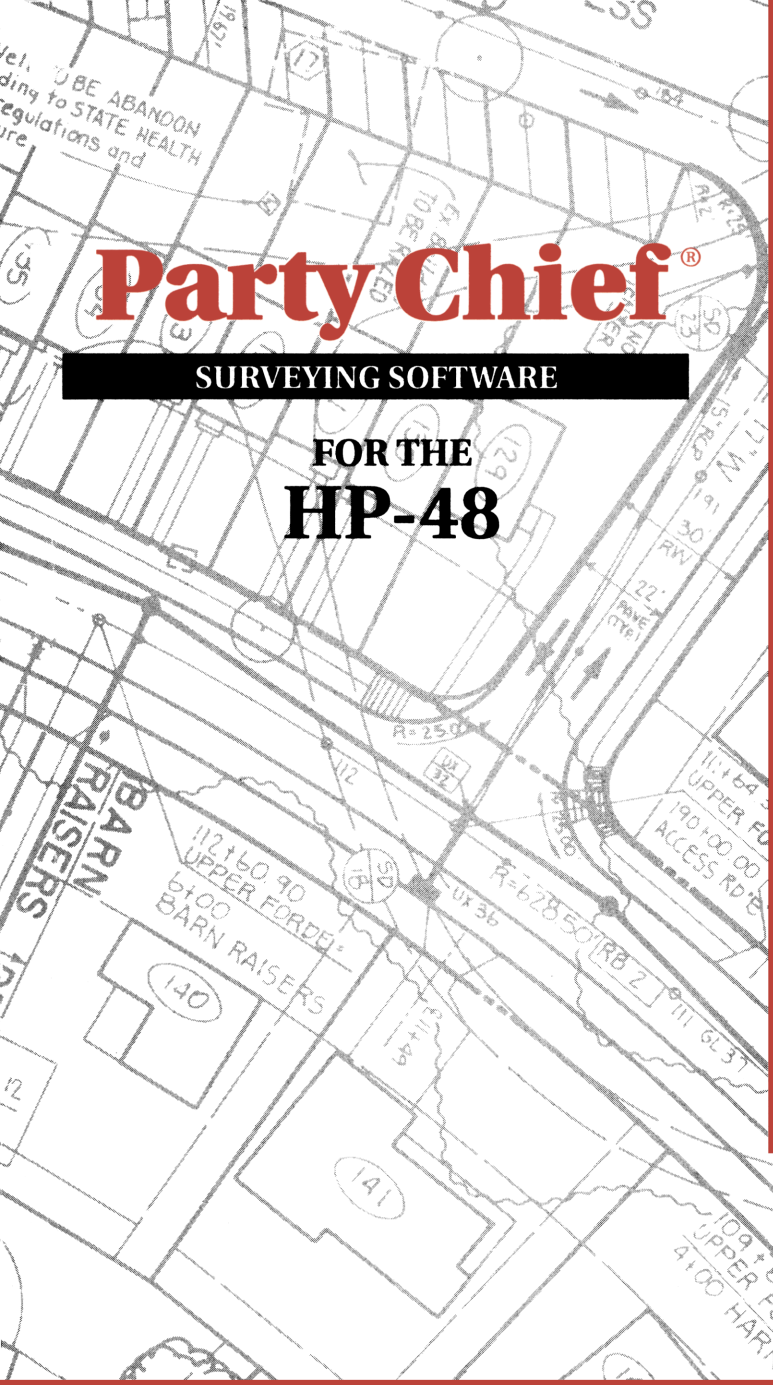
Party Chief®

SURVEYING SOFTWARE

FOR THE HP-48

REFERENCE MANUAL



RAMSS

Reference Manual

Version 4.0

54 Winters Street
Westminster, Maryland 21157
1-410-876-7267

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Introduction

The typical survey crew of today has to be able to handle large amounts of data in the field. The way you use that data is what **Party Chief** is all about. The software is open ended and is capable of working the way you want it to work. It was designed to allow you to work in both Beginner and Advanced modes.

Another point to keep in mind is that you the user are in control of the computer. The software is there to assist you. There is no beaten path for you to follow. Learn how each program works independently and then incorporate programs to solve the problem at hand. We're sure you will find new methods of solving problems in more efficient ways. It's this type of thinking and innovation that separates our software from the rest.

Since the demand on surveyors is growing, our software is growing too. We are always looking for solutions to solve today's and tomorrow's problems. Give us a call or write if you are interested in getting those problems resolved.

Basic Cogo Versus Advanced Cogo

Differences between the two cogo packages include the ability to store Baseline, Gradeline, Template, and Gradesheet files, and the Match, Rotate and Translate, and Compass Rule programs included with Advanced Cogo. These features help to reduce errors and provide all the Cogo tools the professional needs to get the job done. By simply turning on a few files you can literally stake out roads, sewer lines, water lines, etc, by just entering a station and offset. The Gradesheet program not only saves time, but allows you to quickly verify stakeouts by printing a Full report. A Full report prints the computed and raw data for each point staked out. It then computes the horizontal error for each point whether it be a station and offset or a point from within a file.

Both the Basic and Advanced cogo programs are documented in this manual.

Technical Support & Software Updates

RAMSS Inc. offers free technical support and software updates (if any) for the first year after the date of purchase.

After the first year you can continue to receive software updates as they become available. There will be a small update fee to cover mailing and re-programming cost.

To Contact Us:

Before contacting us with a problem you should try to isolate the problem you're having so that we can get you up and running in the least amount of time possible.

Also, if your company has more than one copy of **Party Chief** then one person from within the company should be in charge of contacting us. This helps maintain a common ground of communication.

Our office hours are between 9:00 am and 6:00 pm EST Monday through Friday.

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How To Use This Manual

Before you Start

Before running the software you should read this entire manual thoroughly. Make sure our ROM module is installed in port 1 and a RAM card is installed in port 2.

Things To Do Before Running The Software

1. Read this entire manual thoroughly.
2. Define the owner of the computer.
3. Read through the **CONFIGURE** program.
4. Become familiar with the overlay.

Mode of Operation

There are two modes of operation available. To switch between modes, use the CONFIG program. When advanced mode is OFF the programs TRAVERSE, INVERSE, SIDESHOTS, STAKE-OUT TIE and POINT-POINT will prompt for data. When turned ON these programs will run with the data on the stack prior to hitting the program key.

Entering Alpha Text (When Party Chief is active)

The way you enter an alpha string to the stack is by hitting the [α] (ALPHA) key. This text can be used for point descriptions.

Resetting The Computer

When you reset the computer it resets the flags used by **Party Chief**. You should always reset the computer if your unit isn't behaving correctly.
Some commands that will reset the computer are:
RESET, RAMSS, PC48, REBOOT and **HELP.**

How To Use This Manual

The Stack

The HP48 uses a stack to do all mathematical computations. The size of the stack is limited only by the memory of the HP48 itself. You will most likely only use the first four levels which are numbered 1 to 4 on the left hand side of the display. Most of the coordinate geometry programs work with information that is on the stack. The ENTER key places numeric and alpha data on the stack. See the HP48 owner's manual volume I, chapter 3 for more detailed information pertaining to the stack.

ROLL↑ Rolls the stack up.

ROLL↓ Rolls the stack down.

SWAP Swaps levels 1 and 2.

← Drops off one level from the stack.

→ CLEAR Clears the entire stack.

Softkeys

Softkeys are the white keys A through F at the top of the keyboard. They are used in conjunction with the bottom line of the display. The softkeys are used to display prompts and program options. Pressing a softkey executes that program or option.

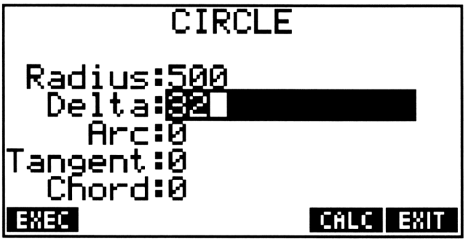
Menus

Programs that display menus allow you to select an item by hitting one of the numeric keys (0-9). Some menus may also redefine the softkeys to allow you to select another menu or an item displayed. To exit menus simply hit the EXIT key displayed at the far right hand side of the softkeys.

How To Use This Manual

Input Screens

Input screens allow you to input data for all the variables associated with the program.



While using the input screens you can use the following features.

ON	Return the original number.
DEL	Delete the current number.
▼	Scroll down one number.
▲	Scroll up one number.
+/-	Change the sign of number.
ENTER	Enter the current number and scroll down.
EXEC	Will execute the program.
CALC	Will allow you to alter the number using the calculator function.
EXIT	Will exit the input screen.

How To Use This Manual

Key Assignments (Using the overlay)

The overlay you received with the software allows you to access programs by hitting a single key or sequence of keys.

All programs printed in black are accessed by hitting the key directly below it.

To access a program printed in red you must hit the left shift key and then the key directly below it.

To access programs printed in blue hit the right shift key and then the key directly below it.

Bearings

Some programs use bearings and or angles to compute data. Bearings are defined by entering the quadrant first, and then the angle.
Quadrants; NE=10 SE=20 SW=30 NW=40
Examples of entering bearings:

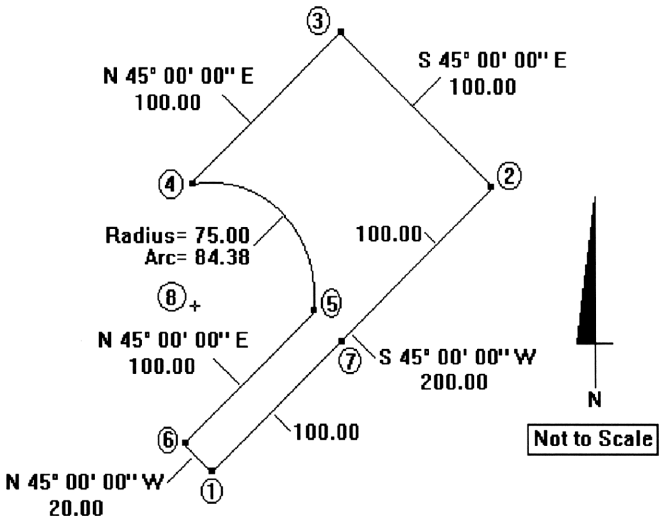
N 45° 12' 34" E=	**1045.1234**
S 02° 55' 12" E =	**2002.5512**
S 75° 01' 02" W =	**3075.0102**
N 00° 30' 00" W =	**4000.3000**

Please note that all bearings and angles are entered in HMS format. If you are turning a left hand angle then you must hit the +/- key to change the sign of the angle.

How To Use This Manual

Following along with the examples

The examples used in this reference manual were done to coincide with a cogo file. The file name is "LOT1". We supply this file so that you can follow along and see how the examples work with actual data. The following is a printout of the file "LOT1".



Point	North	East
1	5000.0000	5000.0000
2	5141.4214	5141.4214
3	5212.1320	5070.7107
4	5141.4214	5000.0000
5	5084.8528	5056.5685
6	5014.1421	4985.8579
7	5070.7107	5070.7107
8	5068.2762	4983.4233

Installation Instructions

Before installing the **Party Chief** module on the HP48 you should have either a 32K, 128K, 256K, 512K, or 1M RAM Card available. **Please note that RAM cards larger than 128K are NOT interchangeable between the HP48SX and HP48GX.** Data files are contained on RAM cards, and you can remove the RAM card from one unit and place it in another if desired. This makes swapping files easy and less time consuming than transferring files with the read and write files program. This method can also be used to store entire jobs on cards. When a user needs a job they can install the RAM card that has the job they need. **RAM cards can not be interchanged between HP48's running different versions of Party Chief without reinitialization. This refers to the major version number only (that part before the decimal point).** For example RAM cards may be swapped between version 3.0 and 3.1 machines but they must be reinitialized for use in a version 4.0 machine.

Installing Party Chief

1. Turn the HP48 OFF

2. Insert **Party Chief** module into port 1 of the HP48.

3. Insert RAM Card into port 2 of the HP48.

4. Turn the HP48 ON

5. On the HP48 type in the command: **RAMSS**
   and hit the ENTER key.

   Note: If the RAM Card in port 2 hasn't been initialized by **Party Chief** the program will prompt you to initialize it. (Press YES to initialize the RAM Card)

6. Once the variables have been loaded you will be prompted for the current date and time.

Installing RAM Cards

RAM Cards were designed to allow users to remove and insert them. However you should be aware that a RAM Card not installed in the HP 48 must have a backup battery installed to retain the data on the card. A RAM Card with a new battery should retain it's data for 1 year while disconnected from the HP48. To replace a RAM Card battery please see the HP48's owner's manual.

Removing and Inserting RAM Cards

1. Turn the HP48 OFF
2. Remove RAM Card from port 2 of the HP48 (If any)
3. Turn the HP48 ON (This allows the HP48 to refresh itself)
4. Turn the HP48 OFF
5. Insert RAM Card in port 2 of the HP48
6. Turn the HP48 ON
7. On the HP48 type in the command: **RESET**
   and hit the **ENTER** key.

RAM Card Storage Capacity (In XYZT Points)

Card Size	Version 3	Version 4
32K	600	700
128K	2500	3000
256K	5000	6000
512K	10000	12000
1M	Not Supported	24000

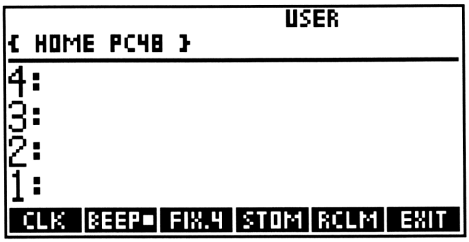
Initializing RAM Cards

Before a new RAM Card can be used for data storage it must be initialized. **Warning:** Initializing a RAM Card will delete all programs and data on the card.

1. [↱] **SYSTEM** (Enter the **System** program)
2. Select option 3 (Initialize RAM Card)
3. Enter RAM Card Title (Up to 15 Characters)
4. Press YES to initialize RAM Card

Attention State

To input data on the stack, access programs, and exit from the **Party Chief** software you must be in the attention state. When the computer is in the attention state the softkeys allow you to turn the clock on/off, turn the beeps on/off,, set the number of decimal places to the right of the decimal point, store and recall local variables, and exit the **Party Chief** environment.



CLK Turns the clock on/off

BEEP Turns audio beeps on/off

FIX# Shows the number of places to the right of the decimal point. Input a number from 0 to 11 and hit this softkey to change it.

STOM Allows you to store local variables. It works by having a number or alpha text in level 1.

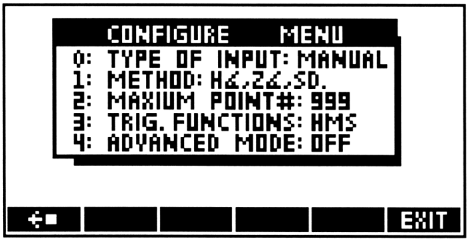
RCLM Allows you to recall local variables to level 1 of the stack.

EXIT Allows you to exit **Party Chief**
Note: All variables used by **Party Chief** are retained within the directory "**pc48**" and no data is lost.

Configure

This program allows you to set certain parameters to fit your own personal needs. You will most likely only use this program when you first receive the software, but it's always there for your use.

[↱] [CONFIG]



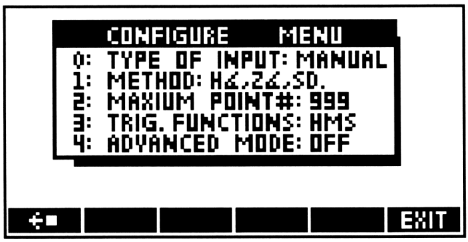
[0] Toggles between **Automatic** and **Manual** input.
This informs the computer how you want to enter the raw data. Stake-out Ties and Topo Collection use this feature.
The default is **Manual.**

[1] This option is associated with INPUT. Once you select whether you are going to input raw data by hand or automatically, you can define a **Total Station** or the format of the hand entered raw data.
The default is **H<, Z<, SD.** To select a total station set **INPUT** to **AUTOMATIC.**

Total Stations Supported:

SOKKIA(LIETZ) TOPCON LEICA(WILD) NIKON PENTAX GEODIMETER ZEISS and Others with an RS-232C port.

Configure



[2] Sets the maximum point number between 0 and 99999. If set to 999 then all the cogo routines accept north and east coordinates with a value greater then 999. If set to 99999 then all the cogo routines accept north and east coordinates with a value greater then 99999.
This allows you to use point numbers and/or coordinates with cogo programs.
The default is **999**.

[3] Allows you to switch between using the trig. functions (SIN ASIN COS ACOS TAN ATAN) in HMS or HR format.
The default is **HMS**.

