 : SYSCAT,1 : REM INITIALIZE AP64/9600
30 WFS="162.55" : SYSCAT,>WFS : REM Tune to NOAA Weather
40 SYSCAT,#4 : REM Set mode to FM-NARROW
50 SYSCAT,<S : REM Measure AGC / SQUELCH
60 PRINT "NOAA WEATHER AGC / SQUELCH IS ";STR$(S); "
70 GOTO 50 : REM Print AGC / SQUELCH repeatedly
```

AP64/9600

Assembly Instructions

The Yaesu AP64/9600 Interface makes it possible for you to use
Yaesu/Applied Solutions software with your Yaesu FRG-9600 VHF/UHF
Communications Receiver and your Commodore C-64, C-128 or VIC-20 computer.

Your AP64/9600 Parts Kit contains the following items:

AP64/9600 PC BOARD (ASSEMBLED)
6-PIN DIN MALE CONNECTOR
ASSEMBLY INSTRUCTIONS (THIS SHEET)

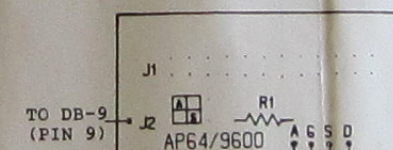
You will need a length of 4-conductor shielded cable to complete assembly
of your AP64/9600 (color-coded cable will make assembly easier). Be sure
to make this cable long enough to reach from your computer to your Yaesu
FRG-9600. If you wish to use the FRG-9600's AGC (signal strength)
capabilities, you will also need a DB-9 female connector and a 2'
insulated wire.

The AP64/9600 PC Board has four holes drilled along the rear edge and one
hole drilled along the left edge; these holes are where you will connect
the 6-pin DIN and the (optional) DB-9 connector.

Assemble the AP64/9600 as follows:

AP64/9600 PC BOARD
(COMPONENT SIDE UP)

DB-9 CONNECTOR
(VIEWED FROM REAR)



TO 6-PIN DIN:

PIN 5 ---- AGC
PIN 1 -- GROUND
PIN 6 - SQUELCH
PIN 3 ---- DATA

6-PIN DIN CONNECTOR



When you have assembled your AP64/9600 interface as shown above, attach the
PC Board (component side UP) to your computer's USER port. If you have
installed the AGC option, attach the DB-9 connector to your computer's
CONTROL PORT 1. Connect the 6-pin DIN connector to your FRG-9600's CAT
port.

If you've followed these instructions and made it this far, you are now
ready to put your Yaesu FRG-9600 under computer control. Enjoy!

