

SUPERGRAPHS_{tm}

by

CARLOS & STAR

BAR GRAPH FILE PROGRAM

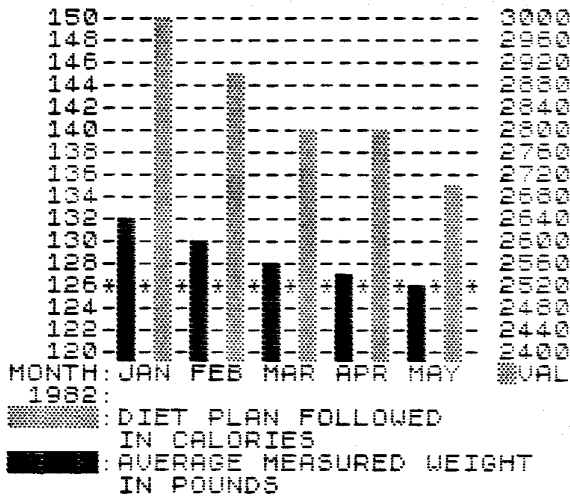


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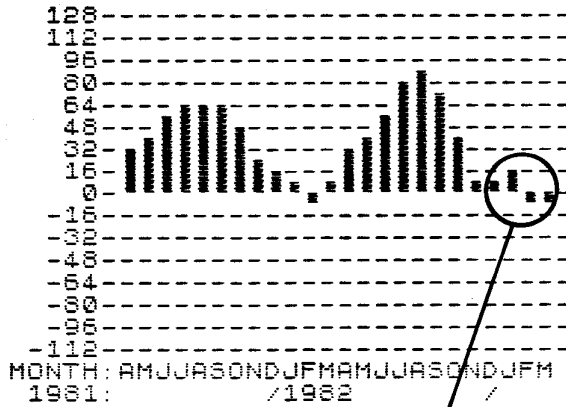
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INTRODUCTION**PROGRAM DESCRIPTION**

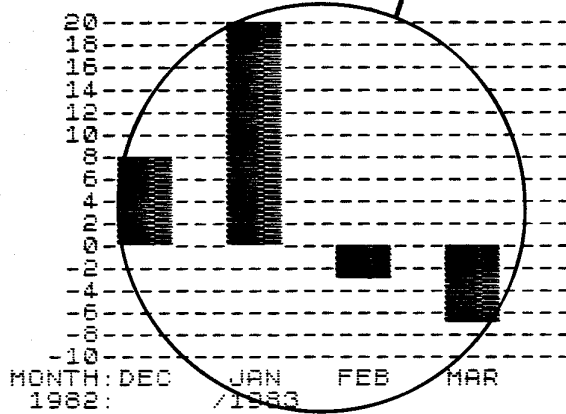
A "bar graph" is a very effective way to present data visually. SUPERGRAPHS_{tm} is a computer program designed to automatically compose and display bar graphs on the television screen and on the printer. The program is used like a filing system containing many graphs. All the data and display instructions for every graph are stored in memory and any section of any graph can be rapidly accessed, displayed and compared to other graphs.

The purpose of SUPERGRAPHS_{tm} is to produce bar graphs in a variety of ways so that you can discover and present trends and other patterns quickly, clearly and easily.

SUPERGRAPHS_{tm} has many special features. For example, you can view your bar graphs in "wide angle" perspective or easily "zoom" in for a much closer look. You can see the dramatic difference in the two views of the following bar graph.



TITLE: YOSEMITE AVG TEMPERATURE
IN DEGREES-F



TITLE: YOSEMITE AVG TEMPERATURE
IN DEGREES-F

The television screen is like a window through which you can see a maximum of 24 bars at a time. Graphs may contain hundreds of bars, all available to you, representing periods before or after those displayed on the screen. In the top graph, the period from April 1981 to March 1983 has been selected. The bottom graph is a "zoom" in. This feature is used to display more detail of the data from December 1982 to March 1983. Notice the enhanced vertical scale resolution.

ZOOM & WIDE ANGLE: You can easily control the display with the "arrow" keys. You can change the display one step at a time or very quickly. Some of the display options open to you are:

SCROLL BARS TO THE LEFT

SCROLL BARS TO THE RIGHT

ZOOM IN HORIZONTALLY (display fewer, wider bars)

ZOOM OUT HORIZONTALLY (display more, narrower bars)

MOVE BARS UP SCREEN

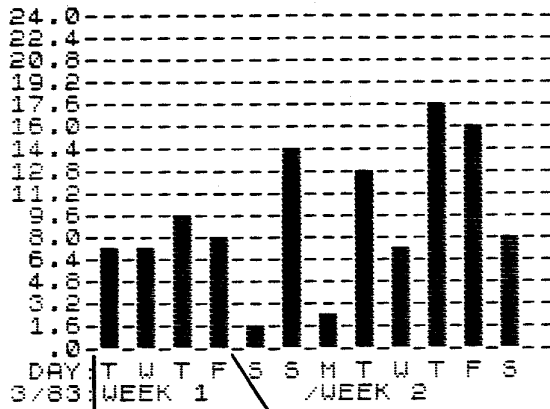
MOVE BARS DOWN SCREEN

ZOOM IN VERTICALLY

ZOOM OUT VERTICALLY

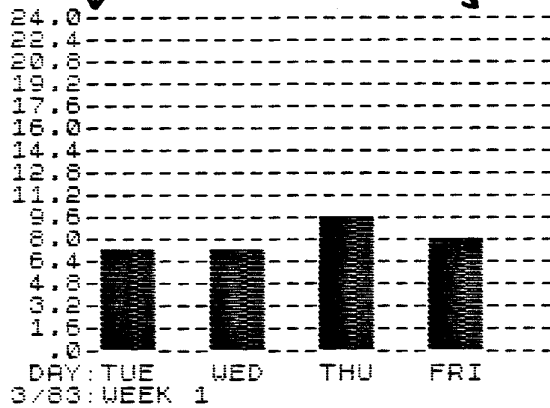
RETURN TO VERTICAL "HOME BASE" (to vertical "wide angle")

You can see the difference in display with different vertical and horizontal settings in the following graphs.

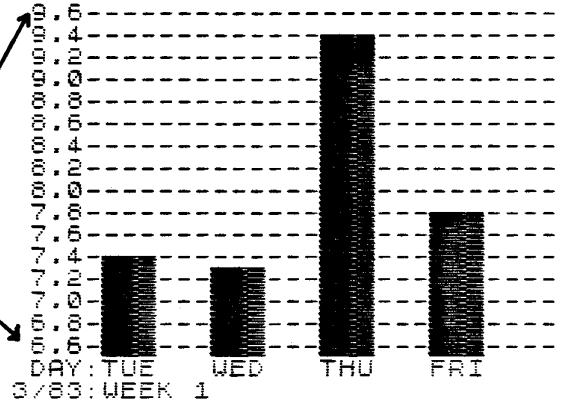


TITLE: SIERRA DAILY PROGRESS IN MILES

The top left graph shows daily progress values in early March 1983. The bottom left graph shows a "horizontal zoom in." The bottom right shows the results of "move bars up screen" and "zoom in vertically."



TITLE: SIERRA DAILY PROGRESS IN MILES

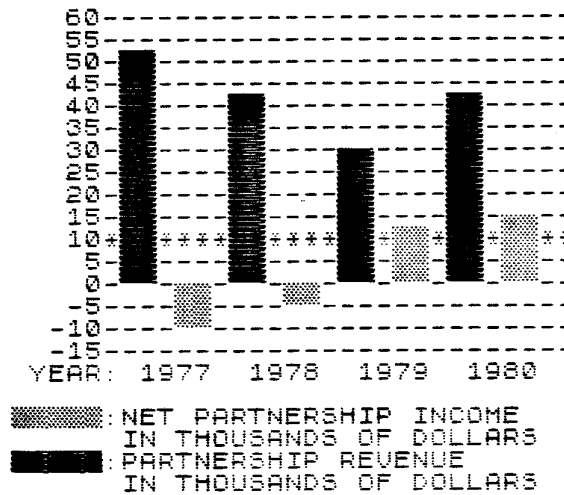


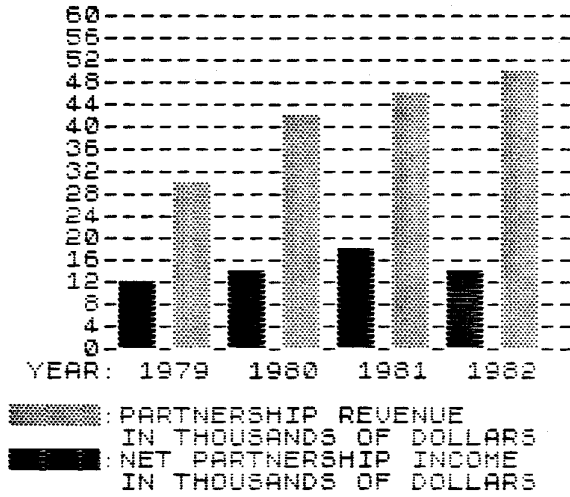
TITLE: SIERRA DAILY PROGRESS IN MILES

COMPARISON GRAPHS: Another special feature available to you is comparison graphs. You can do the following:

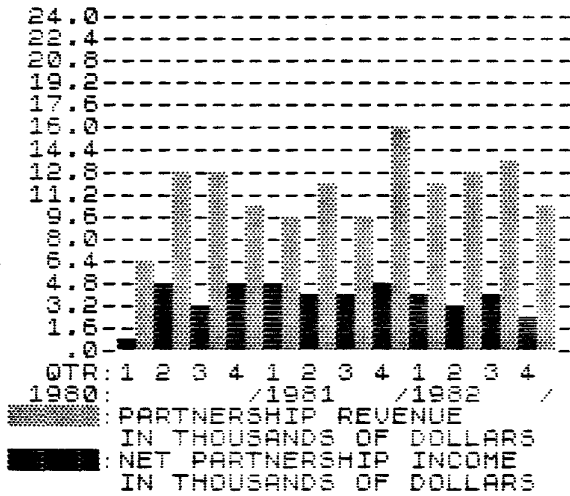
- * COMPARE DIFFERENT TIME PERIODS
- * COMPARE DIFFERENT DATA SETS (different accounts)

Review the following comparison graphs and consider the uses that you can make of this special "double exposure" feature. It is very easy to use. Notice that the graph on the front page has two different scales.