[4] Will toggle the programs TRAVERSE, INVERSE, SIDESHOTS, STAKE-OUT TIES, and POINT-POINT between beginner and advanced modes.
The default is **OFF**.

EXIT Exits the program.

Conversion Programs

Converting between Azimuths and Bearings

[↱] [A→B] Converts an azimuth in level 1 to a bearing. (HMS format)

[B→A] Converts a bearing in level 1 to an azimuth. (HMS format)

Converting between Radians and Degrees

[↱] [R→D] Converts radians in level 1 to degrees. (HMS format)

[D→R] Converts degrees in level 1 to radians. (HMS format)

[↱] [→HMS] Converts an angle in HR to HMS

[HMS→] Converts an angle in HMS to HR

[HMS/] Divides an angle in level 2 by a number in level 1

[HMSX] Multiplies an angle in level 2 by a number in level 1

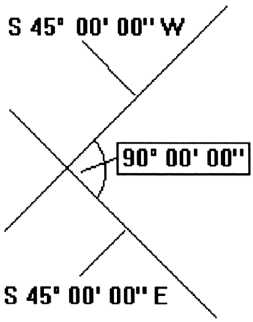
Conversion Programs

The [↱] [HMS-] and [↱] [HMS+] functions have two modes of operation. They can use bearings and/or angles to do computations.

Options for HMS-

1 Subtracts an angle in level 1 from an angle in level 2.

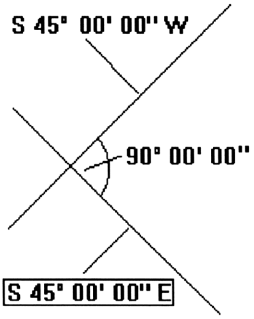
2 Subtracts a bearing in level 1 from an bearing in level 2 to produce an angle.



Options for HMS+

1 Adds an angle in level 1 to an angle level 2.

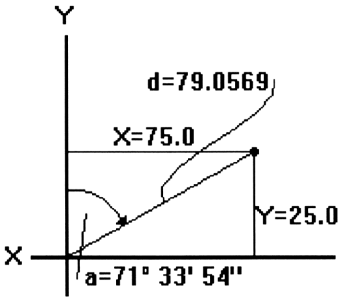
2 Adds an angle in level 1 to a bearing in level 2 to produce a bearing.



Conversion Programs

Converting Between Rectangular and Polar Coordinates

The functions are defined per the illustration below.



Rectangular to Polar (x,y) to (a,d)

	x Value	ENTER
	y Value	↱ R→P
Returns	a Value	level 2
	d Value	level 1

* The a value is returned in HMS format.

Polar to Rectangular (a,d) to (y,x)

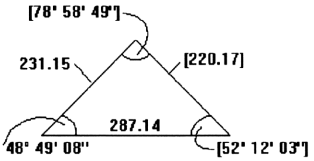
	a Value	ENTER
	d Value	P→R
Returns	y Value	level 2
	x Value	level 1

* The a value is entered in HMS format.

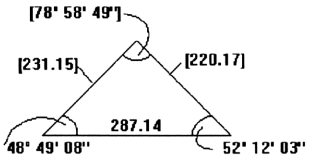
Triangle Solutions

This program is used to solve triangles. The results are returned to the stack to coincide with the known information. Note that all angles of a triangle are entered and returned in HMS format. This program will compute the area of the triangle as well. [220.17] Denotes computed data.

SAS Input a side,angle,side and hit this softkey.

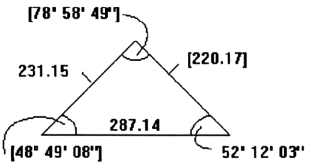


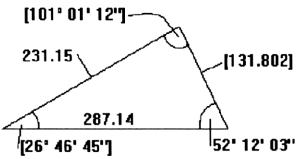
ASA Input an angle,side,angle and hit this softkey.



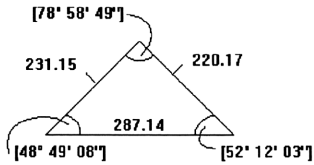
SSA Input a side,side,angle and hit this softkey.

Note: Since there are two possible solutions for this type of triangle, you will be prompted to solve for the triangle with any angle greater than 90 degrees..





SSS Input a side,side,side and hit this softkey.

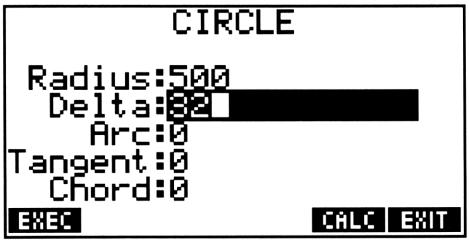


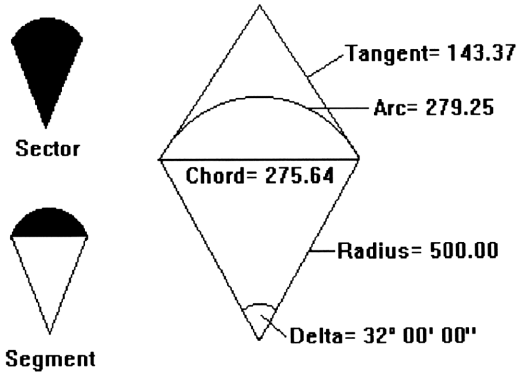
Circle Solutions

This program is for solving the radius, delta, arc length, tangent, and chord of a circle.

The program works by giving it two known parts of the circle, and it returns the remaining unknowns. Note that the delta is entered in HMS format. It also solves for the sector and segment areas.

[→] CIRCLE





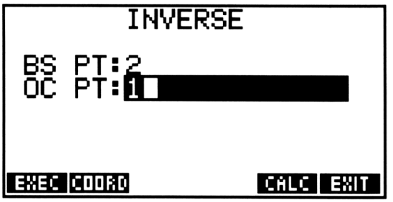
Sector= 69813.20 SF
Segment= 3573.29 SF

Inverse - Beginner Mode

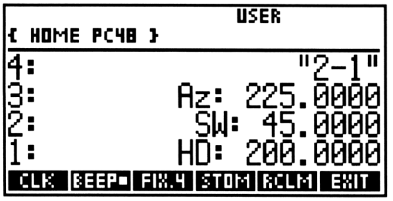
This program is used to compute the bearing and distance between two points. After inversing between two points you can turn right or left hand angles from the baseline and use the **Traverse** program to compute new coordinates. This feature is useful when traversing around building corners, and things of that nature.
NOTE: The inverse program sets the occupied and backsite points for doing stakeout ties and sideshots.

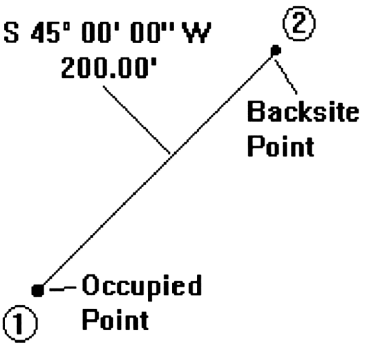
Use the **CONFIG** program to toggle between beginner and advanced mode.

INV



EXEC





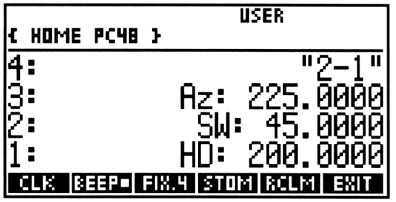
Inverse - Advanced Mode

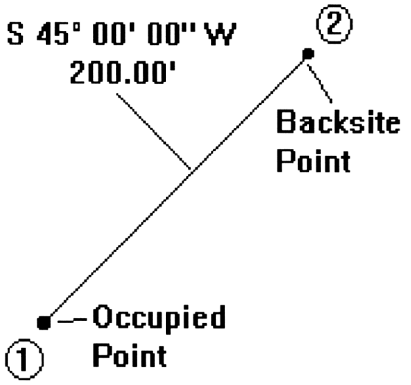
2 Backsite point

ENTER

1 Occupied point

INV





After two points have been inversed you can input just one point number and hit the INV key to inverse from the last point. This is useful when you must inverse between a lot of points.

Point to Point

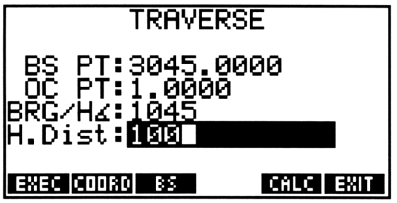
This program works like **INVERSE** except that it doesn't set the occupied and backsite points. This program can be used to tie between points without altering the occupied point. To run the **Point to Point** program simply enter the points as shown with INVERSE but hit the [Pt-Pt] key.

Note: This program only ties between points and the programs **SIDESHOTS**, **STAKE-OUT TIES**, and **TRAVERSE** are not linked with it.

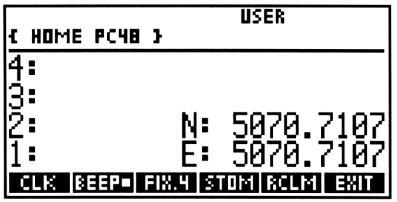
Traverse - Beginner Mode

This program is used to compute a north and east coordinate. By going from a known point and entering a bearing and distance, the program computes new coordinates. **The beginning point can be coordinates or a point number.** After the first leg of traversing you can turn right or left hand angles off the baseline, instead of using a bearing to traverse to the new location. This feature is useful for making 90 degree turns around buildings and things of that nature. **NOTE:** The traverse program sets the occupied point and backsite for doing stake-out ties and sideshots.
Use the **CONFIG** program to toggle between beginner and advanced mode.

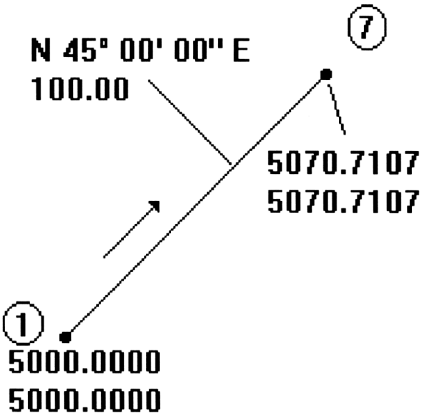
TRAV



EXEC



Please note that when using a bearing instead of an angle to traverse, the BS option is not used.



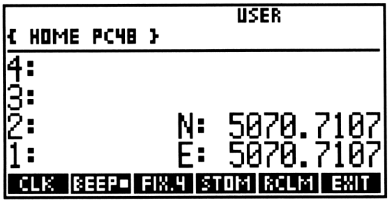
COORD Toggles to let you use coordinates

BS Toggles between a backsite point, backsite bearing, and back azimuth.

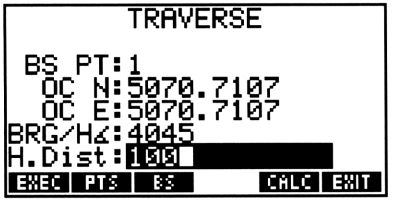
Traverse - Beginner Mode

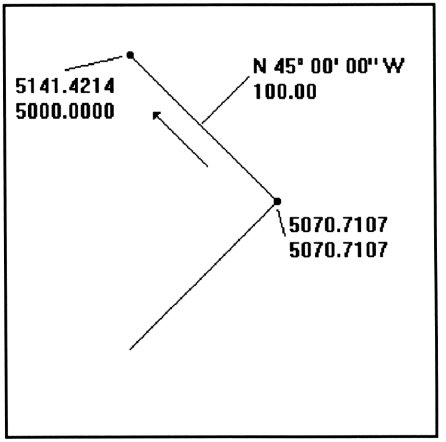
Continuing using a bearing

After traversing the program will default to using coordinates. If however, you store the coordinates as a point number it will become the current occupied point .

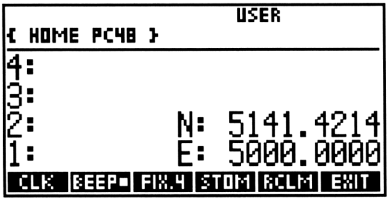


TRAV





EXEC

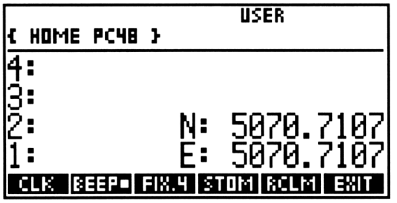


To store coordinates as a point number please see the STORE point program.

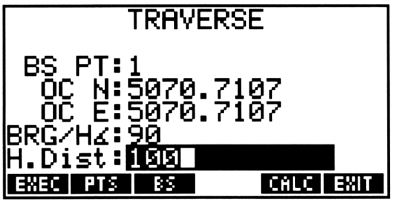
Traverse - Beginner Mode

Continuing using an angle

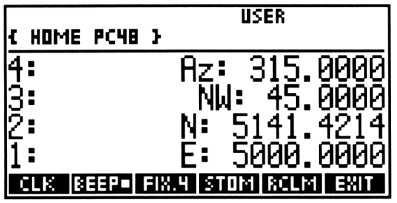
After traversing the program will default to using coordinates. If however, you store the coordinates as a point number it will become the current occupied point .

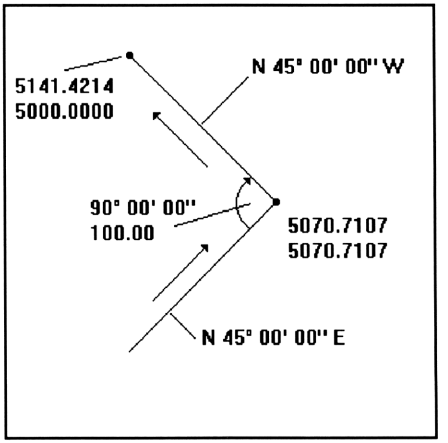


TRAV



EXEC





To store coordinates as a point number please see the STORE point program.

Traverse - Advanced Mode

This program is used to compute a north and east coordinate. By going from a known point and entering a bearing and distance, the program computes new coordinates. **The beginning point can be coordinates or a point number.** After the first leg of traversing you can turn right or left hand angles off the baseline, instead of using a bearing to traverse to the new location. This feature is nice for making 90 degree turns around buildings and things of that nature. **NOTE:** The traverse program sets the occupied point and backsite for doing stake-out ties and sideshots.
Use the **CONFIG** program to toggle between beginner and advanced mode.

1 Beginning Point

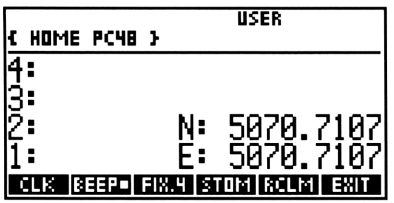
ENTE

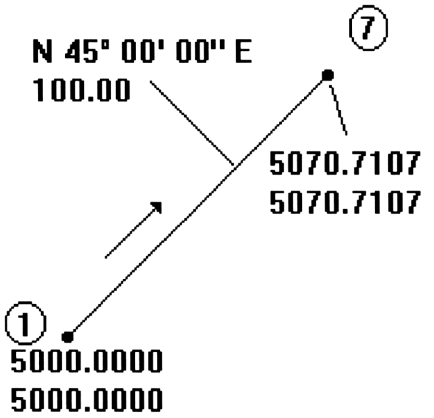
1045.0000 Bearing

ENTE

100.0000 Horizontal distance

TRAV

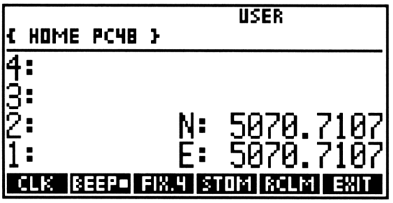




To store coordinates as a point number please see the STORE point program.

Traverse - Advanced Mode

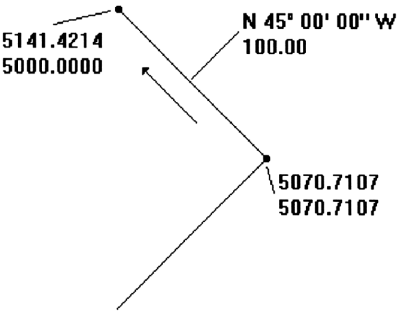
Continuing Using Bearings



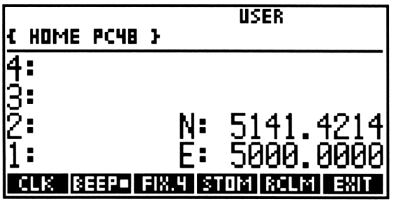
4045.0000 Bearing

ENTER

100.0000 Horizontal distance



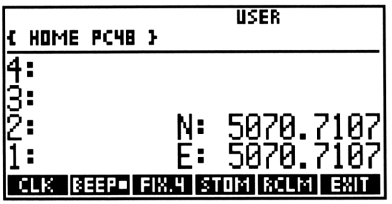
TRAV



To store coordinates as a point number please see the STORE point program.

Traverse - Advanced Mode

Continuing Using Angles

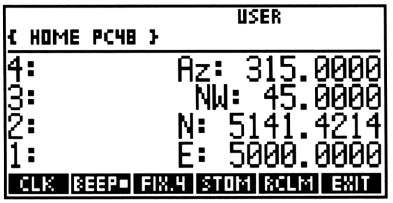


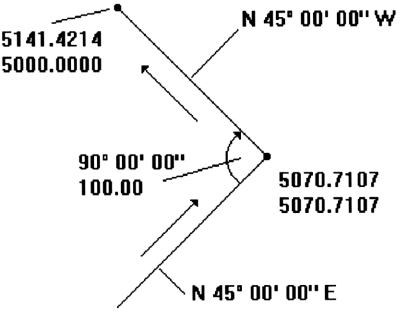
90.0000 Horizontal angle

ENTER

100.0000 Horizontal distance

TRAV





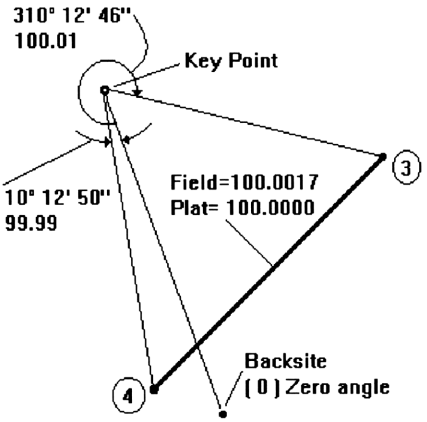
To store coordinates as a point number please see the STORE point program.

Key (Resection)

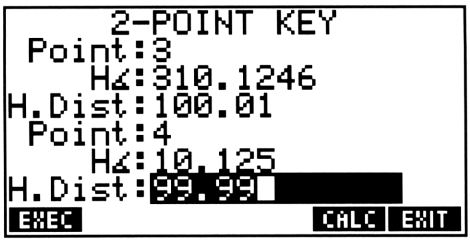
This program allows you to set up your instrument (Total Station) anywhere you want for staking out points in the field. By locating two known points with horizontal angles, and distances the program will compute the coordinates and backsite bearing of the instrument. The bearing displayed is based on the instrument's (total station) horizontal angle of 0 (zero).

Warning: You should always check to a third known point to verify the key location.

NOTE: The key program sets the occupied point and backsite for doing stakeout ties ,sideshots, and traversing.

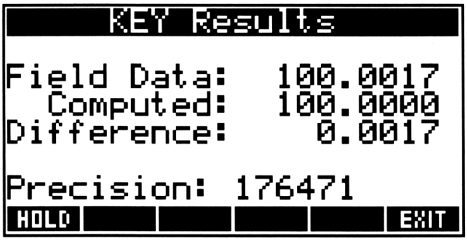


[↱] [KEY]



EXEC See next page

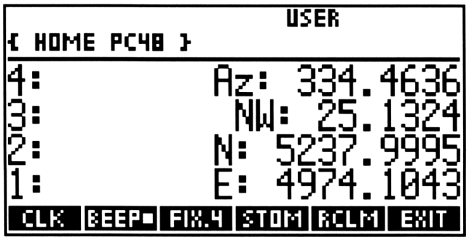
Key (Resection)



This display shows the field distance and the computed distance. It also shows the difference between them along with the precision of the key location. The precision is computed by adding the three field and computed distances divided by the error. A good key location will have a precision of 50,000 or greater.

HOLD Hitting this key will compute the backsite bearing coming into the key point along with the key point coordinates.

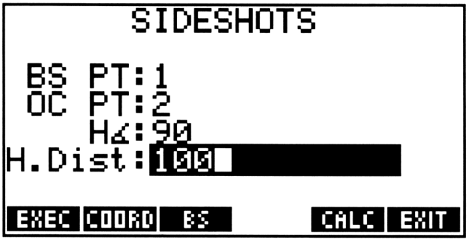
EXIT Exits back to the input screen.



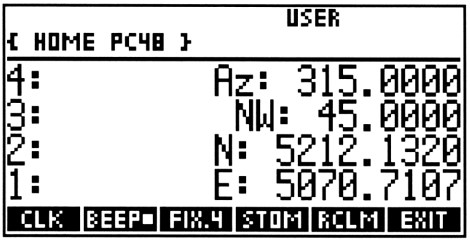
To store coordinates as a point number please see the STORE point program.

Sideshots - Beginner Mode

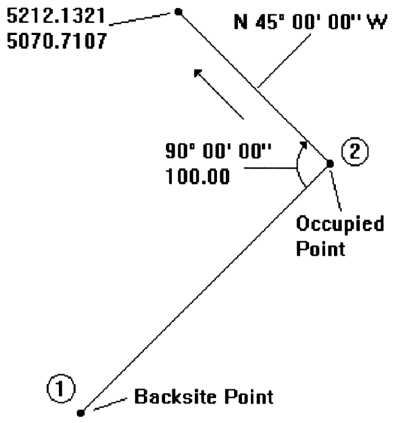
SS



EXEC



To store coordinates as a point number please see the STORE point program.



Sideshot - Advanced Mode

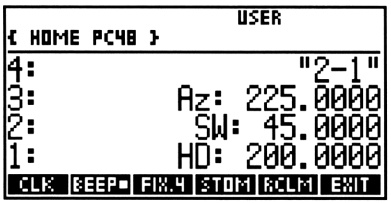
This program is used to compute coordinates from the current occupied point. To set the occupied point you must use one of the following programs: (**TRAVERSE**, **INVERSE**, **KEY**). The sideshot program accepts a horizontal angle and distance.
In the following example we show inversing between two points to set up the occupied point.

1 Backsite point

ENTER

2 Occupied Point

INV



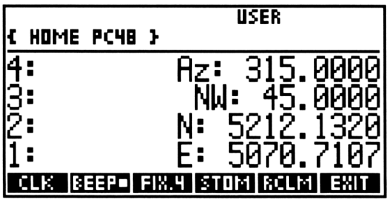
Once the occupied and backsite points are established you can repeat the following steps as many times as desired.

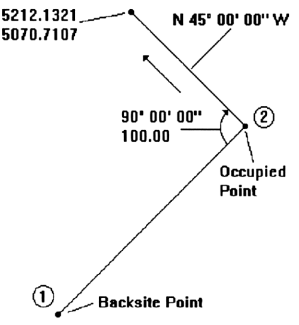
90.0000 Right-hand angle, **+/-** for left hand angles.

ENTER

100.0000 Horizontal distance

SS



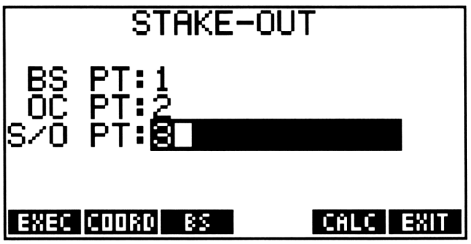


To store coordinates as a point number please see the STORE point program.

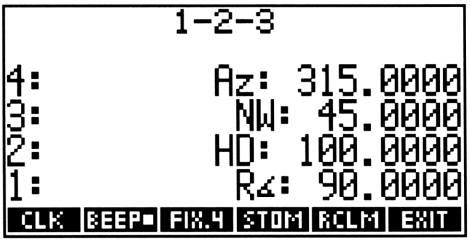
Stakeout Ties - Beginner Mode

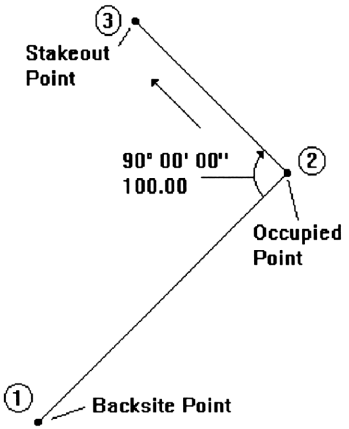
This program is used to compute the bearing, distance, and right hand angle to a set of coordinates or point number from the current occupied point.

S/O



EXEC





Stakeout Ties - Advanced Mode

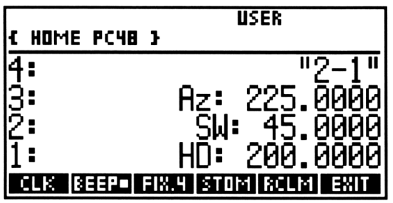
This program is used to compute the bearing, distance, and right hand angle to a set of coordinates or point number from the current occupied point. To set the occupied point you must use one of the following programs: (**TRAVERSE**, **INVERSE**, **KEY**). The stakeout ties program also works indirectly with the **STAKE** program if Radial S/O is turned **OFF**.
In the following example we show inversing between two points to set up the occupied point.

1 Backsite Point

ENTER

2 Occupied Point

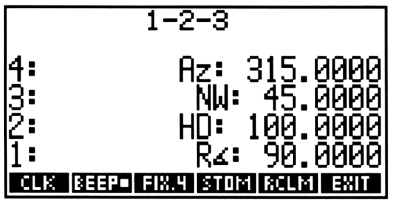
INV

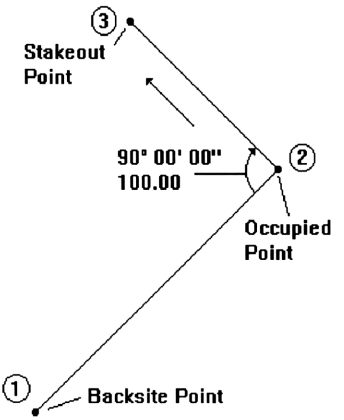


Once the occupied and backsite points are established you can repeat the following steps as many times as desired.

3 Stakeout Point

S/O

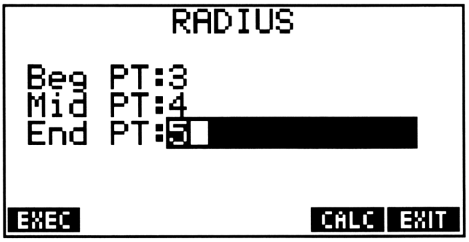


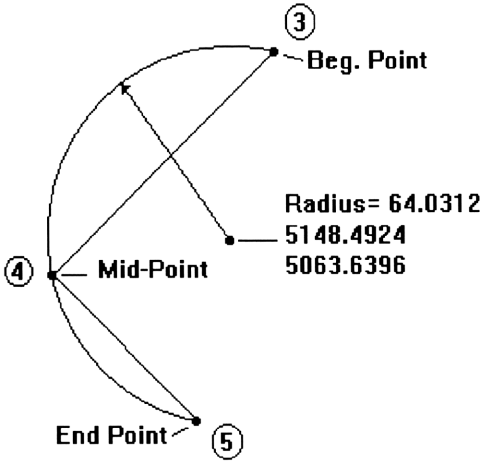


Find Radius Point

This program will compute the radius distance and coordinates of a point that fits between three known points. This program helps speed up the process of computing from field data or checking computations. When entering the points you must input the beginning of the curve, mid point of the curve, and the ending of the curve in that order.

RADIUS

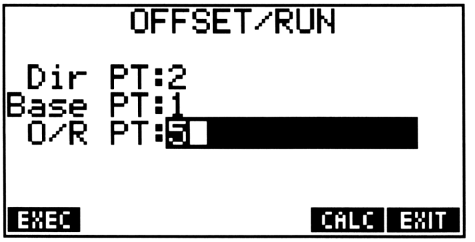


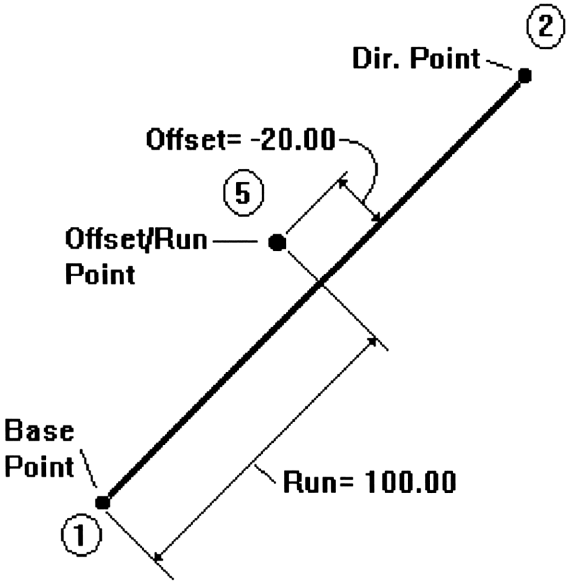


Offset and Run

This allows you to compare a point to a baseline. The program works by establishing a baseline and computing how far a point is off the baseline, and the distance from a base point.

[↱] [OFF/RUN]

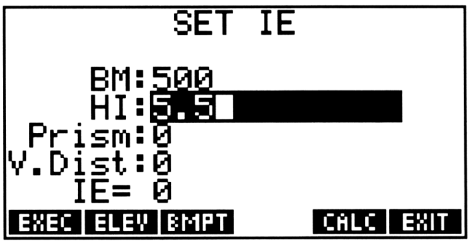




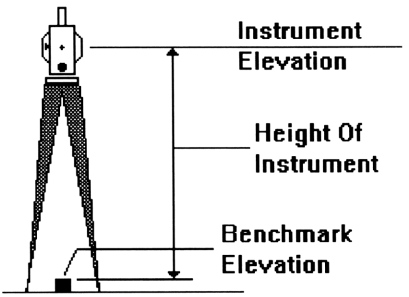
Elevations - Setting the Instrument Elevation

This program allows you to set up the instrument elevation. You can use two different methods. You can also compute elevations using two methods..
Note: If you plan to stakeout points in the field and want to compute cuts and fills you must set the instrument elevation within this program.

[↱] **ELEVATION**

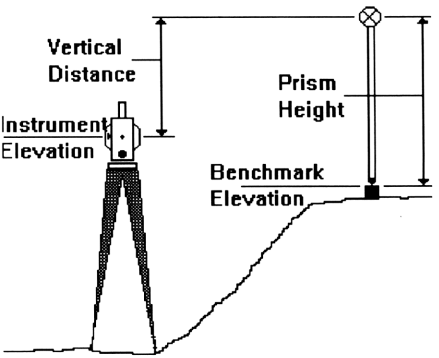


Input a benchmark elevation and HI distance to compute the instrument elevation.



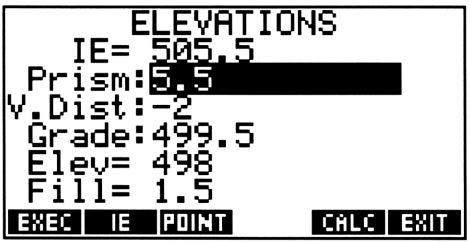
NOTE: Input zero as the HI distance when using this method.

Input a benchmark elevation, prism height and vertical distance to compute the instrument elevation.

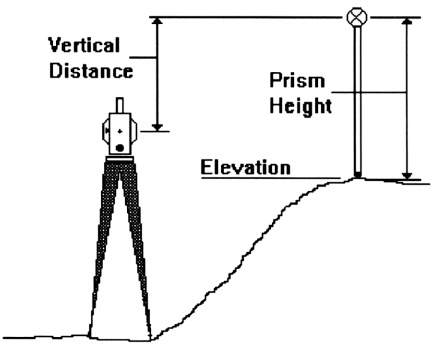


Elevations

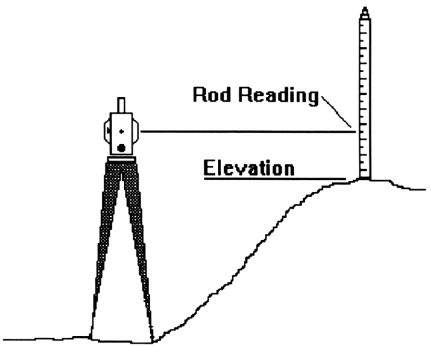
Press the **ELEV** softkey while in the SET IE screen to enter this program. Input a grade to get a cut or fill. The **POINT** softkey allows you to use a grade from a cogo point to get a cut or fill.



After the instrument elevation is set you can input a prism height and vertical distance to get the elevation of a point.



Note: If you are using a Level and Rod then simply enter the rod reading as the prism height followed by 0 (zero) for the vertical distance to get a elevation.



Staking out points with a Total Station Overview

This program is used to stake out points in the field. You enter this program by pressing the **STAKE** key. Once in the program you can choose from one of three screens.

The **Definable** screen allows you to define the occupied point, or input another point number or station to stake out. You also define text notes within this screen.

The **Information** screen shows you information pertaining to the point being staked.