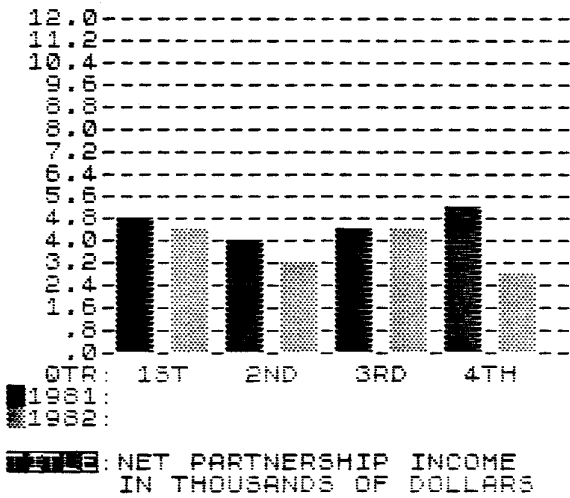




Revenue is compared to net income by years.

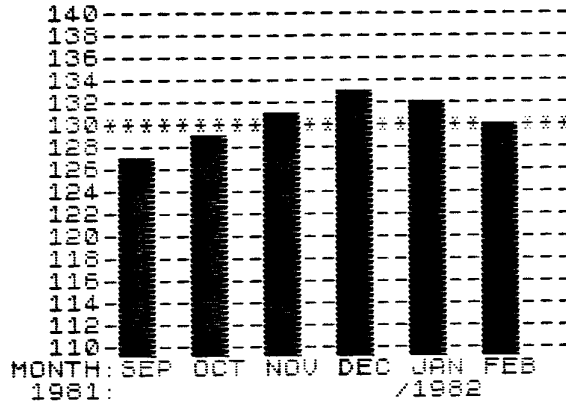


Revenue is compared to net income by quarters.



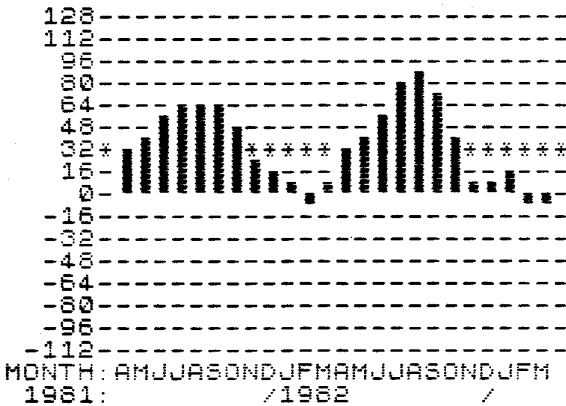
Quarterly net income in 1981 is compared with quarterly net income in 1982.

REFERENCE SETTINGS: You can easily insert special reference marks in your displays. For example, the freezing point of water, or a target weight.

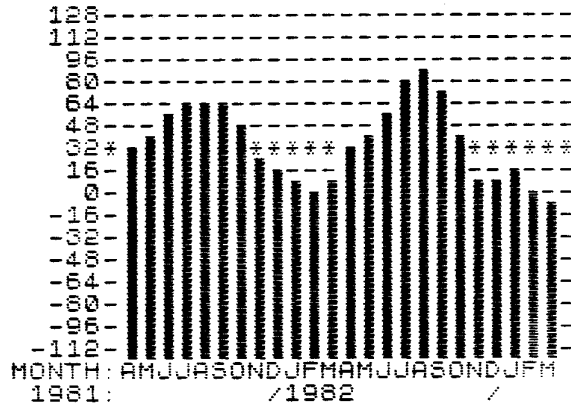


TITLE: AVERAGE MEASURED WEIGHT IN POUNDS

In addition, if zero is not at the bottom of the graph you can choose, with a single keystroke, whether to start your bars at the zero mark or at the bottom of the graph.



TITLE: YOSEMITE AVG TEMPERATURE IN DEGREES-F



TITLE: YOSEMITE AVG TEMPERATURE IN DEGREES-F

TIME PERIOD SELECTION: Time series graphs available to you include: Daily; Weekly; Monthly; Quarterly; and Yearly. You can choose specific dates in the past, present or future to end or begin graphs. You can add or alter any data in any graph at any time; and, your graphs can always be up to date without reentering any data.

DATA CAPACITY: With 16K memory, you can have over 4,000 data entries (and over 36,000 data entries with 48K memory).

FLEXIBILITY: Depending on available memory, up to 248 individually named accounts can be stored. Each account can have a yearly, quarterly, monthly, weekly, and daily graph. You can modify the existing program to fit your application by responding to prompts which appear on the television screen. You do not need to have programming ability, the program will reprogram itself.

AUTOMATIC VERTICAL SCALING: When you enter data the program determines what the appropriate vertical range for the vertical scale should be. A great deal of work is saved for you by this feature.

AUTOMATIC HORIZONTAL SCALING: The horizontal scales are automatically labeled for you with years, quarters, months, weeks, and days clearly specified for each graph you display or print.

EXAMPLE APPLICATIONS

BUSINESS

General ledger and other accounts:

Revenue

Expense

Income

Assets

Liabilities

Equity

Daily production

Sales

Reports with graph illustrations

Compare revenue to expenses

Compare any accounts

Compare any periods

HOBBIES

Game scores

Collections data

Gardening:

Yields

Daylight hours

Planting plans

Racing statistics

Stock market analysis

JOURNALISM

Graph illustrations to accompany stories

EDUCATION

- Research papers
- Comparison study
 - Population growth
 - GNP
 - Per capita income
 - Etc.

HOUSEHOLD

- Personal income
- Savings
- Checking account balances
- Household expenses
- Health and diet.
- Child's weight & height
- Personal weight vs. calories
- Compare income to savings
- Compare income to expenses

AGRICULTURE

- Climate
 - High and low temperatures
 - Day length
 - Wind speed
 - Organic soil amendments
 - Etc.

FEATURES & BENEFITS

Vertical bar graphs	Trends are easier to see in a vertical bar graph than in a table of numbers
Automatic vertical scaling	User does not have to set this parameter. Program automatically makes a graph in which user data conveniently fits.
Wide range of numbers accepted: +-.05E-33 to +-9.6E+36	Useful for scientific data
Automatically prints thousands, millions, billions, or trillions of units	Keeps the graph clear and easy to read
Horizontal and vertical zoom lens effects	Any portion of any graph can be enlarged on the screen. Permits readable resolution of .5% of full scale for accuracy when actual number values are wanted. Emphasizes the differences in the size of bars when their actual values are close. Permits display of as many as 24 bars to see trends, or as few as 4 bars for detail study.
Stores user data as 1 byte instead of 5	Greatly increases the value of user memory: 16K users have room for over 4,000 data entries instead of 800; 48K-64K users can store over 36,000 entries.
Data is grouped by user in named accounts	Up to 248 named accounts can be designated (with 48K-64K memory) by the user to permit ease of data access to sets of data.
Each account can have up to 5 subaccounts: Daily; Weekly; Monthly; Quarterly; and Yearly graphs are formatted automatically for each type of account so that the user can read the time corresponding to each bar.	Some accounts may need daily data entry as well as weekly, monthly, quarterly, and yearly entries. Other accounts may only need yearly entries. You have flexibility in choosing how many subaccounts are needed for each account.
Program contains about 5,000 bytes of machine code.	Graphs can be selected and displayed very rapidly.
Automatic load verification of program and all variables; the syntactical sum is updated before each save.	Protects every byte of your data and prints error message if a bad load.

Extensive documentation.

Listing the BASIC part of the program is a menu option. Screen displays spare bytes, the formula used to calculate spare bytes and the command required to return to the main menu.

Contains a "clock" that, at each advance by you, moves all data in affected accounts down memory one byte, creating space for new data as time progresses.

Program comes with demo data and a program that automatically starts a 1½ minute demonstration graph display after loading the program. Redisplay of the demonstration is a menu option.

"Compare graph" capabilities: Any graph can be stored in a workspace memory with a single keystroke. Then the same account at another time, or another account at the same time, can be selected and a compare graph (black and grey bars for the two data sets) can be displayed.

Random access to data for new data entry or correction. You can update any bar in any graph on the screen.

Copy graph on printer is a keyboard command.

Any line in the background grid may be changed to asterisks.

A 3.2K block of the BASIC program is automatically deleted after you decide it is no longer needed.

You do not need to be familiar with BASIC programming to utilize any feature of the program.

Programmers can get to the listing without using "break" or "stop" commands. Spare bytes feature works with any memory size.

Program is perpetual. No need to ever re-enter data. Program can always be up to date.

You can get a good idea of many of the features of the program without studying the documentation. You can also practice all the commands on the demonstration data. You can erase examples and produce your own graphs easily.

Permits analysis of changes within an account; for example, comparing 12 months of one year to the 12 months of another year; or comparing savings to salary over the same period.

It is very easy to make and change graphs.

Illustration of reports or news stories with graphs.

This allows you to emphasize a value and make it easy to see if a bar is above or below a reference value; for example, using 32°F as a "breakpoint" or critical value.

Frees up this space for more data and names.

NOTES & GLOSSARY

CAUTION: Never use the BASIC commands "RUN", "CLEAR", or "NEW" while using SUPERGRAPHS_{tm} demo program or your own set of graphs. If you accidentally use the "BREAK" key, press "GOTO 0(zero)" and then press ENTER to get back to the main menu. **Exception:** It is safe to "RUN" or "CLEAR" the APPLICATION program before you define your set of graphs but not after your graphs have been defined.