The **Gradesheet** program allows you to turn a gradesheet on/off and specify what you are staking out.

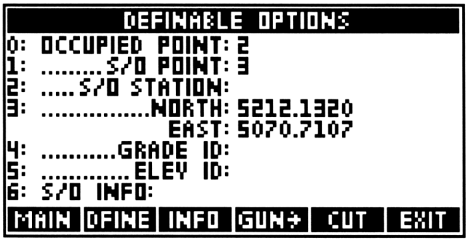
The softkeys allow you to go directly from one screen to another from within any of the above mentioned screens. The softkey **GUN→** will make the total station shoot so that you can set the point being staked. Make sure the total station is in measure mode and the prism pole is on line before hitting this key. Please note that the **CONFIGURE** program allows you to select the type of input and **Total Station**.

The programs **S/O** and **STAKE** are used to define a right-hand angle and horizontal distance to the computed point from the current occupied point. Any one of the following programs **INVERSE, TRAVERSE,** and **KEY** can be used to establish the occupied point. The program **ELEVATION** is used to establish the instrument elevation on the occupied point.
You should be familiar with the above mentioned programs before attempting to stake-out a point in the field.

Staking out points with a Total Station

Definable Options

The definable menu allows you to view and edit the current occupied point, choose another point number and/or station to stake out. You can also input a north and east coordinate and grade by hand. The grade and elevation text are defined in this menu also. The S/O information for cutsheets can also be defined. Hit the number that corresponds to the options available.



[0] Allows you to review or set the occupied point.

[1] Allows you to define a point number to S/O.

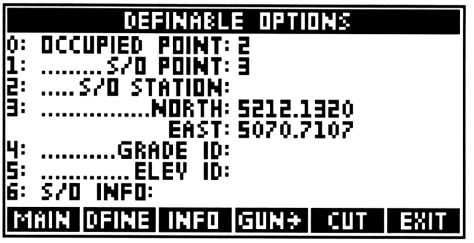
[2] Allows you to define a station & offset to S/O.

[3] Allows you to define a north and east coordinate to S/O.

[4] Allows you to define the Grade ID.
This option keeps track of the last 6 ID's used. To use a previous text string press a number 0 - 5. To enter a new text string press the NEW softkey. **Note:** When staking out point numbers the note of the point becomes the Grade ID.
Example: **"TOP OF CURB"**

Staking out points with a Total Station

Definable Options



5 Allows you to define the elevation ID.This option keeps track of the last 6 ID's used. To use a previous text string press a number 0 - 5. To enter a new text string press the **NEW** softkey. Example: **"HUB"**.

6 Allows you to define the S/O information.
This option keeps track of the last 6 ID's used. To use a previous text string press a number 0 - 5. To enter a new text string press the **NEW** softkey.
Note: This feature is only useful when using gradesheets.
Example: **"4FT BACK OF CURB"**.

MAIN Takes you into the Main S/O Menu.

INFO Takes you into the information screen.

GUN→ Shoots the Total Station or prompts you for the raw data.

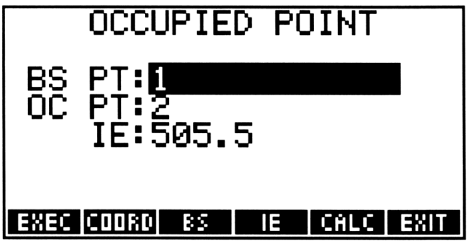
CUT Takes you into the gradesheet menu.

EXIT Exits back to the STAKE program.

Staking out points with a Total Station

Occupied Point

This option allows you to view and edit the existing occupied point. Please note that **TRAVERSE**, **INVERSE**, and **KEY** also set the occupied point.



COOR Toggles between coordinates and point number for the occupied point.

BS Toggles between a point number, backsite bearing and back azimuth.

IE Will take you into the **ELEVATION** program to set the instrument elevation.

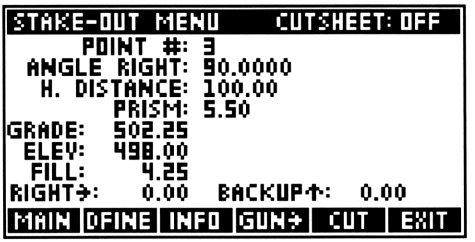
CALC Allows you to use the calculator function.

EXIT Exits back to the define screen.

Staking out points with a Total Station

Main Stake-Out Menu

This display shows the point number or the current station and offset you are staking out, the right-hand angle, and the horizontal distance to the point being staked, the current prism height, and the grade of the point being staked. The last recorded elevation with a text description, and the cut or fill is also shown. It also shows you whether to move the rod man left, right, back, or ahead to set the computed point.



DFINE Takes you into the definable menu.

INFO Takes you into the information screen.

GUN→ Shoots the Total Station or prompts you for the raw data.

CUT Takes you into the gradesheet menu.

EXIT Exits back to the **STAKE** program.

P Change the current prism height.

G Change the current grade.

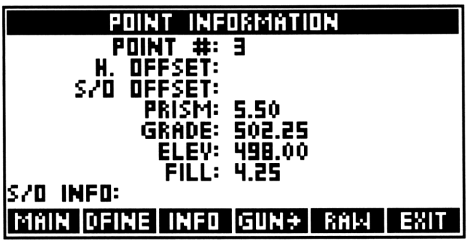
After you have staked out the point.

STO Store info in the gradesheet.

Staking out points with a Total Station

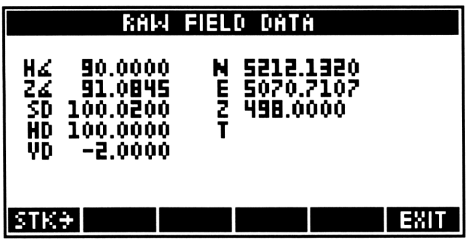
Point Information

This screen displays the information associated with the current point being staked. The **Raw** screen is associated with the **Information** screen and shows you the raw data collected, and the north and east coordinates and elevation generated with the raw data.



Raw Data

This screen displays the current horizontal angle, zenith angle, slope, horizontal, and vertical distances recorded from the total station. A north and east coordinate and elevation are computed with the raw data from the current occupied point and shown within this display.



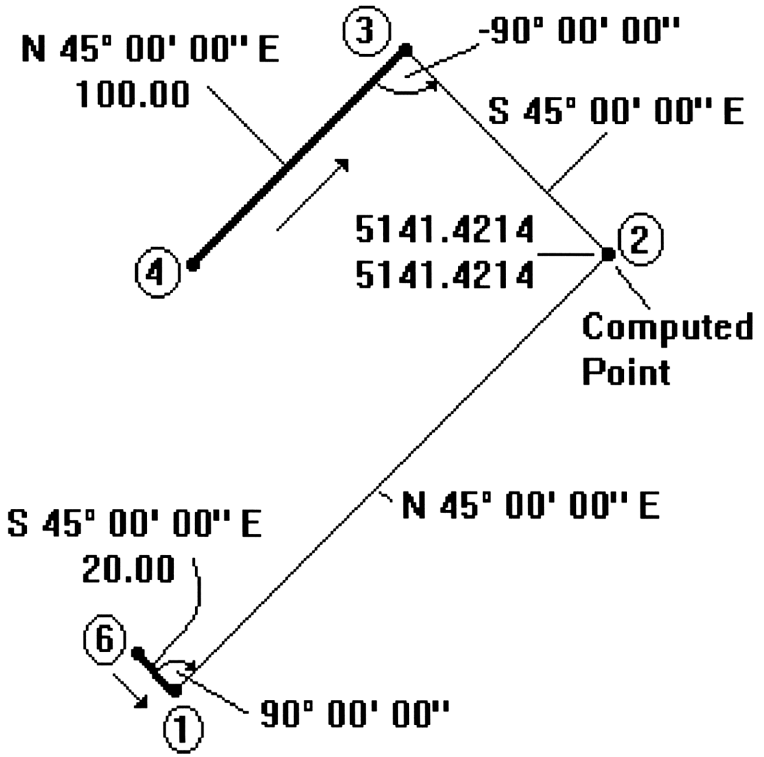
STK→ Copies the north and east coordinates, elevation and text note to the stack. Allows you to store this data as a cogo point within an existing file.

EXIT Exits back to the information screen.

Intersections - Line-Line

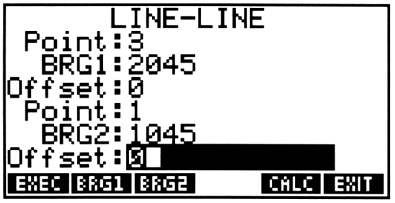
This program will compute a set of coordinates by intersecting two bearings from two known points. A powerful feature of this program is that you can establish two baselines and turn angles off the baselines to get the bearings. Using angles to generate bearings greatly increases the accuracy due to the fact that the numbers right of the decimal point are carried out to the maximum number of places. The program also allows you to use offsets. The offset is based on going from the known point to the computed point. Use the +/- key to change the sign of the offset.

The three intersection programs are interactive in that once you have established two known points you can use any one of the three programs for a new intersection.

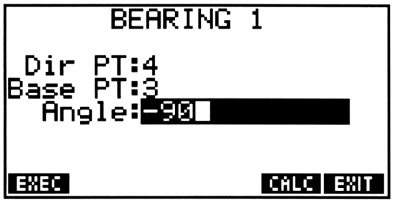


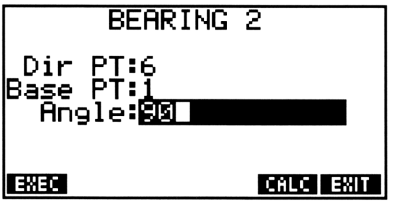
Intersections - Line-Line

INTER L-L

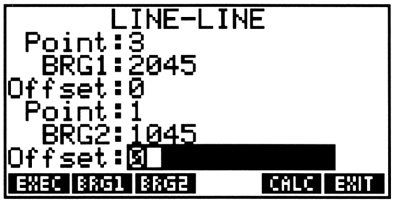


Press the BRG1 and BRG2 softkeys to use baselines.

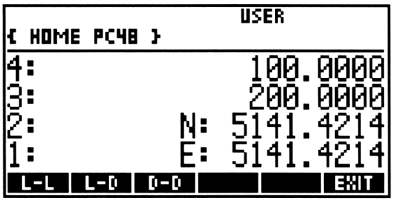




See figure on previous page.



EXEC



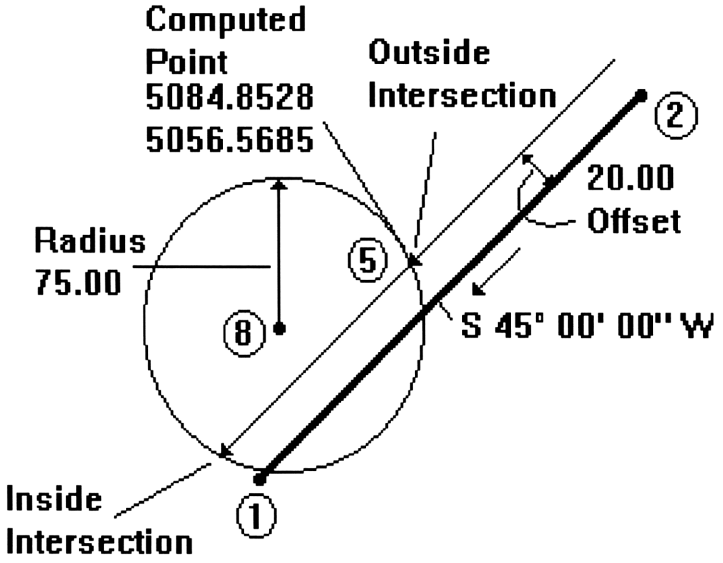
Level 4:Distance to computed point from 1st point
Level 3:Distance to computed point from 2nd point
Level 2:Computed north coordinate
Level 1:Computed east coordinate

To store coordinates as a point number please see the STORE point program.

Intersections - Line-Distance

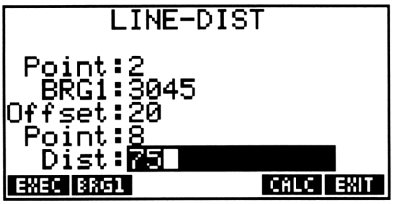
This program will compute a set of coordinates by intersecting a bearing and distance from two known points. This program also allows you to turn an angle off a baseline to get the bearing of the intersection. Using an angle to generate the bearing greatly increases the accuracy due to the fact that the numbers right of the decimal point are carried out to the maximum number of places. The program also allows you to use an offset. The offset is based on going from the known point to the computed point. Use the [+/-] key to change the sign of the offset.

The three intersection programs are interactive in that once you have established two known points you can use any one of the three programs for a new intersection.

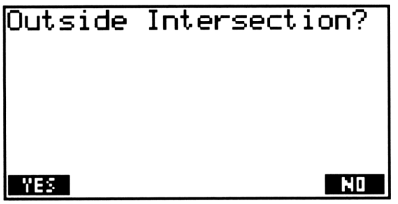


Intersections - Line-Distance

INTER L-D



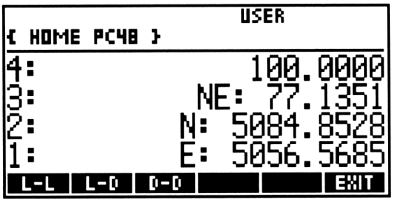
EXEC



To explain this prompt it is necessary to visualize a straight line coming from the outside of a circle and intersecting that circle. The point where that straight line first intersects and enters the circle is the outside intersection. The line then passes through the interior of the circle and again intersects the circle. This second intersection is the inside intersection.

YES Compute the outside intersection

NO Compute the inside intersection

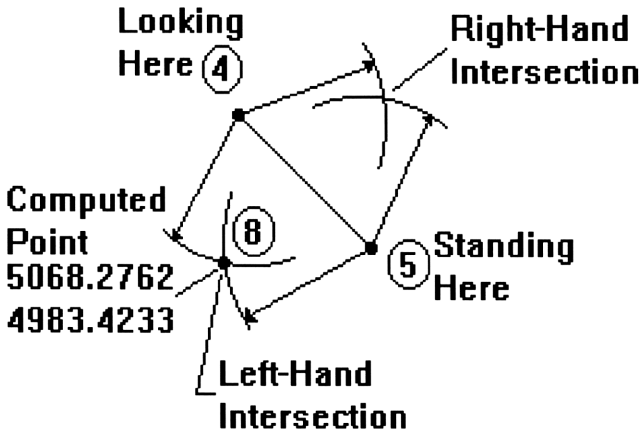


Level 4;Distance to the computed point from the 1st point.
Level 3;Bearing to the computed point from the 2nd point.
Level 2;North coordinate of the computed point.
Level 1;East coordinate of the computed point.

To Store coordinates as a point number please see the STORE point program.

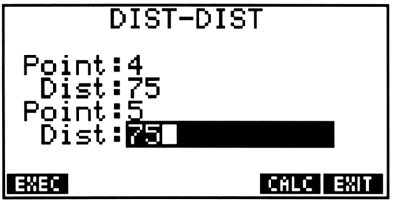
Intersections - Distance-Distance

This program will compute a set of coordinates by intersecting two distances from two known points. The three intersection programs are interactive in that once you have established two known points you can use any one of the three programs for a new intersection.

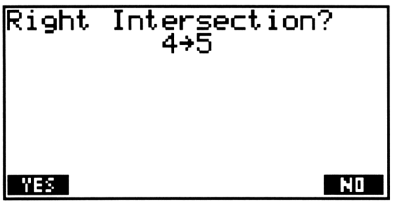


Intersections - Distance-Distance

INTER **D-D**



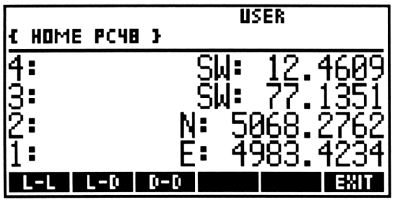
EXEC



To explain this prompt it is necessary to visualize that you are standing on the 2nd known point and looking at the 1st known point. The intersection would either be to your right or left hand side.

YES Compute the right hand intersection

NO Compute the left hand intersection



level 4;First bearing to computed point from the 1st point.
level 3;Second bearing to computed point from the 2nd point.
level 2;North coordinate of computed point.

level 1;East coordinate of computed point.

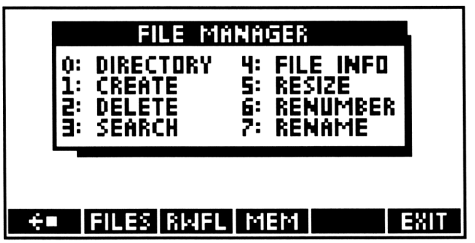
To store coordinates as a point number please see the STORE point program.

File Manager

This program helps you maintain an orderly filing system within your HP48. The file manager program allows you to do the following: Directory of files, Create File, Delete File, Search File, View File Status, Resize File, Renumber File, and Rename File.

The **Party Chief** package comes with an optional file manager program that runs on any PC compatible computer. The software is called **FileMan48** and it allows you to maintain, edit, format, print, download and upload files. The **FileMan48** package allows you to transfer cogo files between your **CAD** system and **Party Chief**.

[↱] **FILE MANAGER**



← Will exit File Manager.

FILES Will take you into the Set Cogo Files program.

RWFL Will take you into the Read and Write Files program.

MEM Will return the number of FREE blocks.

EXIT Will exit File Manager.

File Manager

Directory

When doing a directory the program will prompt you to print. You can print to a serial or infrared printer. When you have finished the directory the program will display the total number of files, and the number of free blocks. The following information shows how each file type uses blocks for data storage.

Cogo File:	100 points per block
Topo File:	50 points per block
Stake File:	50 points per block
PGL File:	50 points per block
Template:	5 templates per block
Cutsheet:	25 points per block
Nonseq. Cogo:	400 point names per block
	100 points per block

(Example: 900 Nonsequential Cogo points require 12 blocks)

Note:
A Cogo and Nonseq. Cogo file are similar in that they both contain north and east coordinates, a grade, and a text field. However, Cogo files contain sequential points and the number is not stored, while nonsequential files must contain the point numbers. Locating points in a nonsequential file is slower as a text search for the point number must be performed, rather than the quick indexing operation which can be used in a sequential file.

Nonsequential files should only be used when reading points from **FileMan48** that have large gaps between point names.
(Please see the **Reading and Writing Files** program for more information).

File Manager

Creating a File

This program allows you to create six types of files (Cogo, Topo, Baseline, Gradeline, Template, and Gradesheet).

All file names must begin with an alpha character (A to Z).
A file name should be between 4 and 8 characters long.
File names must not conflict with HP48 built in functions or Party Chief program names.

When specifying the point range you should also take into consideration the maximum point number that is set within the **CONFIGURE** program. When creating a file the program allows you to identify the points by giving them a prefix. A prefix is simply a alpha string up to 5 characters long that will precede the point numbers when the file is transferred to the PC using the **FileMan48** package. The prefix combined with the point number makes up the point name. See the **FileMan48** owners manual for more information on this matter. After you create a file it becomes current in the programs that relate to that file type.

When creating Topo and Gradesheet files the program will not ask for a point range. Topo and Gradesheet files begin with point number one (1), and increase as you collect data.

Deleting a File

When deleting a file the program will check to see if the file has been saved. If there have been alterations to the file such as storing new points, rotating, editing or anything of this nature the prompt "Revised" will appear in the display along with the owner of the file ,and the date and time the file was last modified. When prompted "Are You Sure?" hit either the YES or NO softkey. This is a safety feature to ensure that you don't accidently delete a file before it is saved to your office computer.

File Manager

Searching a File

This program will search a file to find the first free point for storing. Cogo points are searched for north and east coordinates only. Baseline, Gradeline, and Template files are searched for beginning and ending limits. If there is a free point or if all the points are used in the file you will be informed of this after the search. **Note:** Nonsequential Cogo files can't be searched.

Viewing File Status

This program allows you to view a file's beginning and ending point numbers, prefix, owner, and the date and time the file was last modified.

Resizing a File

This program allows you to make a file larger or smaller. It works by giving the file a new ending point number. If you are decreasing the file size then the program will start from the end of the file and work it's way back to the beginning deleting points as it goes. Increasing the file size adds points to the end of the file.
Note: Topo and Gradesheet files can not be resized.
Warning: Reducing a file's size can delete important data at the end of the file.

Renumbering a File

This program will renumber a file by assigning it a new beginning number. The ending point number is also adjusted to coincide with the file's size.
Note: Nonsequential Cogo and Topo files can not be renumbered.

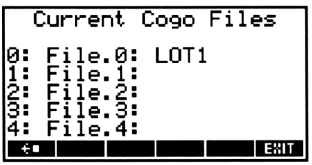
File Manager

Renaming a File

This program allows you to rename an existing file. A file name can be up to 8 characters long. This program also allows you to change the point prefix. If you only want to change the prefix then just continue through the prompt that asks you for the new file name.

Setting Cogo Files

This program is used to set up to 5 cogo files within the HP48 memory as the current files. The ability to use 5 different files greatly enhances the use of this software package. It allows you to interact between files, which means it is not necessary to write down information to check data between files. It also allows you to set up your jobs so that certain files pertain to different parts of a job.
Example: You can now have a file just for traverse points, and/or just for lot corners and so on. This reduces file sizes, and dealing with large point numbers.
The way the software detects which file you want to use is by the fractional part of the point number. The 5 files are accessed by adding a decimal to the point number, and the decimals range from .0 to .4. Since the point number 1.0 is equal to just the point number 1 you don't have to add .0 to the point numbers pertaining to file 0.
Example: You want to recall point 5 of File .3 . Input 5.3 in level 1 and press [↱] [RCL] to recall the point to the stack.
Note: ASCII Cogo files can also be set as current files.
[↱] [FILES]



[0] Allows you to set file .0

[1] Allows you to set file .1

[2] Allows you to set file .2

[3] Allows you to set file .3

[4] Allows you to set file .4

EXIT Exits the program.

Storing Points

Storing data is an essential part of using this software package. Before attempting to store data you should read over the **File Manager**, and **Setting Cogo Files** programs so that you know where the data you're storing is going to be placed within the file. This program is your link for getting data on the stack into a cogo file. The program was designed to work in a number of ways. The following examples show you all the different combinations of storing data.

Levels of Stack

		5:	North
4:		4:	East
3:	North	3:	Grade
2:	East	2:	"Note"
1:	Point #	1:	Point #
STORE		STORE	

The first example is the most common way of storing data into a file. All cogo programs return the north coordinate to level 2: and the east coordinate in level 1:. When you input your point number and file address in level 1: the data is pushed up to coincide with the first example.

Before storing data you should verify the following:

1. The type of data you want to store (XY or XYZT).

2. The point number range of the file. You can view this information within the **File Manager** program by selecting the VIEW option.

3. The file address of the file you want to store the data in. See **Setting Cogo Files** program on how to set a file as one of the current cogo files.

Note: If the point you're storing has existing data then you will be informed of such, and you'll have two options. The first is to just hit the ENTER key and the new data will overwrite the old data. The second option is to give the program a different point number and or file address, and hit the ENTER key to store the data under a new point number and/or file.

Recalling Points

This program will recall data from a cogo file and put it on the stack. As with storing data you must give the point number and file address to access one of the 5 current cogo files. See **Setting Cogo Files** program to set a file. There are two methods of recalling data and both return different data.

Point # [↱] [RECALL]

2: North
1: East

Point # [+/-] [↱] [RECALL]

4: North
3: East
2: Grade
1: "Text"

Before recalling data you should verify the following:

1. The type of data you want to recall (XY or XYZT).

2. The point number range of the file. You can view this information within the **File Manager** program by selecting the FILE INFO option.

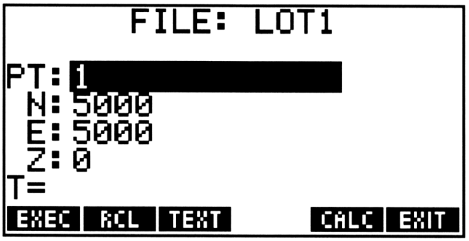
3. The file address of the file from which you want to recall data. See **Setting Cogo Files** program on how to set a file as one of the current cogo files.

Editing a Cogo File

This program allows you to view and edit points within a cogo file. The program will prompt you for the cogo file to edit, and it will then display the name of the cogo file being edited along with the points within the file.

[↱] [EDIT]

The program will prompt you for a file name. Enter the file name to edit. (Cogo Files Only)



EXEC Will store data under current point number.

RCL Will recall data under current point number.

TEXT Allows you to edit the text of the current point.

CALC Allows you to use the calculator function.

EXIT Will exit the EDIT program.

Reading and Writing I/O Parameters

All computers and most printers allow the user to set these parameters in one way or other. The HP 48 has two ways of getting data in and out. One is by using the WIRE port and the other is by using the INFRARED port. The WIRE port requires that you use a PC serial interface cable.

R/WFL

0 Takes you into the I/O parameters menu.

0 This allows you to toggle between the WIRE and INFRARED port. When using the infrared port place the two HP48's head to head with the arrows at the top lined up. They should be placed no more than 2 inches apart. Default is set to **WIRE**.

1 This allows you to toggle the baud rate.
The default is **9600**.

2 This allows you to toggle the parity.
The default is **NONE**.

← Takes you back to the Read and Write Files program.

EXIT Exits the Read and Write Files program.

Reading and Writing Files

The **Party Chief** package comes with an optional file manager program that runs on a PC compatible computer. The software is called **FileMan48** and it allows you to maintain, edit, format, print, download and upload files. The **FileMan48** package allows you to transfer cogo files between your CAD system and **Party Chief**.
Before you can transfer files between the HP48 and a computer you must have the **FileMan48** software installed on your PC. (see the **FileMan48** owners manual for instructions on installing and using this software.) You must also have a PC serial interface cable. See your nearest HP dealer or give us a call.

R/WFL

0 This will take you into the I/O menu. It allows you to set the port, baud rate, and parity for the HP48.
Note: Before you attempt to read or write files you should make sure the bate rate and parity settings are the same on both computers.

1 This will prompt you for a NEW file name to read. You can give the file being sent from the PC a different name if desired. The file type is determined by the file being sent. (File types are Cogo, Topo, Baseline, Gradeline, Template, Gradesheet and Nonsequential Cogo)

Reading and Writing Files

To send a file from a PC to the HP 48.

Type **FM** at DOS prompt
Login with your name
Use the **File Open** command to open a data file. Once you have selected a file, the points being read from the HP48 will go into this file.
Use the **Transfer Write HP48** command to transfer.
Enter the prefix of the points to be sent, the beginning point number, and the ending point number.
Press the space bar to toggle the Sequential points option. **Note:** This feature only works with cogo files on the PC. If set to YES then the file being sent will be a Sequential Cogo file. If set to NO then the file being sent will be a Nonsequential Cogo file.

2 This will prompt you for a file to send to the PC. It also will prompt you for the point prefix to send. This allows you to change the prefix if you wish. It will also prompt you for the beginning and ending point numbers. This allows you to just send some points rather then the whole file.

Reading and Writing Files

To send a file from the HP 48 to a PC do the following.

Type **FM** at DOS prompt
Login with your name
Use the **File Open** command to open a data file. Once you have selected a file, the points being read from the HP48 will go into this file.
Use the **Transfer Read HP48** command to begin the transfer on the PC.

[3] This will prompt you for a cogo file to print. It will also prompt you for the beginning and ending point numbers. This allows you to just print some points rather then the whole file.
Note: The program can print to an infrared or serial printer. Select the port within the I/O parameters menu.

STAKE Overview

The **STAKE** program greatly enhances your ability to stake-out points in the field. The program uses a horizontal baseline to generate a north and east coordinate from a station and offset. The baseline can be either a line or curve. The program is designed to allow you to interact with the **GRADE** program so that you can generate 3-D coordinates. The program also allows you to store the baseline as a point number within a **Baseline** file. This allows you to link baselines so that you can store entire subdivision roads and utilities within files and compute coordinates with ease.

Baselines are linked together using beginning and ending limits on each baseline. The limits are based on the stationing of the baseline. Because **STAKE** operates from station to station, if the baseline makes sharp breaks, the ending limit of one baseline must not be entered the same as the beginning limit of the next baseline even though they are the same point. For example: A sewer line is stationed 0+00, 1+30, 2+10, 3+15, etc. The first leg would be 0+00 to 1+30; the second leg, 1+30 to 2+10; and the third leg 2+10 to 3+15. However, when entering the limits you must slightly alter the beginning limit of the subsequent leg or the program will not recognize it as a beginning limit of a new leg. Consequently, enter the first leg as 0+00 to 1+30, the second leg as 1+30.001 to 2+10, and the third leg as 2+10.001 to 3+15. This alteration must be used in order for the program to operate correctly. The small addition should not affect the accuracy of the survey. This is not required when the baseline has smooth transitions such as for a roadway.

The **STAKE** program consists of two menus. The first menu allows you to boot a baseline, view the current baseline, turn Slope Stake ON, turn Radial S/O ON, and turn Compute Grades ON. The second menu is the advanced **STAKE** menu and it is used for creating or selecting Baseline, Gradeline, and Template files. You can also turn these files on/off.

STAKE Booting a Horizontal Line or Curve

This part of the program is used to boot a line or a curve. Before entering the **STAKE** program make sure that you have set the cogo files you will need as current files. See **Setting Cogo Files** program. A baseline is established by two known points. When establishing a line, the first point is the beginning point and the second point is the direction point. The stationing is based on the first point (beginning point). When establishing a curve the first point is the radius point, and the second point is the P.C. point (Point of Curve) on the curve. The program will prompt you for the P.C. station and the P.T. station (Point of Tangent or End of Curve). By knowing this information the program can compute coordinates along the back tangent, the curve itself, and the forward tangent.

Note: *The P.T. Station must be greater then the P.C. Station.*

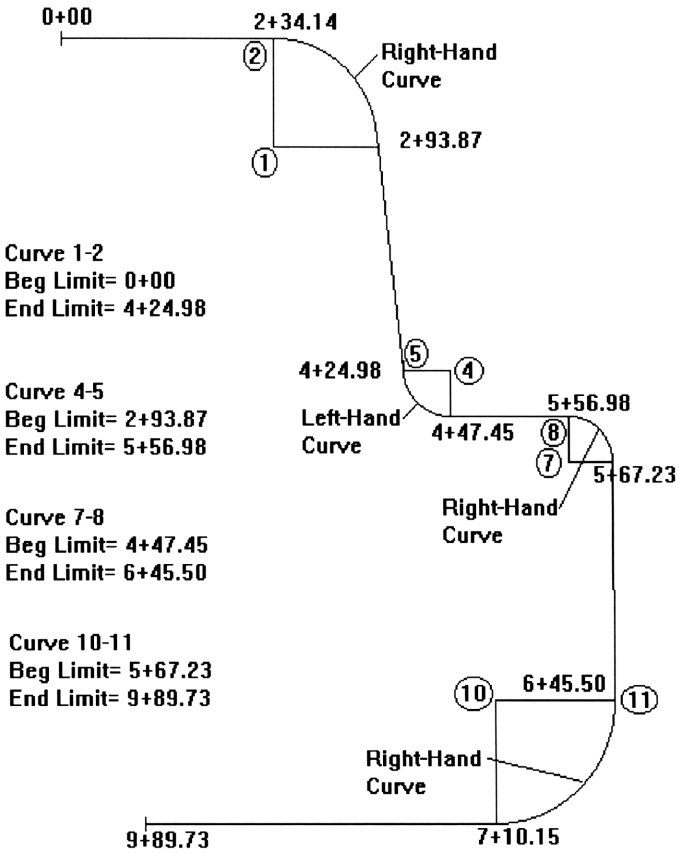
Horizontal Offset: When doing a line the offset is based on going from the beginning point to the direction point. When doing a curve the offset is based on going from the P.C. Station to the P.T. Station. Hit the [+/-] key to change the sign of the offset. Left hand offsets are negative.

Stake Limits: Setting a beginning and ending limit will eliminate crossing over into another line or curve. If you do not use a beginning or ending limit then you can compute any station.

NOTE: To store a setup into a file you must have a Baseline File online and set beginning and ending limits.

Option 3: Allows you to Slope Stake using a Template.
Option 4: Will either display coordinates of station and offset or compute a right-hand angle and distance from the current occuipied point.
Option 5: Will use the current vertical profile to compute a grade using the station. See the **GRADE** program.

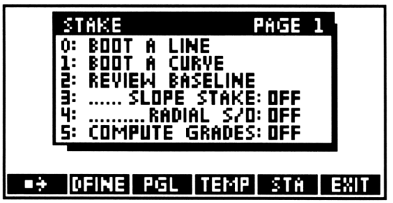
Example of a Baseline File



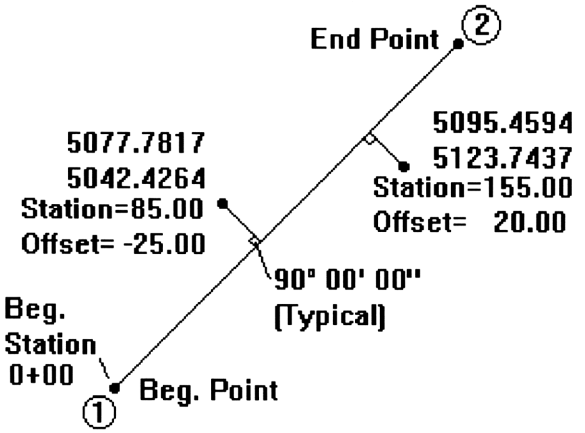
STAKE Booting a Horizontal Line

This part of STAKE computes coordinates using a line as the baseline. The following example will show you how to boot up a line.