NOTE: In the following instructions quotation marks are used to identify specific keys to be pressed or to signify a specific title. For example: Press "3" means to "press the key labeled 3" (it does not mean to press the quote mark key).

COMMANDS: Each key is identified by its primary character and by what is printed in red on the key. Often the red designation is more descriptive of the function of the key in this program. If the "SHIFT" key must be pressed, you will see Shift; otherwise all commands require only a single key.

DEMONSTRATION PROGRAM (DEMO): Side A of the cassette. Contains sample graphs and a routine to automatically display some of them to show you many of the program features. It also contains a soundtrack on the cassette after the program.

APPLICATION PROGRAM: Side B of the cassette. Contains a routine that prompts you for the parameters that will define your set of graphs, and then creates a new set of graphs to your specifications.

ACCOUNTS and SUBACCOUNTS: "Account" refers to a named set of data. Each account has a number and may contain from 1 to 5 "subaccounts" which are daily, weekly, monthly, quarterly, and/or yearly graphs.

DEMO: "SIERRA TRAIL MAX ALTITUDE" is the name of account 1. The subaccounts are the daily, weekly, monthly, quarterly, and yearly graphs of account 1.

TIME LABELS: Refer to lines 16 - 18 of the graphs and indicate the period of time corresponding to each bar above them.

TIME SPAN: Refers to the amount of time available in each of the 5 types of subaccounts.

DEMO: The time span of all daily subaccounts is set at 3 months, while the time span of all monthly subaccounts is set at 24 months.

SYSTEM CLOCK: Refers to a routine within SUPERGRAPHS_{tm} that insures that the time labels of each graph correctly line up with the bars of data above them. The setting of the system clock determines the specific time labels that are displayed over the time span of each subaccount.

DEMO: The system clock is set for: SUN / WEEK 4 / MAR / 1983. Data cannot be entered for later periods without "advancing the system clock" (a menu option). The earliest period that can be displayed is determined by the time span of each type of subaccount.

LAST POINT: Is the latest period available in any graph for data entry or data display.

FIRST POINT: Is the earliest period available in any graph for data entry or data display.

**LOADING THE DEMONSTRATION PROGRAM
(CASSETTE SIDE A)**

Load time: 5 minutes, 36 seconds

(Refer to your TIMEX/SINCLAIR USER GUIDE on "Tape Storage" if you are unfamiliar with loading programs.)

Load by pressing the LOAD key, and spell out "GRAPH"

Press the ENTER key; and start playing "Cassette Side A" at normal volume.

When the program has loaded you will see

```
----- WELCOME TO SUPERGRAPHS -----
```

```
LET THE CASSETTE CONTINUE TO RUN
```

```
REMOVE THE PLUG FROM THE "EAR"
```

```
JACK OF THE CASSETTE PLAYER STOP
```

```
STANDBY FOR A MESSAGE
```

```
FROM CENTRAL CONTROL
```

After a delay of 2 minutes, the program automatically begins a video demonstration.

If you do not want to see the demonstration: Press and hold "0" (zero) at any time during the delay or during the demonstration display until you see the MAIN MENU.

DEMONSTRATION DISPLAY

After loading, the program automatically begins a demonstration.

IF YOU DO NOT WANT TO SEE THE DEMONSTRATION: Press and hold "0" (zero) at any time during the delay or during the demonstration display until you see the MAIN MENU.

IF YOU WISH TO SEE THE DEMONSTRATION: The soundtrack for the demonstration is recorded on the cassette immediately after the program. When the program has loaded **let the cassette continue running** and remove the plug in the "EAR" or "MON" or "EXT SPKR" jack of the player and you will hear a soundtrack on your cassette player..

After the soundtrack and video demonstration is complete (about 3½ minutes) you will see:

PRESS "0" FOR MAIN MENU

If you do not press 0(zero), the video demonstration will repeat automatically after about 5 seconds.

If you want to examine one of the graphs in the demonstration, you can stop the demonstration by pressing any key. The demonstration will remain still for as long as you press a key.

If you are looking at the MAIN MENU and want to view the demonstration again you can do so by pressing key number six: 6.

SUPERGRAPHS MAIN MENU

SELECT YOUR CHOICE BY NUMBER:

1. **DISPLAY** GRAPHS OF DATA
2. **LIST** THE ACCOUNTS ON FILE
3. **ADVANCE** THE SYSTEM CLOCK
4. **MONITORING**
5. **SAVE** ON CASSETTE
6. **VIDEO** DISPLAY

DEMO DISPLAY DESCRIPTION

- 1 "SIERRA TRAIL MAX ALTITUDE in thousands of feet" weekly
 - a. Graph is scrolled to the left to display from the 4th week in January, 1983.
 - b. A vertical zoom to permit greater resolution vertically.
 - c. Fewer bars are displayed for clarity of horizontal time labels.
 - d. A fast return to maximum number of bars of this graph.
 - e. Compare mode is selected to store this graph in memory while searching for a graph to compare to it.

- 2 "SIERRA DAILY PROGRESS in miles" weekly

This is the graph chosen for comparison with altitudes.

- 3 COMPARISON OF ALTITUDE VERSUS PROGRESS weekly

View the compare graph (if you do not see black and grey clearly then adjust, on your television, brightness, contrast and fine tuning).

- 4 "AVERAGE MEASURED WEIGHT in pounds" monthly

Notice that the bottom vertical scale value is not zero. The scale and position keys have been utilized to show detail between 120 and 150 pounds.

- 5 "DIET PLAN FOLLOWED in calories" monthly

The scale and position keys have been set to display detail from 2400 to 3000 calories.

- 6 "PERSONAL INCOME in dollars" quarterly

The amount 9600 is the largest integer that can be displayed vertically. If the value 10000 were entered into this account, it would be displayed as 10.0 and the bottom label would automatically be changed to "in thousands of dollars." Similarly, millions, billions, and trillions of units are automatically displayed as required. For larger numbers, and for numbers less than or equal to 9.6, scientific notation is used. (For example, 10,000 trillion gorps is displayed as 10.0 and the bottom label is "in gorps times 1E+15".

- 7 "PERSONAL SAVINGS IN BANK in thousands of dollars" quarterly

- 8 "AVG CHECKING ACCOUNT BALANCE in dollars" quarterly

- 9 "DEEP SPACE SIGNAL ET-0922 in db ref=1uv" quarterly
 - a. The value 0 (zero) can be at the top of the scale and a graph of all negative numbers displayed.
 - b. Characters can be displayed in reverse video in both the account name and the scale name.

10 "YOSEMITE AVG TEMPERATURE in degrees - F" monthly

Positive and negative bars are displayed above or below the 0 (zero) line.

11 "37th PARALLEL DAY LENGTH in hours" monthly

After focusing in on one year of months, the average day length of 12 hours is emphasized with a row of asterisks.

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MAIN MENU

You will see the main menu:

- a) After loading the demonstration program and pressing "0" (zero), or while viewing the demo and pressing and holding 0(zero);
- b) After you have entered all parameters in the applications program (cassette side B);
- c) Immediately after loading your own set of graphs.

```
===== SUPERGRAPHS MAIN MENU =====  
  
SELECT YOUR CHOICE BY NUMBER:  
  
1. DISP GRAPHs OF DATA  
2. LIST THE ACCOUNTS ON FILE  
3. ADVANCE THE SYSTEM CLOCK  
4. MODIFICATIONS  
5. SAVE ON CASSETTE  
6. EXIT DISPLAY
```

LIST THE ACCOUNTS ON FILE

The purpose of a list of accounts is to help you keep track of the number of accounts available and the name assigned to each account number. We suggest that you keep a list of accounts matching name and number. However, it is not difficult to scan the list of accounts since it takes only 12 seconds for the program to display 248 account names.

To list the accounts: From MAIN MENU, select option 2. You will see:

```
===== ACCOUNTS ON FILE =====
```

```
SELECT YOUR CHOICE BY NUMBER:
```

1. ~~LIST~~ ON SCREEN
2. ~~LIST~~ ON PRINTER

```
(PRESS "0" FOR MAIN MENU)
```

Then, if you press key "2", a list of all accounts will be sent to the printer and then the program will return to MAIN MENU.

Or, to view the list on screen, press key "1" after selecting option 2 from MAIN MENU. You will see a list of the first 8 accounts. Each time you press K(+) you will see the next 8 accounts while J(-) will let you see the 8 accounts with lower numbers. To return to MAIN MENU you must go to the top end of the list of accounts; so just press and hold the K(+) key until you see the MAIN MENU. Or, you may press and hold 0(zero) until you see the MAIN MENU.

DEMO: There are only 10 accounts in the demonstration program.

DISPLAY GRAPHS

To display graphs you need only:

Load the program (either the demonstration program or your own set of graphs).

Press "0" to see MAIN MENU if you loaded the demonstration program.

Press "1" to "DISPLAY GRAPHS OF DATA"

When you do this the same thing will happen every time: The Yearly subaccount of account # 1 will appear on the screen.

DEMO: In the demonstration program, there is only one bar because no other data has been entered in this subaccount.

The bottom of the screen contains the name of account # 1 and the units for the vertical scale.

COMMANDS: The commands follow. Each key is identified by it's primary character and by what is printed in red on the key. Often the red designation is more descriptive of the function of the key in this program. If the "SHIFT" key must be pressed, you will see Shift; otherwise all commands require only a single key.