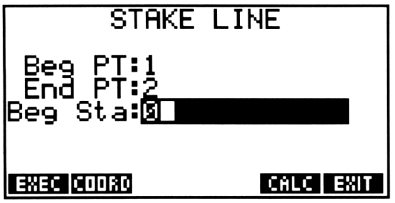
[↱] [STAKE]



[0] Selects the boot a line option



STAKE Booting a Horizontal Line



Enter the beginning and ending points.

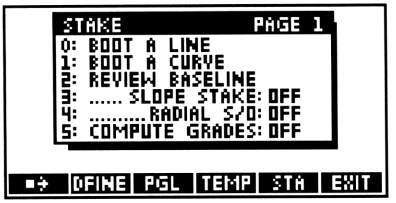
Enter the beginning station. This station is associated with the beginning point and all other stations are subtracted from this station to get the true distance from the beginning point.
Example; Beg. Station of 25.00, Staking station 100.00, The actual distance from the beginning point would equal 75.00.

EXEC

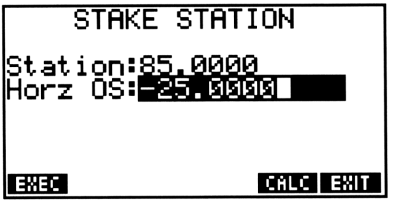
Enter the beginning and ending limits. If you do not enter limits then you can compute any station along the baseline.

If you have a Baseline file on line and set beginning and ending limits the program will prompt you to store the baseline within the current file. Each line or curve can be stored into a file so that you can link them together. A baseline is defined by a point number within a file. If you answer **YES** the program will then prompt you for a point number.

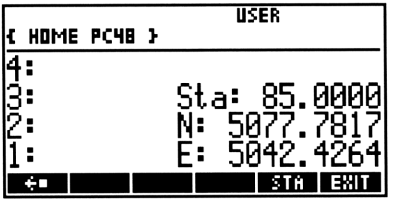
STAKE Booting a Horizontal Line



STA



EXEC



←■ Takes you back to page 1 of **STAKE**

STA Prompts you for a new horizontal station and offset

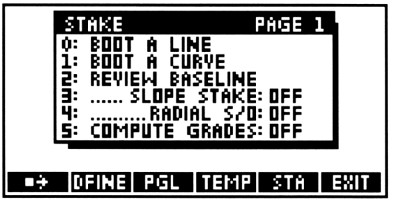
EXIT Exits the **STAKE** program.

STAKE Booting a Horizontal Curve

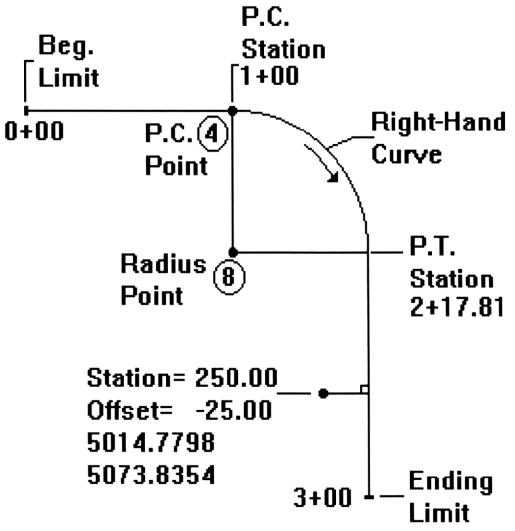
This part of **STAKE** will compute coordinates using a curve as the baseline. The following example will show you how to boot up a curve as the current baseline.

Note: The program is capable of computing coordinates along the back tangent, the curve itself, and the forward tangent.

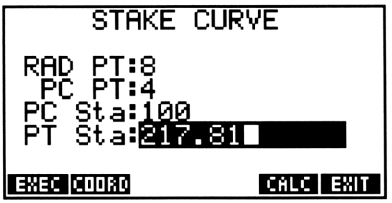
[↱] [STAKE]



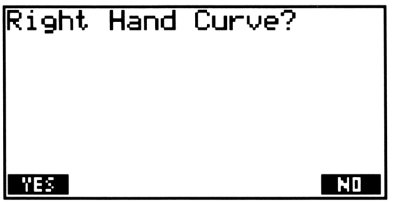
[1] Selects the boot a curve option



STAKE Booting a Horizontal Curve



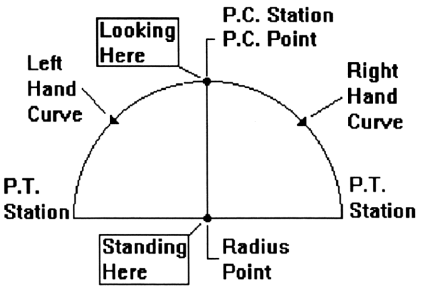
EXEC



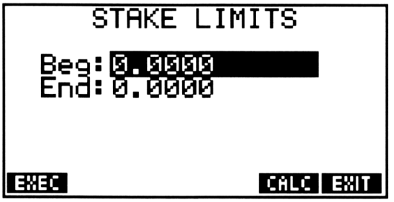
Right Hand Curve?; To explain this it is necessary to visualize that you are standing on the radius point and looking at the P.C. point. The curve would either swing to your left or right hand side.

YES The curve swings to the right.

NO The curve swings to the left.

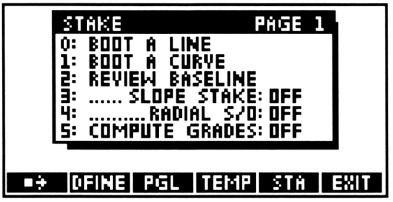


Stake Booting a Horizontal Curve

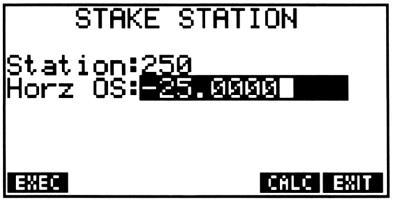


If you have a Baseline file on line and set beginning and ending limits the program will prompt you to store the setup within the current file. Each line or curve can be stored into a file so that you can link them together. A baseline is defined by a point number within a file. If you answer **YES** the program will then prompt you for the point number of the current setup.

EXEC

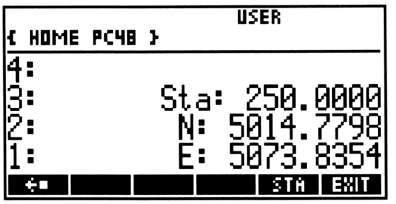


STA



EXEC

STAKE Booting a Horizontal Curve



←■	Takes you back to page 1 of **STAKE**
STA	Prompts you for a new horizontal station and offset
EXIT	Exits the **STAKE** program.

GRADE Overview

The **GRADE** program performs the task of computing grades. The program can work with either a straight grade line or a vertical curve. The program is designed to allow you to interact with the **STAKE** program so that you can generate 3-D coordinates. The program also allows you to store the gradeline as a point number within a Gradeline file. This allows you to link gradelines so that you can store entire subdivision's roads and utilities within files and compute grades with ease. The **GRADE** program can also work with templates for computing grades.

Gradelines are linked together by using beginning and ending limits on each gradeline. The limits are based on the stationing of the gradeline. Because **GRADE** operates from station to station the ending limit of one gradeline must not be the same as the beginning limit of the next gradeline even though they are the same point. For example: A sewer line is stationed 0+00, 1+30, 2+10, 3+15, etc. The first leg would be 0+00 to 1+30; the second leg, 1+30 to 2+10; and the third leg 2+10 to 3+15. However, when entering the limits you must slighting alter the beginning limit of the subsequent leg or the program will not recognize it as a beginning limit of a new leg. Consequently, enter the first leg as 0+00 to 1+30, the second leg as 1+30.001 to 2+10, and the third leg as 2+10.001 to 3+15.
This alteration must be used in order for the program to operate correctly. The small addition should not affect the accuracy of the survey.

The **GRADE** program consists of two menus. The first menu allows you to boot up a straight gradeline, a vertical curve, compute a slope, compute vertical intersection data, and review the current gradeline.

The second menu allows you to create or select a Gradeline or Template file, and turn these files on/off.

GRADE Booting a Straight Grade or Vertical Curve

This program is used to boot up straight grades or vertical curves. If you're doing vertical curves you can compute grades along the back tangent, the curve itself, and the forward tangent.

Gradeline Limits; Setting a beginning and ending limit will eliminate crossing over into another straight grade or vertical curve. If you choose not to use limits then you may compute a grade for any station.

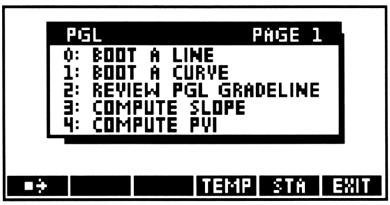
Vertical Offset; This option allows you to add or subtract a distance to the current computed grade. This can be applied to top of curbs or water lines or things of that nature.

Horizontal Offset; When a Template is turned on you will be prompted for a horizontal offset. The offset will determine where on the template to compute a vertical distance to add to the current grade.

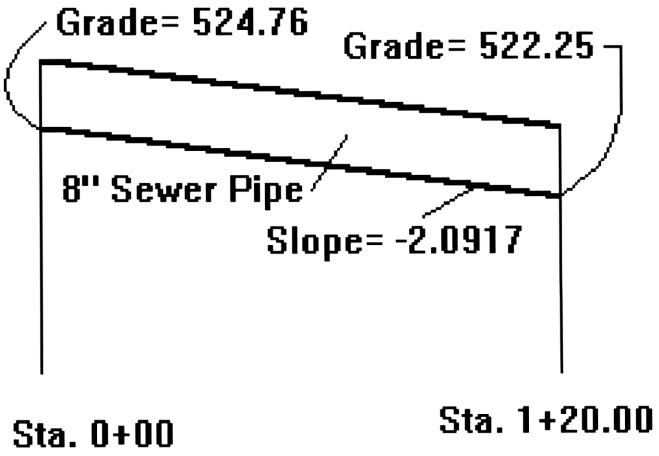
GRADE Booting a Straight Grade Line

This program will compute grades when given a beginning station, a grade, and a percent of slope from the beginning station.

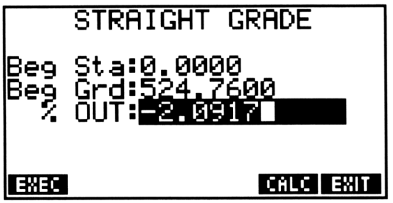
[↱] [GRADE]



[0] Selects the boot a line option



GRADE Booting a Straight Grade Line

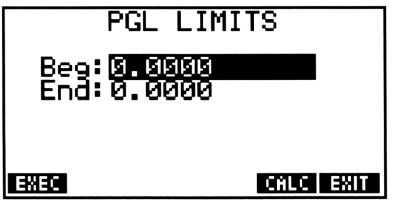


Enter the beginning station, beginning grade, and the slope out.

All stations are subtracted from the beginning station to get the true distance from the beginning point.
Example; Beg. Station of 25.00, Staking station 100.00, The actual distance from the beginning station would equal 75.00.

Note: The slope is entered as shown on a typical profile drawing. If the actual slope is -.03 it is entered as -3.0. This is done to hopefully eliminate errors. (+/- for a negative slope)

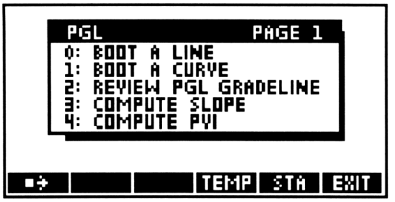
EXEC



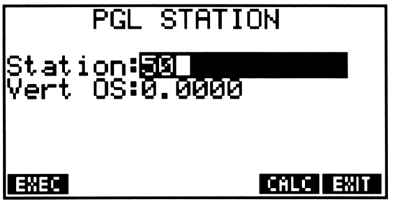
If you have a Gradeline file on line and set beginning and ending limits the program will prompt you to store the gradeline within the current file. Each line or curve can be stored into a file so that you can link them together. The gradeline is defined by a point number within a file. If you answer **YES** the program will then prompt you for the point number of the current setup.

EXEC

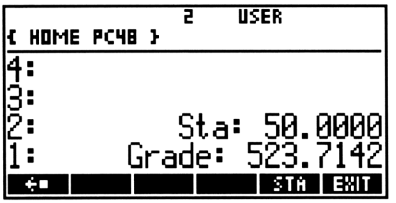
GRADE Booting a Straight Grade Line



STA



EXEC



←■ Takes you back to page 1 of **GRADE**.

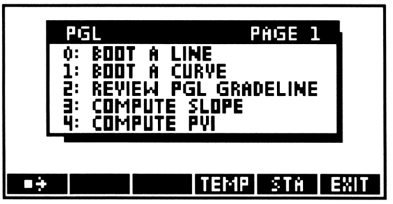
STA Prompts you for a new station and vertical offset.

EXIT Exits the **GRADE** program.

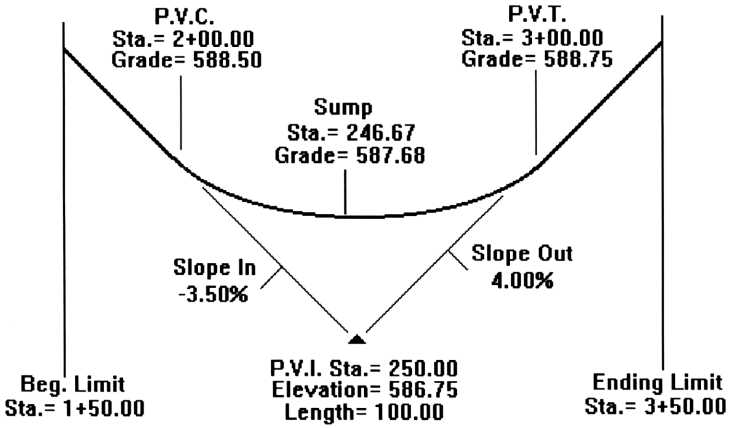
GRADE Booting a Vertical Curve

This program is used to boot a vertical curve. The program allows you to compute grades on the back tangent, the curve itself, and the forward tangent. It will also display the station of a crest or sump within the curve.

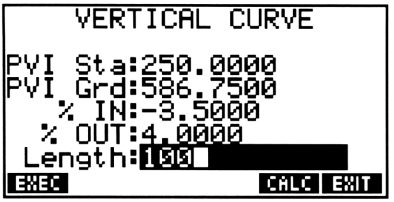
[↱] **GRADE**



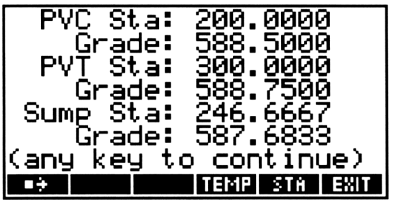
[1] Selects the vertical curve program



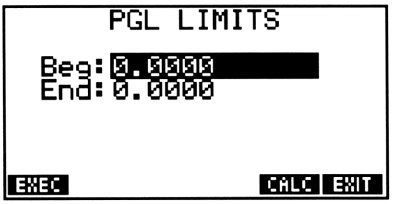
GRADE Booting a Vertical Curve



EXEC



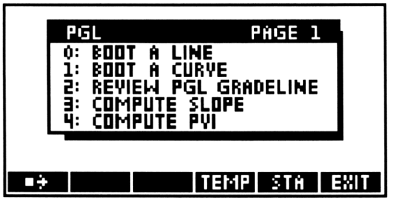
This display shows you the P.V.C. station and grade, P.V.T. station and grade, and the crest or sump station and grade if any.



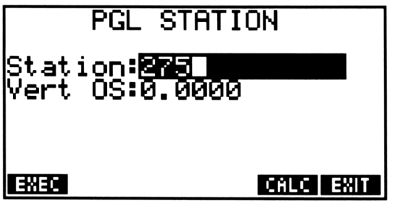
If you have a **PGL** file on line and set beginning and ending limits the program will prompt you to store the setup within the current file. Each line or curve can be stored into a file so that you can link them together. The gradeline is defined by a point number within a file. If you answer **YES** the program will then prompt you for the point number of the current setup.