INDEX OF KEY COMMANDS FOR
"DISPLAY GRAPHS OF DATA"

<u>KEY</u>		<u>PAGE</u>
ESCAPE KEY		
0 (DELETE)	RETURN TO MENU	27
ACCOUNT SELECTION KEYS		
L (=)	DISPLAY ACCOUNT NUMBER	27
K (+)	ACCOUNT SCAN UP	27
J (-)	ACCOUNT SCAN DOWN	27
SUBACCOUNT KEYS		27
Y (>=)	YEARLY PERIODS	
Q (""")	QUARTERLY PERIODS	
M (>)	MONTHLY PERIODS	
W (OR)	WEEKLY PERIODS	
D (SLOW)	DAILY PERIODS	
SCALE & POSITION KEYS		
HORIZONTAL SCALE & POSITION		
5 (←)	SCROLL LEFT	28
8 (→)	SCROLL RIGHT	28
O (")")	DISPLAY FEWER BARS	28
I ("(")	DISPLAY MORE BARS	28
VERTICAL SCALE & POSITION		
7 (↑)	DECREASE TOP VERTICAL SCALE VALUE	28
6 (↓)	INCREASE TOP VERTICAL SCALE VALUE	28
<u>SHIFT</u> 7 (↑)	HOLD TOP VALUE/ ZOOM OUT	28
<u>SHIFT</u> 6 (↓)	HOLD TOP VALUE/ ZOOM IN	28
H (**)	"HOME"/ RESTORE VERTICAL "WIDE ANGLE"	28

(continued)

INDEX OF KEY COMMANDS FOR: "DISPLAY GRAPHS OF DATA" (continued)

SPECIAL FEATURE KEYS

REFERENCE SETTING

B (*)	SET REFERENCE (*****) VALUE	31
N (<)	CANCEL REFERENCE (*****) VALUE	31

COMPARISONS OVER TIME OR AMONG ACCOUNTS

C (?)	COMPARE MODE; GRAPH IN TEMPORARY MEMORY	31
V (/)	VIEW COMPARE GRAPH	31
X (;)	RETURN TO COMPARE MODE from COMPARE GRAPH	32
	RETURN TO NORMAL MODE from COMPARE MODE	32

PRINTING

P (")	COPY GRAPH ON PRINTER	37
-------	-----------------------	----

All preceding commands affect display and printing only. The displayed results of the following commands will be stored in memory. When you select graphs later, any changes you have made with these keys will still exist.

ZERO SETTING

R (<=)	SET RELATIVE ZERO	38
A (STOP)	SET ABSOLUTE ZERO	38

DATA

<u>SHIFT</u> X (;) then: I (EDIT)	ERASE DATA IN SUBACCOUNT & RESET SCALE	38
<u>SHIFT</u> 1 (EDIT)	ENTER NEW DATA	38

VERTICAL SCALES/UNITS

<u>SHIFT</u> Z (:)	SET ALL NEGATIVE ACCOUNT	42
2 (AND)	SCALE LABEL SCAN DOWN	43
3 (THEN)	SCALE LABEL SCAN UP	43

COMMANDS
AVAILABLE WHEN YOU ARE USING GRAPHS

ESCAPE KEY

0 (DELETE) **RETURN TO MENU:** Unconditionally returns to main menu from display of any graph.

ACCOUNT SELECTION KEYS

Every account has a number and a name. You select accounts by scanning the accounts and stopping at the one you choose. The graph is displayed when you lift your finger off the key.

L (=) **DISPLAY ACCOUNT NUMBER:** Holding this key down allows you to see the number of the account on the screen. The account number appears next to the account name.

K (+) **ACCOUNT SCAN UP:** Holding this key allows you to move to accounts with higher account numbers.

J (-) **ACCOUNT SCAN DOWN:** Holding this key allows you to move to the accounts with lower numbers.

SUBACCOUNT KEYS

Every account has up to 5 subaccounts. You choose the subaccount you want by pressing one of the following keys.

The data in each subaccount is independent of the data in the other subaccounts. Data entered in one subaccount does not affect any other subaccount.

Y (>=)	YEARLY PERIODS
Q (""")	QUARTERLY PERIODS
M (>)	MONTHLY PERIODS
W (OR)	WEEKLY PERIODS
D (SLOW)	DAILY PERIODS

Under certain conditions the warning "NOT AN OPTION" may appear on your television screen when you press these keys:

1) If the subaccount does not exist for the selected account.

2) When selecting or viewing comparison graphs (see "SPECIAL FEATURES: COMPARISONS" page 31).

SCALE & POSITION KEYS

HORIZONTAL SCALE & POSITION

- 5 (←) **SCROLL LEFT:** Moves bars to the left. Hold the key down for fast scrolling. Action stops at the latest available entry point to the subaccount.

- 8 (→) **SCROLL RIGHT:** Moves bars to the right. Hold the key down for fast scrolling. Action stops at the earliest available data entry point to the subaccount.

- O ("") **DISPLAY FEWER BARS:** Holds the bar on the left side of the graph constant and reduces the maximum number of bars possible to view simultaneously (4 bars is the minimum the screen will display). Horizontal "zoom."

- I ("") **DISPLAY MORE BARS:** Holds the bar on the left side of the graph constant and increases the number of bars possible to view simultaneously (24 bars is the maximum the screen can hold at once). Horizontal "wide angle."

Trends are more clearly visible with more bars while fewer bars may be used to emphasize and isolate particular areas.

HOME KEY: Press the subaccount selection key corresponding to the subaccount you are viewing to return from changes made with the horizontal scale and position keys.

VERTICAL SCALE & POSITION

- 7 (↑) **DECREASE TOP VERTICAL SCALE VALUE/ MOVE BARS UP/:** Reduces the top value of the vertical scale. Action stops at 1/8th of full scale value.

- 6 (↓) **INCREASE TOP VERTICAL SCALE VALUE/ MOVE BARS DOWN/:** Does not affect the value of each step between vertical labels.

- SHIFT 7 (↑) **HOLD TOP VALUE/ ZOOM OUT:** Holds the top value constant and increases the value of each step between vertical labels.

- SHIFT 6 (↓) **HOLD TOP VALUE/ ZOOM IN:** Holds the top value constant and decreases the value of each step between vertical labels.

- H (**) **RESTORE VERTICAL SCALE TO ORIGINAL/ "WIDE ANGLE":** The "HOME" key for the vertical scale. An unconditional return to maximum vertical-scale settings.

SUPERGRAPHS by CARLOS & STAR

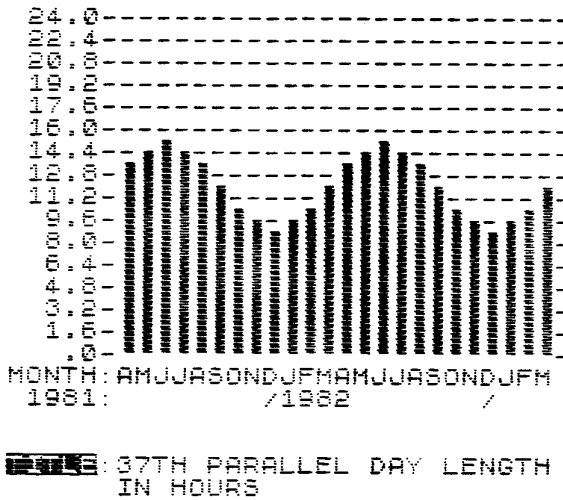
DEMO: Example of use of account selection, subaccount selection, and horizontal and vertical scale and position keys (with the "Demonstration Program" loaded in the computer).

1) With MAIN MENU on the screen, select option #1: "DISPLAY GRAPHS OF DATA"

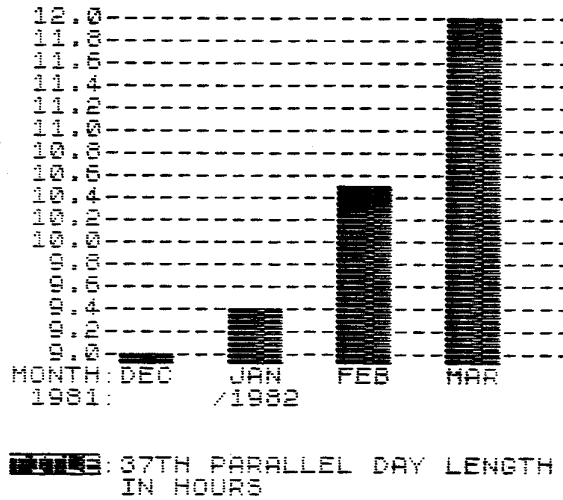
2) Press M(>) for monthly graphs.

3) Press and hold K(+) until you see account #9, "37th PARALLEL DAY LENGTH" (use J(-) if you go past it).

You will then see:



4) Now use the "scale and position keys" until you see this "zoom in" of the data from December 1981 to March 1982:



Notice that you can read data with an accuracy of 0.1 hours in a graph of 24 hours (this is a resolution of 6 minutes).

- 5) Here is one possible sequence of keystrokes that will accomplish the zoom in:
- 0() until action stops. (the letter "0", NOT "0" (ZERO))
 - 5(←) until December 1981 is the first bar (on the left).
(Use 8(→) for reverse if you pass up December 1981.)
 - 7(↑) until 12.0 is the top vertical label.
(Use 6(↓) for reverse if you pass 12.0.)
 - Shift 6(↓) until action stops.

To restore original graph at any point, press H(**) and then press M(>).

- 6) Find other sequences of keystrokes that will accomplish the same zoom in. Find other subaccounts of other accounts and practice "zooming in."

SPECIAL FEATURE KEYS

REFERENCE SETTING

You will find it useful at times to be able to mark a reference line on the screen. For example, the freezing point of water, or some target or "hurdle" you want to examine. You can mark such a reference or "breakpoint" easily with SUPERGRAPHS_{tm}.

- B (*) SET REFERENCE (*****) VALUE: Use the vertical positioning keys to move the value that you want to emphasize to the top of the screen. Then press this key. Then use the vertical positioning keys to view the results. Holding this key down will gradually move the reference line to the bottom of the graph.
- N (<) CANCEL REFERENCE (*****) VALUE: Press this key to cancel the reference value on the screen.

COMPARISONS OVER TIME OR AMONG ACCOUNTS

You should find this feature very useful and fun. With it you can compare a graph to itself at a different time period. And, you can compare a graph to any other graph. You can only compare graphs with identical periodicity (weeks to weeks, days to days, etc.). But, you can compare graphs with different vertical scales!

The process you use to achieve the comparison is quite simple: Bring one graph to the screen, press a key; then, bring the other graph to the screen and press a key. You will then see both graphs together - one in black and one in grey. To end the comparison merely press one key.

- C (?) COMPARE MODE; PUT GRAPH IN TEMPORARY MEMORY: When you press this key, the first 12 bars on the left of the screen are stored in memory. You will see "COMPARE MODE" appear on the screen. All the subaccount keys are disabled until you exit from this comparison mode. Next you must select and position the graph that you will compare with the bars you have temporarily stored with this "C" key.
- V (/) VIEW COMPARE GRAPH: When you have selected and positioned the graph to be compared to the first one selected press the V(iew) key. If you fail to press "C" prior to "V" the message "Not an option" will appear on the screen. The "V" key disables the account selection keys. (If you have difficulty distinguishing the black and grey bars, try adjusting the brightness, contrast and fine tuning of your television.)

- X (;) RETURN TO COMPARE MODE FROM COMPARE GRAPH: If you are viewing a comparison graph, pressing this key will return you to "COMPARE MODE". If you continue to press this key, you will clear the comparison mode and return to other program functions.
- X (;) RETURN TO NORMAL MODE FROM COMPARE MODE: If you are in "COMPARE MODE" pressing this key will return you to other program functions.

COMPARE GRAPH QUICK REFERENCE:

1. Select and position base graph on screen.
2. Press "C" key to store in temporary memory.
3. Select and position second graph on screen.
4. Press "V" key to view the comparison in black and grey.
To compare base graph with a third graph:
 5. Press "X" key to return to "compare mode."
 6. Repeat steps 3 and 4.
- To return to "normal" mode:
 7. Hold "X" key down until the words "COMPARE MODE" disappear.

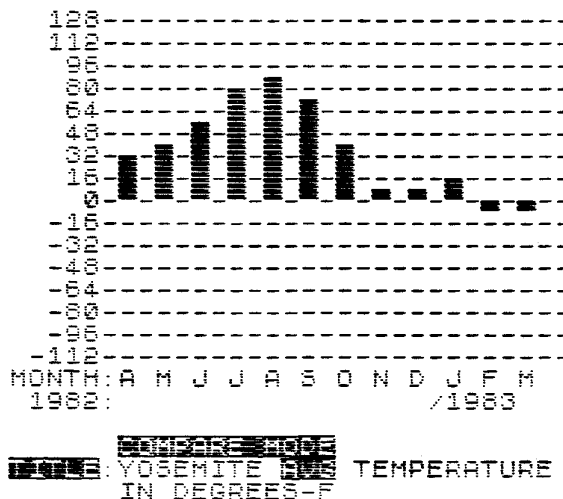
NOTES

- 1) You will see "NOT AN OPTION" if you try to compare a yearly subaccount to itself at another time period. You may compare yearly subaccounts to other yearly subaccounts.
- 2) In the other subaccounts, each scroll left or right will scroll a block of bars after you have pressed "C", compare mode. You can use this feature to quickly scan subaccounts with single keystrokes.

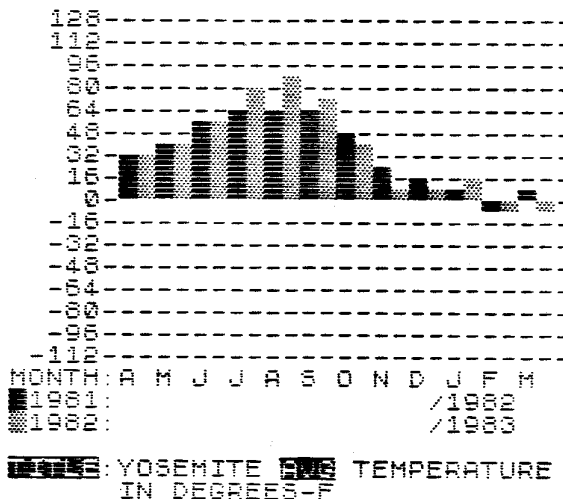
DEMO: Examples of comparison graphs (with an unaltered "Demonstration Program" loaded in the computer.

- 1) With MAIN MENU on the screen select option #1 "DISPLAY GRAPHS OF DATA".
- 2) M(>) for monthly graphs.
- 3) K(+) until you see account #10, "YOSEMITE TEMPERATURE".
- 4) J(←) until April, 1982 is the first bar (on the left).
(Use 8(→) for reverse if you pass April 1982.)
- 5) C(?) for compare mode.
- 6) 0(), one time. (the letter "0", NOT "0" (ZERO))
You will then see:

SUPERGRAPHS by CARLOS & STAR

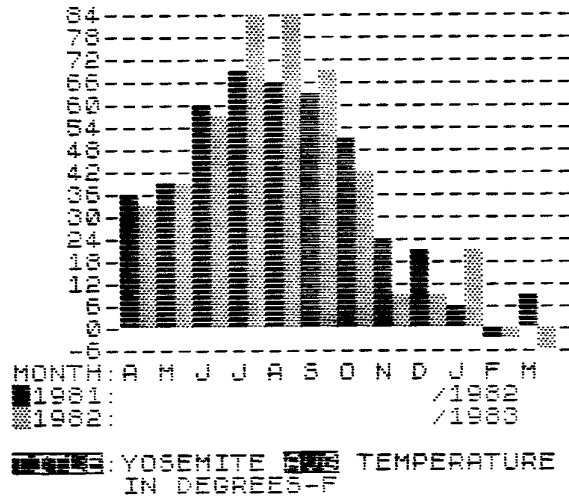


- 7) \rightarrow , one time. Notice that a full year of months scrolls to the left with only one press of the key. In the "compare mode" the program will "lock in" automatically.
 - 8) \leftarrow , one time. Notice a full year scroll back to April 1982.
 - 9) \leftarrow , hold down. Notice that you cannot go to April 1983 because it is outside the set date range of monthly subaccounts (in this set of graphs, monthly subaccounts are set for April 1981 through March 1983).
 - 10) \rightarrow until you lock in April 1981.
 - 11) \vee to view a compare graph.
 - 12) \square for 24 bar display.
- You will then see:



13) Use the horizontal and vertical scale and position keys to inspect this graph in detail. For example, set the top vertical scale value at 84. Hold this top value and set the bottom value to -6.

You will then see:



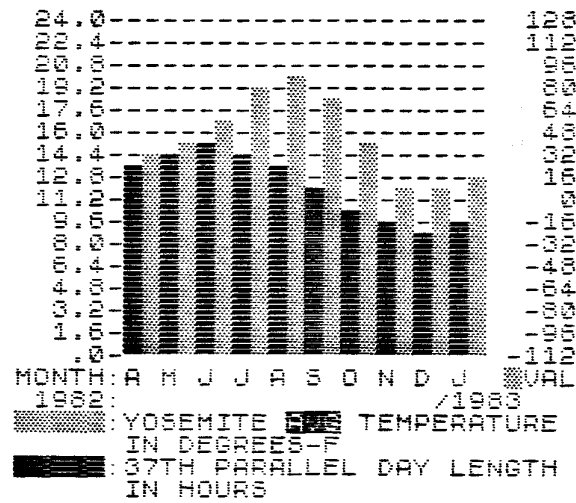
14) H(**), vertical home key.

15) Tap X(?) briefly to return to compare mode. (If nothing happened on the screen, tap the key again. On the other hand, if the black and grey graph is gone and you do not see: "COMPARE MODE", then you held the key down too long and you went past "compare mode" back into "normal mode." If you are in "normal mode" use 5(←) until April 1982 is the first bar and press C(?) to restore "compare mode" as it was after step 5 above.)

16) J(-), one time to see account #9, "37th PARALLEL DAY LENGTH."

(Use K(+) for reverse if you passed account #9.)

17) V(/) to view compare graph. The program will automatically set April 1982 as the first bar and display a comparison graph of day length versus temperature:



18) Notice that the day length peaks in June and the temperature peaks in August. Imagine the uses you can make of SUPERGRAPHStm comparison features.

OTHER KEYS AVAILABLE FROM "DISPLAY GRAPHS OF DATA" MENU OPTION

PRINTING KEY

P (") COPY GRAPH ON PRINTER: See PRINTING page 37.

DATA ENTRY & EDIT KEYS: See EDITING EXISTING ACCOUNTS, page 37.

The displayed results of these commands will be stored in memory. When you select graphs later, any changes you have made with these keys will still exist.

R (<=) SET RELATIVE ZERO

A (STOP) SET ABSOLUTE ZERO

SHIFT X (;) then:
1 (EDIT) ERASE DATA IN SUBACCOUNT ON SCREEN & RESET SCALE

1 (EDIT) ENTER NEW DATA

SHIFT Z (:) SET ALL NEGATIVE ACCOUNT

2 (AND) SCALE LABEL SCAN DOWN
3 (THEN) SCALE LABEL SCAN UP

PRINTING

P (") COPY GRAPH ON PRINTER: Pressing this key unconditionally sends a copy of the graph on the screen to the printer.

If you press the space bar or "break" key during printing, the program will stop. If this occurs, press C(ontinue) and then press ENTER key. This procedure will deposit you in "display graphs" mode (as though you had just selected option 1 from the main menu).

EDITING EXISTING ACCOUNTS

The editing functions that you can perform include the following:

Data

- Zero setting
- Deleting all data in a subaccount
- Changing existing data
- Adding new data within the set date range
- Adding new data beyond the last point in the existing date range

Vertical Scales/Units

- Setting negative-number subaccounts
- Selecting scale labels in an existing subaccount
- Changing the name of an existing scale label

Account name

- Changing the name of an account

The displayed results of the following commands will be stored in memory for the graph on screen and will affect what is displayed in the demo display. All commands in the "DISPLAY GRAPHS" section of this manual affect display only and are not stored permanently.