EXEC

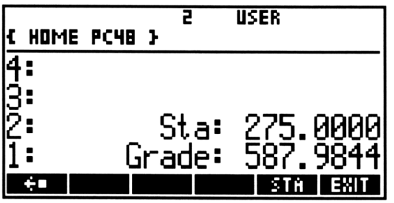
GRADE Booting a Vertical Curve



STA



EXEC



←■ Takes you back to page 1 of **GRADE**.

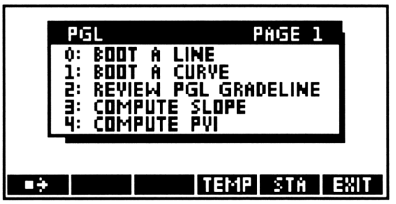
STA Prompts you for a new station and vertical offset.

EXIT Exits the **GRADE** program.

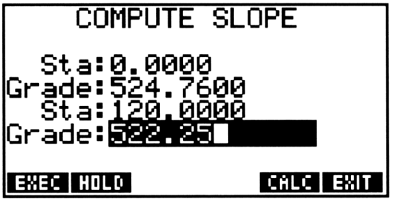
GRADE Computing a Slope

This program is helpful for determining a slope between two points. Once a slope has been computed you can select to hold the gradeline to compute grades from it.

[↱] **GRADE**

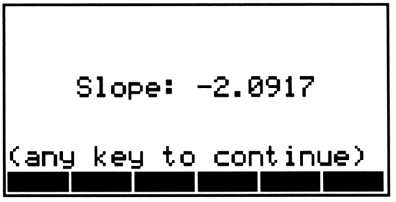


[3] To compute a slope



EXEC To compute the slope

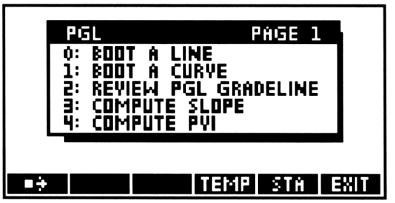
HOLD To hold the current slope. This option will take you into the boot a line program. **NOTE**: You must solve for the slope first.



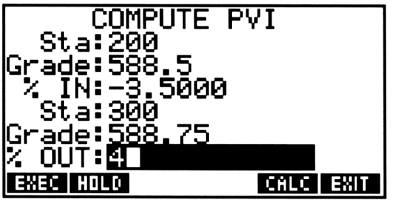
GRADE Computing a PVI Station and Elevation

This program is helpful for computing PVI data between two points. Once the PVI data has been computed you can select to hold the gradeline to compute grades from it.

[↱] **GRADE**

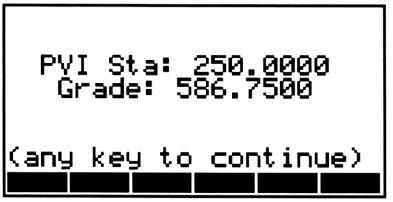


4 To compute PVI data.



EXEC To compute the PVI data.

HOLD To hold the current PVI data. This option will take you into the boot a curve program. **NOTE**: You must solve for the PVI data first. You will also have to enter the length of the vertical curve.



Templates Overview

Templates are used along with the **GRADE** program in that once a grade is computed on the gradeline the horizontal offset is used to compute a point on the template. It uses the vertical distance that will be added to the grade itself. Although you will most likely use a point on the template the program has the ability to interpolate between two points on the template.

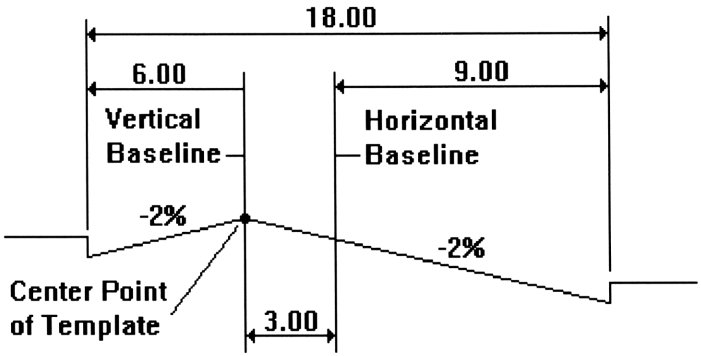
The **Gradeline** is defined as the line at which all grades are computed. The **Gradeline** may or may not be the centerline of a road or structure. It is important that you understand the relationship between the **Gradeline** and the centerline of a road or structure.

Example: A road is 18' feet wide from flow line to flow line, and there is parking available along the right hand side of the road. The crown (high point of the road) is 6' feet from the left hand side of the road. The road was designed to have a -2% slope going from the crown to the left hand side, and a -2% slope going to the right hand side of the road. In this example the crown would be the **PGL** line. As you can see the **PGL** line isn't always the centerline of a road or structure. ***Templates are defined by a horizontal and vertical distance from the Gradeline of a road or structure.*** Templates also allow you to define slopes that protrude from the last point on the left and right hand sides of the template. The slopes come into play when the horizontal offset entered through the **GRADE** or **STAKE** program is greater than the last point on the left or right hand side of the template. A grade will be computed using the slope and the difference in the distance between the horizontal offset and the last point defined on the template.

You can also define the templates' left side as being the same as the right side. This eliminates having to define the same points on both the left and right hand sides of the template.

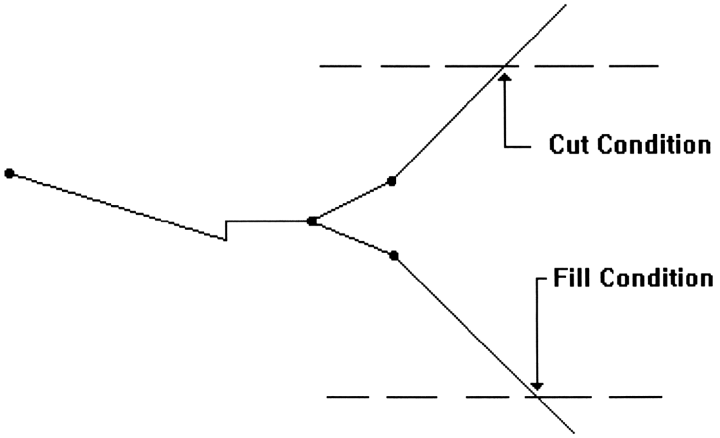
Using the **STAKE** and **PGL** programs combined with a template enables you to slope stake with ease. Before using these programs together you should fully understand how each program works independently. The following pages will show you how to create a template, and define the horizontal and vertical offsets.

Templates Overview



Cut & Fill Templates

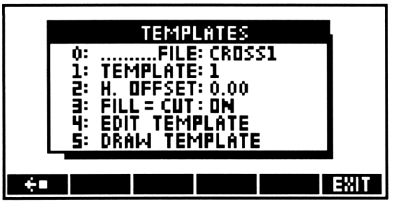
The fill template is only used when **Slope Staking**. All other template operations use the cut template. The cut template is the default template. If you are using a template to stake out curbs, sewer, water etc., the program uses the cut template.



Templates Main Menu

When creating a Template file you should keep in mind that they consume a lot of memory. 5 templates are stored per block.

[↱] [TEMPLATE]



[0] Allows you to select or create a template

[1] Allows you to select a template by point number

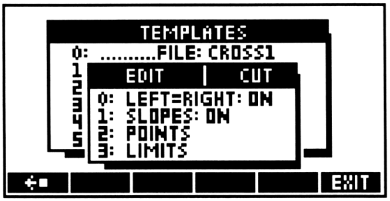
[2] Allows you to specify how far the PGL line is from the Horizontal Baseline. This distance is defined by the stationing of the road. **Example:** Your standing at sta. 0+00 of the horizontal baseline and looking at sta. 2+00. The PGL line would fall either on your right or left hand side. [+/-] for a left offset.

[3] Toggles between on/off. Defines if the Fill Template (only used with the **Slope Stake** program) is equal to Cut Template. See Slope Staking for more information.

[4] Allows you to edit template points, slopes and beginning and ending limits. **Note:** If Fill is not equal to Cut then it will ask which one you want to edit.

[5] Will plot either the cut or fill template. **Note:** If Fill is not equal to Cut then it will ask which one you want to plot.

Templates Main Edit Menu



0 Toggles between on/off. If turned ON then you only have to define the right side of the template.

1 Turns the slopes on/off. If turned ON then a grade is computed using the horizontal offset.
Example: The grade computed on the PGL equals 500.00; The slope of the right side of the template equals 2:1 (1 foot vertically to every 2 feet horizontally); The horizontal offset equals 30.00; The last point on the right side of the template equals 20.00 horizontally from the PGL and 1.00 vertically above the PGL line. The new grade using the template would equal 506.00. The equation would be; 30.00 (horizontal offset) - 20.00 (last horizontal offset on template) = 10 * .50 (2:1 slope as a fraction) = 5.00 + 1.00 (vertical offset of last point on template) = 6.00 + 500 (grade on the PGL line) = 506.00 (new grade)

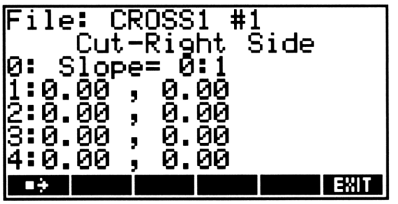
2 Allows you to edit the points and slopes on the template.

3 Allows you to define the beginning and ending limits of the current template. Both the cut and fill templates use these limits.
Important Note: You must define limits on every template.

EXIT Exits the edit menu.

Templates Editing Slopes and Points on the Template

There can be 9 points on both the left and right side of a template giving you a total of 18 points not including the centerline point. If the option (Left = Right:) is set to OFF then you will be prompted to edit the right or left side.



■→ Takes you to page 2 of the edit menu. Template points 5 - 9.

0 Allows you to edit the slope of the template.

1 Allows you to edit this point on the template.

2 Allows you to edit this point on the template.

3 Allows you to edit this point on the template.

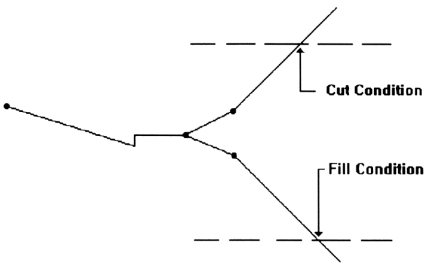
4 Allows you to edit this point on the template.

EXIT Exits back to the main edit menu.

Slope Stake Overview

The Slope Stake program works with the **STAKE**, **GRADE**, and Template programs. You should first read through and run these programs before attempting to run the Slope Stake program. Slope Stake works by using the slope assigned to the current template and the elevation of the last shot recorded and intersecting where they would meet to form the top or toe of the slope. After the program has computed this information it will inform you to move to or away from the PGL line. It is important that you know where the horizontal baseline runs in relation to where the rod man is located. You should picture in your mind where the road will go while you're slope staking. Once you begin staking the road, you will be able to see how the road actually runs. You can define an offset to the point at the top or toe of the slope to give the construction equipment room to work.

Fill Templates can be used with slope stake in that they provide a optional template to use in a fill condition. Most templates will only have one condition in both cut or fill conditions. If your road requires a different slope for cut and fill conditions then you will want to define both a cut and fill template. The slope stake program will automatically determine which template to use while you are slope staking.
The following shows how you could have different cut and fill conditions.



Slope Stake Step by Step

1 Set up the Total Station in the field on a known point or where you can see at minimum two known points.

2 Locate a known point or points and use either the **INVERSE, TRAVERSE,** or the **KEY** program to set the occupied point and backsite within the HP48.

3 Compute the instrument elevation either by using a plus distance or by using a benchmark point within the **ELEVATION** program.

4 Check to a known point to verify the setup.

5 **Option:** Go into the **GRADE** program and boot up a straight gradeline or vertical curve or select a PGL file, and turn it ON. (You can also select a Gradeline file from within the **STAKE** program)
Note: If you are slope staking from an existing road you can input the grade in the Main Slope Stake Menu by hitting the G key and entering the grade. Also if you are not slope staking to the centerline of the road then offset your templates accordingly. (option 2 in the Template program)

6 Go into the **STAKE** program and boot up a line or curve or select a STAKE file, and turn it ON.

7 Go to page two of **STAKE** and select the Template you want to work with, and turn it ON. **Note:** Templates must be turned ON to Slope Stake.

8 Turn Slope Stake ON within the **STAKE** program.

9 Turn Radial S/O ON within the **STAKE** program.

Slope Stake Step by Step

10 **Option:** Turn Compute Grades ON within the **STAKE** program.

11 Press the **DFINE** softkey within **STAKE** and define the grade ID, Elevation ID.

12 **Option:** Press **C U T** within the **DEFINE** program and create or select a Cutsheet. Define headers 1 & 2, and turn the Cutsheet ON. Exit back to the DEFINE program.

13 Press option [2] (S/O Station) within the DEFINE program and enter a station.

14 When the horizontal offset prompt appears you should estimate the approximate offset where the slope will intersect the existing ground. You can figure this by looking at your plan and profile drawings. Once you begin staking, the next station's offset should be easy to determine.

15 Enter the S/O offset to the top or toe of the slope.
This gives construction equipment room to work without knocking out your stake.

16 The program will compute the north and east coordinates and grade (Only if Compute Grades option is ON). It will then take you into the Main Slope Stake Menu. This menu will display the station you're staking, the horizontal offset, the S/O offset, the right-hand angle to turn on the Total Station, The horizontal distance to the computed point is from the occupied point, the current prism height, and whether to go right, left, back or ahead to get to the computed point.

Slope Stake Step by Step

17 Turn the horizontal angle in the Total Station to match the computed right-hand angle.

18 Place the rod man on line.

19 Hit the GUN→ softkey to shoot the Total Station.

20 Move the rod man back or ahead until he is on the computed point.

Repeat steps 19-20 until the rod man is on the computed point.

21 Once the rod man is on the computed point the bottom of the display will show you if he should go towards or away from the gradeline.
Note: The program assumes that the existing ground is level. If the existing ground is not level the rod man should compensate to move horizontally towards or away from the gradeline.

If the distance is **greater** than 3' feet then hit the [R] key to resolve for a new computed point. This new computed point is figured by adding the distance to go towards or away from the gradeline to the current horizontal offset.
Repeat steps 17 through 20 until the rod man is within 3' feet of the toe or top of slope.

If the distance is **less** than 3' feet then just have the rod man move towards or away from the gradeline and set the stake or hub.

Hit [R] to adjust the offsets to the stake or hub.

Slope Stake Step by Step

22 Once you have set the stake or hub at the top or toe of the slope you can choose to hit the **GUN→** key to get a new elevation of the stake or hub.

Warning: Do not hit the **R** key. If you hit the **R** key to resolve the program will compute offsets that will not match where the stake or hub is in the ground.

23 Hit the **INFO** key to display the Slope Stake information. If the offset to the top or toe of slope is not equal to zero (0) the program will flash the message

"RUN RESOLVE". This is only to make sure you hit **R** to resolve while at step 21.

24 The information displayed will show you the current station, horizontal offset from the gradeline, the S/O offset, the instrument elevation, the current prism height, and the current elevation of the stake or hub the rod man just put in. The next to the last line of the display will show you the offset from the gradeline, the grade of the gradeline, and either a cut or fill to the gradeline grade. The last line of the display shows you the same information for the last point defined on the current template.

25 **Option:** Hit the **STO** key to store the information in the gradesheet.

26 Hit the **DFINE** key to define a new station to Slope Stake. Return to step 13.

Checking points in the field

After slope staking about 500 feet you should check between stakes to make sure everything is correct. A way to check is to measure between the stakes on the right and left sides of the same station. The distance measured in the field should equal the sum of the offsets from the PGL line.

Gradesheets Overview

You can record Gradesheets while you are staking points, a station and offset, or while slope staking. You can produce instant, and full reports in the field. A serial printer is required to print from the HP48. You can also download gradesheets to **FileMan48** for archiving and printing. Instant reports are intended for contractors and government agencies. Full reports are for your use and show raw and computed data. They show a horizontal error for each point staked out so you can quickly find any mistakes. **Note:** It is good practice to locate a known point with a grade as the first point in the gradesheet. This acts as a check when you print a full report.

[↱] [GRADESHEET]

[0] Allows you to select or create a gradesheet

[1] Allows you to turn gradesheets on/off

[2] Allows you to define a header
Example: Name of the road you are staking out.

[3] Allows you to define a second header such as to define what you are staking out (Curb & Gutter, Sewer, Water, Slope Stake etc.)