Each of the editing functions is discussed below:

DATA: ZERO SETTING: The zero value has different meanings depending on the context. For example, zero eggs usually indicates an absence of eggs while zero degrees fahrenheit does not refer to an absence. You can use the following keys to make your graphs more clear and useful.

R (<=) SET RELATIVE ZERO: Try this setting when zero is only a relative value; such as in temperature or sound measurement.

A (STOP) SET ABSOLUTE ZERO: Use this setting when zero indicates an absence of something.

DEMO: Select the monthly subaccount of account #10 and experiment with the zero setting keys.

DATA: DELETING ALL DATA IN A SUBACCOUNT: All data in any subaccount can be cleared and the vertical scale set to maximum sensitivity (which is $12.0E-33$ with a resolution of $.05E-33$).

Clearing a subaccount deletes all the the data you have entered in it previously. As a safety feature you must perform two separate steps before this occurs. This is designed to prevent accidental erasure of your data:

With the subaccount you wish to clear on the screen:

STEP 1: Press SHIFT and X(;

STEP 2: Press I(EDIT) (without the shift key).

DEMO: Select the yearly subaccount of account #1 and use this option. Then, to restore the subaccount, enter 14500 feet as the data for 1983. Press the A(STOP) key when you see the graph. (See next sections on changing and adding data within the set date range.)

DATA: CHANGING EXISTING DATA: In this program, changing existing data is merely a matter of entering new data in place of the existing data. See the next subsection.

DATA: ADDING NEW DATA WITHIN THE SET DATE RANGE: From MAIN MENU, select option 1. Then, using display control keys (account and subaccount selection and left and right scroll keys), position the data cell you are going to fill next to the vertical scale on the left of the screen. Then press the "ENTER NEW DATA" key:

SHIFT 1(EDIT)

ENTER NEW DATA: When you press this key the screen darkens momentarily and then returns with the account name, scale label, and date-period that you have selected.

You will see an L prompt at the bottom of the screen. This indicates the input mode. And the program will now wait for you to:

- 1) Type a number and then
- 2) press the ENTER key.

You will then see the screen darken again and return with your entry printed on the screen.

You are now offered the opportunity to correct any error in your entry or to escape back to MAIN MENU.

- (1) If you wish to change the entry just made, type "X" and press ENTER.
- (2) If you wish to escape to MAIN MENU without changing any data, type 0(zero) and press ENTER.
- (3) To complete data entry, just press ENTER. The screen will darken and then the graph will appear with your entry.

Note: The graph always will display the fewest possible bars on return from data entry. And the vertical scale and all bars will be automatically rescaled if needed to fit your data. The rescaling takes from several seconds to several minutes with subaccounts that have many bars. To save time in data entry, locate and enter the data points of greatest magnitude (positive and negative) first. This will set the scale for the subaccount and avoid waiting time for rescaling later on.

- * If you wish to enter any data point: When you see the graph, use the "5" or "8" key to position the time period for the next entry.

DATA: ADDING NEW DATA BEYOND THE LATEST DATE ("ADVANCE THE SYSTEM CLOCK):

OVERVIEW (Refer to glossary for definition of terms.)

Each graph subaccount in SUPERGRAPHS_{tm} has a fixed time span of whole months or years. Every subaccount of a specific type in a set of accounts (as in one storage file) has the same time span. That time span is determined before the set of graph accounts are created. When you desire different time spans for subaccounts in different accounts you will probably want to place those accounts in different sets of graph accounts. (See "Creating New Accounts" for method of specifying time spans and dates for sets of accounts.)

At the time a set of graph accounts are created, a system clock is set. This "clock" determines the time labels that you see when you display graphs of data. The system clock indicates the time of the latest date available for data entry in all subaccounts in a set of accounts.

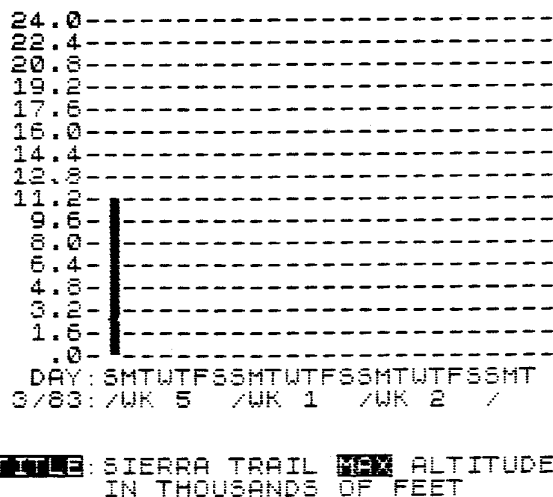
Example: If the clock is set for March, 1983 then that is the last month for which you can enter data in any monthly subaccount. To enter data for April, 1983 you must advance the system clock until it reads April, 1983.

IMPORTANT: The system clock advances day by day. All subaccounts of all types are tied together by the system clock. In order to advance a period of a month you advance the clock enough to take you into the next month. If the month you are moving into is January, for example, then you will also advance the quarterly and yearly accounts by one period. Because the time span of each subaccount is fixed, the first period in a subaccount is deleted when another period is added to the end by advancing the system clock. **YOU CAN LOSE DATA WHEN YOU ADVANCE THE SYSTEM CLOCK.**

The purpose of providing you with the ability to advance the system clock is to allow you to enter new data as time progresses. If you need to keep the earliest data points you need to save an archive copy on cassette before you advance the system clock.

DEMO EXAMPLE: Load the demo, press 0 for MAIN MENU.

- 1) Select "DISPLAY GRAPHS OF DATA" (option 1).
- 2) Press D(SLOW) for the daily subaccount of account 1.
- 3) Press 5(←) until action stops.
- 4) You will then see the following (if you have not altered this subaccount):



- 5) The single bar represents the latest date (last point) for daily subaccounts in this set of accounts: SUN / WEEK 4 / MAR / 1983. This is the setting of the system clock. You cannot scroll left any further, or enter any data beyond this date, unless you advance the system clock.
- 6) Press 8(→) until action stops at the first point, MON / WEEK 5 / DEC / 1982. This is the earliest period for daily subaccounts in this set of accounts. The time span of daily subaccounts is 3 months. When you advance the system clock, this first point will no longer be available for entry or display and the data for this period in all daily subaccounts will be deleted.
- 7) Find the first and last points of the weekly, monthly, quarterly, and yearly subaccounts (and write these down for later reference in this section).
- 8) Press 0(DELETE) for MAIN MENU.
- 9) Press 3(THEN) for "ADVANCE THE SYSTEM CLOCK." In the middle of the screen you will see:
SUN / WEEK 4 / MAR / 1983
- 10) Tap the A(STOP) key to advance the clock until you see:
MON / WEEK 1 / APR / 1983

There is no way to reverse the system clock, you can only advance it. Each advance erases any data at the first point of any subaccounts involved in the advance and advances the last point to provide a space for data entry.

In this example, the subaccounts are advanced as follows:

<u>SUBACCOUNT</u>	<u>ADVANCE</u>
Daily	8 days
Weekly	2 weeks
Monthly	1 month
Quarterly	1 quarter (to 2nd)
Yearly	No advance (still in 1983)

11) Press 0(DELETE) for MAIN MENU. Select "Display graphs of data" and confirm the changes to the subaccounts. (Compare to your notes on the old first and last points in item 7 above.)

QUICK REFERENCE:

- * Select option 3 "Advance the system clock" from MAIN MENU
- * Press A(STOP) key to advance the clock
- * Press 0(DELETE) key to return to MAIN MENU
- * **WARNING:** You cannot reverse or "back up" the system clock. And, when you advance it you may **lose data** at the beginning of any or all of your subaccounts! If you accidentally erase data by advancing the system clock, just reload the cassette tape to recover the data.
- * When you need to advance the system clock, do it immediately after loading the cassette tape, before you enter a lot of data. That way, if you advance too far by mistake, all you have to do is reload the tape (you won't have to re-enter any data).

VERTICAL SCALES/UNITS: SETTING NEGATIVE NUMBER SUBACCOUNTS:

When all the data in a subaccount will have values of zero or less, you may want to create a "negative number subaccount" so that the zero line appears at the top of the graph. (See demo account #8 as an example.)

- * From MAIN MENU, select option 1. Then use:

SHIFT Z(:) SET ALL NEGATIVE SUBACCOUNT: Pressing this key will place the zero line at the top of the screen. Pressing the key again restores the zero line to the bottom of the screen.

You can use the account and subaccount selection keys to make any/all of your graphs contain all negative numbers.

NOTE: You will see "NOT AN OPTION" if you use this key on a subaccount containing both positive and negative numbers (for example, the monthly subaccount of account #10 in the demonstration files). To make an account with both positive and negative numbers all negative you must first delete all data in the subaccount (use Shift X and then press 1(EDIT) without Shift); then use Shift Z(:) to make the subaccount all negative.

VERTICAL SCALES/UNITS: SELECTING SCALE LABEL IN EXISTING ACCOUNT:

- * From MAIN MENU, select option 1, "DISPLAY GRAPHS OF DATA"
- * Use the account and subaccount selection keys to find the subaccount to be changed.
- * You can assign a scale label to this subaccount by using:

2 (AND) SCALE LABEL SCAN DOWN: press "2".
3 (THEN) SCALE LABEL SCAN UP: press "3".
- * If none of the 10 labels suit your purpose, you can change any name in the file (see next section).

VERTICAL SCALES/UNITS: CHANGING THE NAME OF AN EXISTING SCALE LABEL:

The program has a file of 10 scale names. You can change the names as you wish.

- * Select option 4 from MAIN MENU.
- * Select option 2 from "MODIFICATIONS" menu: "Change a scale name"

DEMO: In the demo you will see:

```
MODIFICATIONS
SELECT YOUR CHOICE BY NUMBER:
0. DOLLARS
1. HOURS
2. FEET
3. MILES
4. CALORIES
5. POUNDS
6. PEOPLE
7. ACRES
8. DEGREES-F
9. DBREF-1000
```

This is the label file, a list of unit/scale names available for any graph.

TO MAKE CHANGES: Select the label to be changed by pressing its file number. Type in the label you desire, then press "ENTER." (If you decide not to make a change at this point just press ENTER after selecting any label.) See the next section on account names for tips on what you may enter when you see the "L" at the bottom of the screen.

Be careful when making changes because every account using the old label will automatically have the new label after you change the label file.

ACCOUNT NAME: CHANGING NAME OF AN EXISTING ACCOUNT: Proceed by:

- * From MAIN MENU, select option 4.
- * Select option 1 of the "MODIFICATIONS" menu.
- * Notice the L prompt at the bottom of the screen.
- * Type the number of the account you wish to rename.
 - * If you make a typing error, press SHIFT 0(DELETE) to backspace and delete the error.
- * Press the ENTER key.
 - * If you enter a number for which there is no account, e.g.,249, you will merely see the L prompt again.
 - * If you do not recall the account number you want, press 0(zero) and ENTER keys to return to MAIN MENU (and option 2 for listing).
- * Observe the current name of the account you identified by number.
- * And, observe that the "L" prompt now has quotation marks around it.
- * Now you may type in a new name.
 - * Maximum of 25 characters.
 - Or, if you wish to keep the same name just press ENTER key.
 - * You may use any of the graphics or inverse characters (type shift 9 to obtain the G prompt - graphics mode; type it again to obtain the "L" prompt).
 - * Do not use the F function mode to type in keywords like "CODE" or "NOT"; they will not be printed on the graphs or the list of accounts.
 - * Correct a typing error as stated above.
 - * If you erase the quotation marks, you must retype them or you will see an S(yntax error) prompt; and, you will be stuck in this mode until you replace the quotation marks.
 - * Use SHIFT 5 or 8 to move the cursor around without deleting characters.
- * Press ENTER to indicate you are finished writing the new name.
- * Observe the new name you entered.
- * Press ENTER to continue.
- * Type in another account number if you wish.
- * Or, press 0 (zero) and ENTER when you are finished.

CREATING NEW ACCOUNTS

OVERVIEW

The purpose of SUPERGRAPHS_{tm} is to allow you to study your data in bar graph form. After you have become familiar with the demonstration program, you will want to use the features available to you on your own graphs of data. If the demo graphs, or your own accounts, can be adapted to your application, you can delete all data in the individual subaccounts and enter your new data. It is more likely that you will want a different time span and more accounts. To create a totally new set of accounts for yourself, load the "APPLICATIONS PROGRAM" on side B of the cassette and create a custom set of accounts for any of your possible applications.

The "APPLICATION PROGRAM" is designed to be used each time you wish to create a new set of graphs. It permits you to specify all of the following parameters (**within available memory limitations**) by following prompts that appear on the screen:

Number of subaccounts:

- 0 to 248 daily subaccounts
- 0 to 248 weekly subaccounts
- 0 to 248 monthly subaccounts
- 0 to 248 quarterly subaccounts
- 1 to 248 yearly subaccounts

5 to 7 days per week for each daily subaccount

Time span:

- Number of months for daily subaccounts (if any)
- Number of months for weekly subaccounts (if any)
- Number of years for monthly subaccounts (if any)
- Number of years for quarterly subaccounts (if any)
- Number of years for yearly subaccount(s)

Setting the system clock:

- Any year from 0 to 9999
- Any month from 1 (January) to 12 (December)

After you have entered all parameters, the program routine which prompts you for that input is deleted from memory to make more room for your graphs. (The routine is always available to you by reloading the APPLICATIONS program.) Your accounts are then set up as you specified, and the MAIN MENU appears.

GROUND RULES

Subaccounts: Every account file must have a yearly account. If the account has monthly subaccounts it must also have quarterly subaccounts. Similarly for weekly and daily subaccounts: Any account with weekly subaccounts must have monthly, quarterly, and yearly subaccounts. However, you need not place data in any subaccount.

Order of filing accounts: The list of "ACCOUNTS ON FILE" in your set of accounts will always start with the group of accounts with the most subaccounts first and will continue by groups of accounts with fewer and fewer subaccounts.

OPERATION

Load "APPLICATION PROGRAM" - side B of cassette - by typing: LOAD "GRAPH". (If you plan to use more than 16K memory, or to use utilities, set them up before loading "GRAPH" - minimum RAMTOP=30928.)

Upon loading you will see:

```
===== WELCOME TO SUPERGRAPHS =====
```

REFER TO THE USER GUIDE SECTION:

"CREATING NEW ACCOUNTS"

1. MAKE A LIST OF YOUR ACCOUNTS.
2. DETERMINE THE NUMBER OF DAILY, WEEKLY, MONTHLY, QUARTERLY, AND YEARLY SUB-ACCOUNTS REQUIRED.
3. CHOOSE THE TIME SPAN (IN MONTHS OR YEARS) FOR EACH SUB-ACCOUNT.

(PRESS "ENTER" TO CONTINUE)

At any time while entering parameters you are able to choose to start all over and see this screen again.

1. MAKE A LIST ...: Start the list of accounts with the group of accounts with the most subaccounts. Continue with accounts with next fewer number of subaccounts. (See "Ground rules" above and sample list page 50.)
2. DETERMINE THE NUMBER ...: Be sure to include the subaccounts which are required to be in each account (see "ground rules", page 45).
3. CHOOSE THE TIME SPAN ...: Daily and weekly in months; monthly, quarterly and yearly in years. If you want daily subaccounts, you can choose 5, 6 or 7 days per week.

After entering all of these parameters you will see a design aid showing what you have selected and the space required to achieve it. When the set of demo graphs were created the design aid appeared as follows (there is a sample worksheet at the end of this section - page 50; enter the parameters in the middle of that page to recreate the following design aid for yourself):

Each subaccount uses 1 byte for each bar of data plus 6 bytes for general information about the subaccount (scales, units, etc.).

```

WELCOME TO SUPERGRAPHS
=====
TYPE      SIZE * BYTES BAR = TOTAL
-----
DAILY     2   * 111 = 222
WEEKLY    10  * 31  = 310
MONTHLY   10  * 30  = 300
QUARTERLY 10  * 30  = 300
YEARLY    10  * 30  = 300
NAMES     10  * 25  = 250
=====
TOTAL BYTES REQUESTED= 1682
OF BYTES AVAILABLE= 5189

(PRESS "ENTER" TO CONTINUE)
PRESS "X"-START OVER;"P"-PRINTER
    
```

The purpose of this design aid is to allow you to compare the bytes needed by your parameters to actual bytes available. You can reduce your parameters if your request exceeds available memory or increase them if there is room for expanded dimensions. Press "P" to send a copy of the screen to the printer.

If your request exceeds available memory, you must press "X" to start over and reenter reduced parameters. Check your list of accounts and see which may need fewer subaccounts or if the subaccount time spans can be reduced.

(Bytes available is automatically calculated for any "RAMTOP" present - see Timex/Sinclair user guide - and it is safe to use all bytes available as displayed in the design aid. If you have more than a 16K memory pack, be sure to "POKE RAMTOP" and "NEW" before loading the APPLICATIONS PROGRAM. If you have a 16K memory and use "QSAVE_{tm}," "FASTLOAD_{tm}," or other utilities, load them first, enter "NEW" and then load the SUPERGRAPHS_{tm} APPLICATIONS PROGRAM. The "bytes available" will automatically reflect the actual situation. (Minimum recommended RAMTOP is 30928.)

When your parameters fit in available memory you may press "ENTER" to complete the process of "CREATING NEW ACCOUNTS."

You will be prompted to enter the current year and then the current month. (Or, if your data is in the past or the future you may use any year from 0 to 9999.)

You will then see:

WELCOME TO SUPERGRAPHS

SYSTEM IS READY TO CREATE
YOUR ACCOUNTS AS REQUESTED

THIS IS YOUR ~~LAST~~ CHANCE
TO CHANGE YOUR REQUEST

(PRESS "ENTER" TO CONTINUE)
(OR ENTER "X" TO START ALL OVER)

If you press "ENTER," the screen will darken for a few seconds, and then you will see the MAIN MENU.

OTHER

Once you have created a set of graph accounts that fits your application use option 4, "MODIFICATIONS," from MAIN MENU to enter the names of the accounts (accounts with the most subaccounts are first on the list) and to specify any unit/scale label names not available in the demo.

Use option 3, "ADVANCE THE SYSTEM CLOCK," from MAIN MENU to set exact day and week of the month and year you specified.

Use option 1, "DISPLAY GRAPHS OF DATA," from MAIN MENU to enter data for your graphs (see "Editing Existing Accounts" in this user manual). Select the unit/scale label for each graph. Select absolute or relative zero for each graph.

If at any time you cannot recall the parameters that you have set for your graphs, there is an easy way for you to recover that information:

1. Total number of accounts: Use MAIN MENU option of "LIST THE ACCOUNTS ON FILE" to see how many accounts you have.
2. Number of daily, weekly, monthly, quarterly, and yearly subaccounts created: Select "DISPLAY GRAPHS OF DATA" from MAIN MENU. This will bring the yearly subaccount of account number 1 to the screen.

- a. Press "D(SLOW)"
 - i. If "NOT AN OPTION" appears it means there are no daily subaccounts; go to next step.
 - ii. Otherwise press and hold "K(+)" until action stops. The number in the title line is the total number of daily subaccounts.
 - b. Press "W(OR)"
 - i. If "NOT AN OPTION" appears it means there are no weekly subaccounts; go to next step.
 - ii. Otherwise press and hold "K(+)" until action stops. The number in the title line is the total number of weekly subaccounts.
 - c. Press "M(>)", "Q('')" and "Y(>=)" and follow the procedure above - skipping to the next subaccount if "NOT AN OPTION" appears; otherwise pressing and holding "K(+)" to read the total number of subaccounts of the chosen category.
3. Time span (in months or years) for each subaccount: Select "DISPLAY GRAPHS OF DATA" from MAIN MENU (you will see the yearly subaccount of account 1 on the screen). Use "5(←)" until action stops. Observe the date of the first bar (next to the vertical scale). Next use "8(→)" until action stops and observe date of the first bar. This procedure shows you the time span of all yearly subaccounts. Do the same with the other subaccounts to find the time span for any of them.

SAMPLE WORKSHEET: LIST OF DEMO ACCOUNTS

ACCOUNT #	ACCOUNT NAME	SUBACCOUNTS
1	SIERRA TRAIL MAX ALTITUDE	D,W,M,Q,Y
2	SIERRA DAILY PROGRESS	D,W,M,Q,Y
3	AVERAGE MEASURED WEIGHT	W,M,Q,Y
4	DIET PLAN FOLLOWED	W,M,Q,Y
5	PERSONAL INCOME	W,M,Q,Y
6	PERSONAL SAVINGS IN BANK	W,M,Q,Y
7	AVG CHECKING ACCT BALANCE	W,M,Q,Y
8	DEEP SPACE SIGNAL ET-0922	W,M,Q,Y
9	37 th PARALLEL DAY LENGTH	W,M,Q,Y
10	YOSEMITE <u>AVG</u> TEMPERATURE	W,M,Q,Y

SUBACCOUNT TYPE	NUMBER OF SUBACCOUNTS	SUBACCOUNT TIME SPAN
Daily	2	3 months (7 days/week)
Weekly	10	5 months
Monthly	10	2 years
Quarterly	10	6 years
Yearly	10	24 years

SYSTEM CLOCK INITIAL SETTING:

YEAR: 1983

MONTH: 3 (March)

SAVING ON CASSETTE

TO **SAVE** PROGRAM AND DATA, START
RECORDING AND THEN PRESS "S"

(PRESS "0" FOR MAIN MENU)

When you select this option you may return to MAIN MENU without saving.

If you press the "S" key the program will save with the name "GRAPH."

Always use LOAD "GRAPH" to load SUPERGRAPHS_{tm}.

Protect your data by making backup copies of your graphs on cassette.

TECHNICAL ISSUES: Modifications to cassette saving - automatic checksum:

If you want to modify the name by which the program saves or loads, or you want to use SUPERGRAPHS_{tm} with a fast saving/loading utility, you must list the program and edit some lines. To accomplish this, select option 4 "MODIFICATIONS" from MAIN MENU. Then select option 3 "LIST THE PROGRAM." And, press "LIST 7100, ENTER" keys. (Alternatively, if you want to modify the applications program while keeping it intact, just load it, press BREAK, then FAST, then ENTER, and LIST 7100, ENTER.)

You will then see:

```

7100CLS
7105 REM TYPE AN INVERSE LETTER
      FOR THE LAST LETTER OF
      ANY PROGRAM NAME
7110 REM OTHERWISE, YOU WILL GET
      THE "BAD LOAD" MESSAGE
      AFTER EACH SAVE OR QSAVE
7115 RAND USR VAL "18413"
7120 SAVE "GRAPH"
7130 IF VAL "PEEK 16507+256*PEEK
      16506"=USR VAL "20270" THEN GOT
      O VAL "8"
7140 PRINT "BAD LOAD - TRY AGAIN"

```

TO MODIFY THE NAME OF THE PROGRAM: type the following:

```
7120 SAVE "YOUR PROGRAM NAME"
```

Then press ENTER.

If you do not type an inverse letter for the last letter of the program name, you will see the "BAD LOAD" prompt every time you subsequently load the program and save this way. The reason is that SUPERGRAPHS_{tm} automatically performs a 16-bit checksum of all the bytes in the program and data areas of memory. The TIMEX/SINCLAIR always produces the inverse letter as the last letter during "SAVE" and the result would be different checksums before and after the save. The command in line 7115 (see listing) stores the checksum and must be the last procedure of the program execution before the "SAVE" output no matter what save method you use.

To modify for use with Q-SAVE_{tm} loaded:

- 1) Use demo or your own set of graphs.
- 2) List the program (option 3 of the modifications menu) Type 7120 RAND USR 8683 (64K Q-SAVE_{tm}) or 32383 (16K Q-SAVE_{tm}). Do not use PRINT USR. Press ENTER.

- 3) Type GOTO 0(zero) to return to MAIN MENU and save by menu option 5.
- 4) To "verify" after save, select "modifications" and then "list the program" (avoid the habit of using BREAK). Then type "PRINT USR (verify address)" ENTER and start tape .
- 5) To load, use RAND USR rather than PRINT USR or you will see the "Bad Load" message.

To Q-SAVE_{tm} the intact "APPLICATIONS PROGRAM" (side B):

- 1) Load it and press BREAK (okay here since you are not breaking into a subroutine). Enter FAST.
- 2) Type "7120 RAND USR 8683" (64K Q-SAVE) or "32383" (16K Q-SAVE_{tm}). Do not use PRINT USR. Press ENTER.
- 3) To "save"; type "GOTO 7100", start recording and press ENTER.
- 4) To verify after saving, press BREAK, then type "PRINT USR (verify address)", ENTER.
- 5) To load, use "RAND USR" rather than "PRINT USR" or you will get the "Bad Load" error message.

To modify for use with FASTLOAD_{tm} Loaded:

- 1) Using the demo or your own set of graphs:
- 2) Modify or add lines 7100 to 7260:

```

7100 CLS
7102 GOTO VAL "7200"
7105 REM TYPE AN INVERSE LETTER
      FOR THE LAST LETTER OF
      ANY PROGRAM NAME
7110 REM OTHERWISE, YOU WILL GET
      THE "BAD LOAD" MESSAGE
      AFTER EACH SAVE OR LOAD
7115 RAND USR VAL "18413"
7120 SAVE "GRAPH"
7130 IF VAL "PEEK 16507+256*PEEK
      16508"=USR VAL "20270" THEN GOT
      O VAL "8"
7140 PRINT "BAD LOAD - TRY AGAIN"
      "
7150 STOP
7200 DIM T$(VAL "24")
7210 LET T#="-"
7220 RAND USR VAL "32685"
7230 LET T#=" GRAPH"
7240 RAND USR VAL "18413"
7250 RAND USR VAL "32685"
7260 GOTO VAL "7130"

```

- 3) For 64K FASTLOAD_{tm}, lines 7220 and 7250 will be RAND USR 8192.
- 4) Type GOTO 0 and save as a menu option.

To FASTLOAD_{tm} the intact APPLICATIONS PROGRAM:

- 1) Load "APPLICATIONS"; BREAK; FAST; ENTER.
- 2) Modify or add lines 7100 to 7260 as above.
- 3) To save, type GOTO 7100; start recording and press ENTER.

LISTING THE PROGRAM

When this option is selected from the modifications menu, the screen displays spare bytes and the formula used to derive spare bytes. (See the chapter on "system variables" in your Timex/Sinclair manual for more information on "RAMTOP" and "E-line.") The "260 byte safety" represents the amount of memory needed for the workspace and the stacks (see the chapter on organization of storage).

If you want to get back to the MAIN MENU use GOTO 0(zero) keys. Simply type "G." Because the computer is in the "command" mode, "GOTO" will appear on the bottom of the screen. Then press the 0(zero) key and "ENTER" to reach MAIN MENU.

CAUTION: Never use the commands RUN, CLEAR or NEW. If you do, important sections of memory will be erased. Do not try to continue using the program, it will not work. Start all over by reloading the cassette.

Do not attempt to "edit" line 2, the copyright notice. You will lose control of the program and have to start all over.

To inspect the program listing, use the command "LIST" (press the "K" and "ENTER" keys). The first line of the program is over 5000 bytes long and contains the program's machine code, system variables, and label strings. Use "LIST" "n" where "n" is any integer up to 9999 to look at other sections of the program. For example with the demo program, "LIST 2" will result in a display of lines 2 through 900, "LIST 900" will result in a display of lines 900 through 1100.

Use "LLIST" or "LLIST n" if you wish to write the listing on your printer.

```

MODIFICATIONS

RAMTOP-E#LINE-260 BYTE SAFETY=
2793 SPARE BYTES

(USE GOTO 0 TO RETURN TO MENU)

5 GOTO VAL "900"
10 SLOW
20 PRINT " WELCOME TO SUPER
GRAPHICS" ,,,, "LET THE CASSET
TE CONTINUE TO RUN" ,,,, "REMOVE T
HE PLUG FROM THE ""EAR"" ,,,, "JAC
K OF THE CASSETTE PLAYER ""
,,, "STANDBY FOR A MESSAGE" ,,,, "F
ROM CENTRAL CONTROL"
30 LET B=VAL "2120"
35 FOR L=VAL "1" TO B

```


<u>SPECIFICATIONS</u>	<u>MINIMUM</u>	<u>MAXIMUM</u>
RAMTOP Range		
Demonstration program	29,966	65,535
Applications program	30,928	65,535
Number of accounts	1	248
Number of subaccounts for <u>each</u> account (Daily, Weekly, Monthly, Quarterly, Yearly)	1	5
Characters in each account name	-	25
Selectable scale names for each account (Dollars, Miles, Calories, etc.)(Program allows full flexibility.)	-	10
Length of each subaccount in bytes = 6 bytes plus	2	37,925
Input range (graph display is auto ranging)	$\pm .05E-33$	$\pm 9.6E36$
Vertical scale magnification	1x	8x
Horizontal display, in number of bars	4	24
Bytes of storage for each user input (a 5:1 conversion)	-	1
Bytes occupied by basic program lines that are automatically deleted after creating new accounts		3,287
Bytes occupied by the 1 REM line: Demo program		5,426
Applications program		5,141
Total bytes available for user data and names		
With 16K RAM		5,189
With 48-64K RAM		37,956