[4] Allows you edit gradesheet

[5] Allows you to print gradesheet

[EXIT] Exit gradesheets

Gradesheets

Using a Gradesheet requires the following:

1 Create a Gradesheet File

2 Turn the Gradesheet ON

3 Define HEADER #1

4 Define HEADER #2

5 Define Elevation ID (In Define Menu)

6 Define Grade ID (In Define Menu)

7 Define S/O information (In Define Menu)

8 Define a point number or station and offset.

9 Stake-out the computed point while in the Main S/O Menu.

10 Hit the [STO] key (after the point is staked out) to store it in the current **Gradesheet** file.

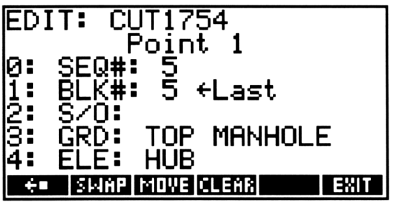
Repeat steps 8, 9 and 10 until all points have been staked out.

11 Print Gradesheet in the field or download to **FileMan48** and print Gradesheet in the office.

12 Delete Gradesheet from HP 48.

Gradesheets Edit

You can only edit existing data in a Gradesheet. The edit program only allows you to edit the text associated with a Gradesheet. You can also swap and move points to print them in a different order than they were collected. If for some reason your Gradesheet doesn't print instant and full reports correctly after editing you can print a worksheet to display the Gradesheet in the order the data was collected. Sequence numbers represent the printing order and Block numbers represent the order in which the points were collected.



[0] Allows you to select a sequence # to edit.

[1] Allows you to select a block # to edit.

[2] Allows you to edit the S/O information
Allows you to edit Header #1 if control point

[3] Allows you to edit the Grade ID
Allows you to edit Header #2 if control point

[4] Allows you to edit the Elevation ID

SWAP Allows you to swap sequence numbers

MOVE Allows you to move sequence numbers

CLEAR Allows you to clear current block number

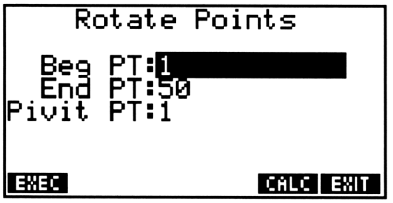
EXIT Exits edit program

Rotate and Translate

This program allows you to rotate, translate, and adjust the grades of a cogo file. Since this program will change the existing data, it allows you to define a destination file for storing the new data. The destination file can be the source file if you wish, but it is recommended that you use a new file. The destination file is given the point prefix of "RT". The program will prompt you for a beginning and ending point number, so you can just rotate a certain part of a file. The program will not affect points with a value of zero (0). Once the program is done the source file is made current file .1, and the destination file is made current file .0. (see the **Setting Cogo Files** program)

[↱] **ROTATE**

Enter the source file to be rotated.



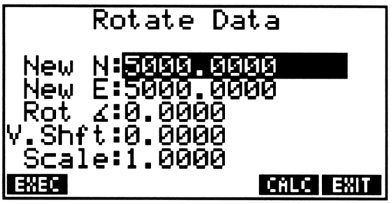
Enter the beginning point to start rotating.

Enter the ending point to stop rotating.

Enter the pivot point.
(all points are rotated around this point)

EXEC

Rotate and Translate



Enter a new north coordinate for the pivot point.

Enter a new east coordinate for the pivot point.

Enter the rotation angle in HMS format.
(+/- for left hand angle)

Enter the distance to shift the grades.
(+/- for negative)

Enter a scale factor.

EXEC

Enter the destination file name. If the file doesn't exist it will prompt you to create a new file.

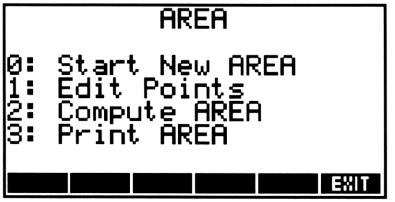
Enter the point number in the destination file you want to start storing at.

Shows you the rotation process.

Area Program

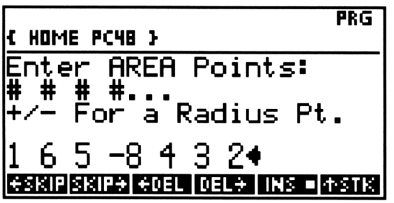
This program computes areas by using point numbers. The area may be defined by lines and curves. ***Since the program can handle curves you must run clockwise around the property.*** If you do not end on the point you started on the figure will be closed automatically.
Note: You can not start on a radius point.

[↱] [AREA]



[0] Will start a new area.

[1] Will prompt you for the points. This example is using the example file. (see below)



[2] Will compute and display the results. Please note that it will prompt you for curve data as well.

[3] Will allow you to print the AREA to an infrared or serial printer. Please note that you select the printer port within the **CONFIG** program.

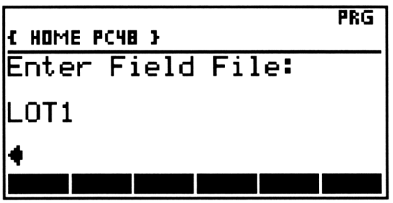
EXIT Will exit the AREA program.

Match Comparing Field Data to Computed Data

This program will compare two files to determine which three points of an assumed field file best match a computed file. The field file doesn't have to be on the same grid as the computed file, and the point numbers don't have to be the same either. The program will solve for all the possible combinations to get the best result. The program will display the best match as it's computing. If you are satisfied with the current match, then hit the ON key to stop the program.

Note: Since the program will solve for all possible solutions it may take a while to do a large number of points. A field file of 10 points will take approximately 10 minutes, 15 points will take approximately 35 minutes, and 20 points will take approximately 1 1/2 hours. **Example:** 10 points have 120 possible solutions.

[↱] MATCH



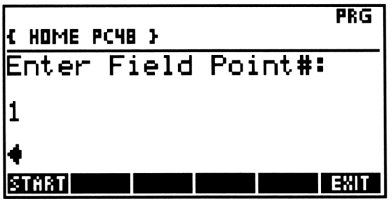
Enter the name of the field file

ENTER

Enter the name of the computed file

ENTER

Match Comparing Field Data to Computed Data



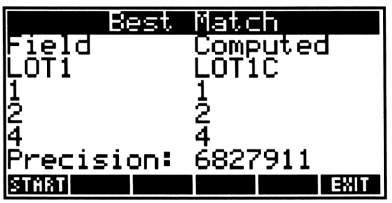
Enter a point number within the field file
ENTER

Enter the computed point number that coincides with the field point number.
ENTER

Repeat the last 2 steps until you wish to start the program. **Note:** You must use at least 3 field points to get a result.

Hit **START** and then **ENTER** to begin the program.

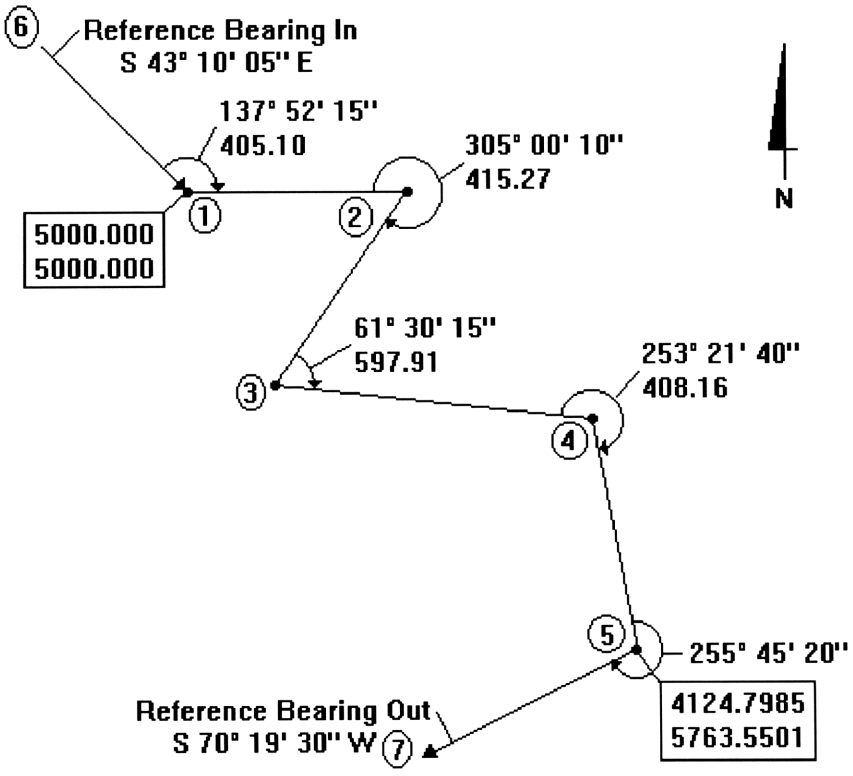
If you have a serial printer you can have the program print the results so you can track which points best match.



This display shows you the computing process as it is running along with the best current match. The field point is shown along with the computed point that coincides with it. It also shows the precision of the match. A good match will have a precision of 50,000 or greater.

Compass Rule Adjustment

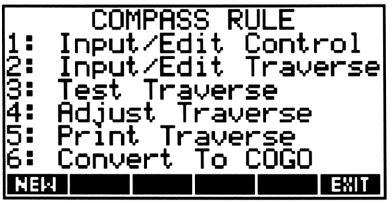
This program is a simple yet efficient way to adjust traverse data. It allows you to test the angles and closure separately. The programs accepts average right-hand angles and horizontal distances.



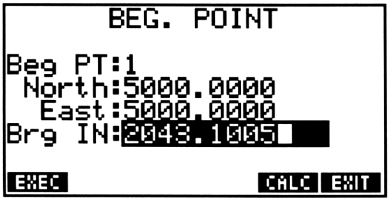
Compass Rule Adjustment

[↱] [COMPASS]

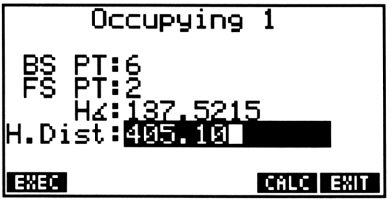
Please note that for some users this program is assigned to the [↱] [PLOT] key.



[1] Allows you to input the control for the traverse. (see below) Please note that if you are doing a closed loop you only need to enter a reference bearing in and beginning coordinates. Make the beginning and ending points the same. The reference bearing in would be the last leg of the traverse.

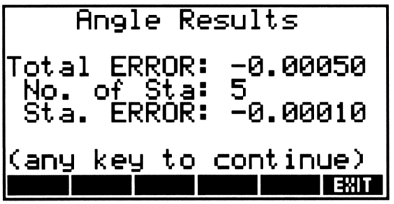


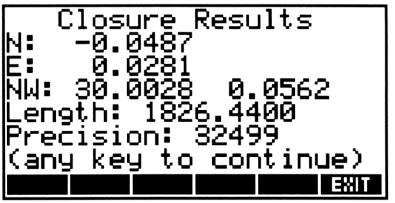
[2] This will prompt you for an occupied point. After entering the occupied point the program will take you into the input screen. (see below)



Compass Rule Adjustment

[3] This will allow you to test the angles and closure of the traverse. **NOTE**: You must test the angles first. The closure results reflect an angle adjustment.





[4] This will adjust the traverse using the Compass Rule method.

[5] This will allow you to print the traverse data to a infrared or serial printer. **NOTE**: You may want to print the traverse both before and after the adjustment.

[6] This will convert the adjusted traverse into a COGO file.

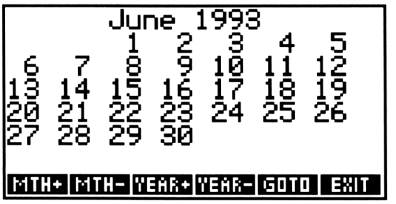
NEW This will prompt you to begin a new traverse.

EXIT This will prompt you to delete the traverse data. You should delete the traverse data when you have completed your adjustment to clear memory.

Calendar

This program displays the current calendar to the screen. You can flip through calendars by hitting one of the softkeys. You can also specify a date in (MM.YYYY) form to display a calendar.

[↱] [CALENDAR]



MTH+ Moves one month ahead.

MTH- Moves one month back.

YEAR Moves one year ahead.

YEAR- Moves one year back.

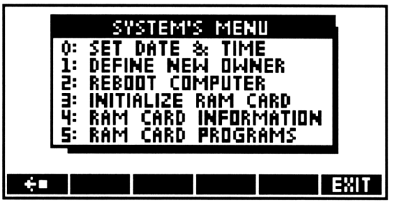
GOTO Allows you to enter a month and year and display a calendar.

EXIT Exits the calendar program.

System Program

The system program allows you to set variables that the software uses to maintain certain functions. It's important to have the date and time set correctly to keep your data files updated.

[↱] [SYSTEM]



[0] Sets the current date and time.

[1] Allows you to view or change the current owner's name.

[2] Reboots the computer.

[3] This will prompt you for the RAM card title and then prompt you to make sure you want to initialize the RAM card. **WARNING**: Initializing the RAM card will delete all programs and files.

[4] This will display the RAM card size, the date it was initialized and by whom, and the title of the RAM card.

[5] Takes you into the Ram Card menu (See next page)

EXIT Exits the system program.

System Program Ram Card Menu

This program allows you to load **RAMSS** programs onto the RAM card. The program requires that you load the **LOADER** program first. The **LOADER** program installs and deletes **RAMSS** programs on the RAM card.

To load the **LOADER** program we have developed an automated program for the PC that will make this operation simple. You will need access to a PC and have a PC interface cable connected to one of the PC's serial ports.

Loading programs from the 5 1/4" disc.

1 Press option **5** within the **SYSTEM** program. You will be prompted to read the **LOADER** program. Press the **YES** softkey.

2 Connect the HP48 to the PC via the serial cable.

3 Insert the **Party Chief** 5 1/4" disc. into drive A: (or B:).

4 On the PC type: **A:** and press the **ENTER** key.

5 On the PC type: **AUTOLOAD** and press the **ENTER** key.

6 If you are using the COM1 port type "Y" at the prompt. If using COM2 type "N".

7 On the HP48 press the **LOAD** softkey.

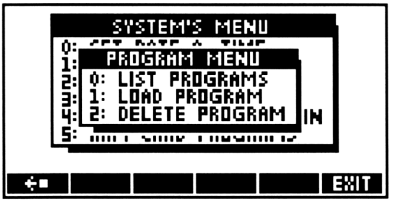
The HP48 should connect and load the **LOADER** file from the PC.

If you have PROBLEMS

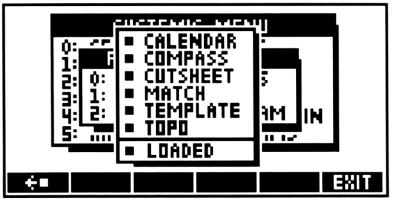
Try running **KERMIT** manually.
At the DOS prompt A:\ Type: **KERMIT** and press the **ENTER** key.
Type: **SET PORT 2** and press the **ENTER** key.
Type: **SERVER** and press the **ENTER** key. Go to step 7 above.

System Program Ram Card Menu

This section applies to HP48SX users only. The GX version loads all programs simultaneously.
Once the **LOADER** program has been loaded into the HP48 you can pick and choose the programs you want to load. You can also delete programs if you need more memory for files at anytime.



0 The **RAMSS** programs listed are on the floppy disc supplied. (see below)



1 This will prompt you for the name of the program to load. It will the display the steps required to load the program. (see previous page)

2 This will prompt you for the name of the program to delete. It will prompt you to make sure you want to delete it. Press the **YES** softkey to delete the program.

←■ This will take you back to the **SYSTEM** program.

EXIT This will exit you back to the keyboard.

User Keys Menu

The User Keys Menu allows you to load other miscellaneous programs on the RAM card. The program requires that you load the **LOADER** program first. Only programs and functions are permitted and NOT Libraries. Libraries will not work with 256k and 512k RAM cards. This menu will also act as the platform for future programs released by **RAMSS** Inc. This program **Requires Advanced Coordinate Geometry**.

[↱] [MENU]

LOAD Allows you to load programs from a PC to the RAM card into the current highlighted block.

RUN Runs highlighted program or function.

DEL Deletes highlighted program or function from menu and/or RAM card.

DFINE Allows you to define functions or programs to the highlighted block. Functions are defined as any object that is executable.

EXIT Exits menu environment

ENTER Runs highlighted program or function.

Note: The User Keys Menu coincides with the keyboard.
You must hit the left shift key [↰] before accessing the program or function from the keyboard.
Example:The upper left hand block is assigned to key **7** (STAKE).

Topo Collection Page 1

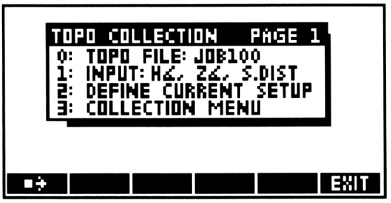
The topo collection software is designed to allow you to define all the topo codes and text associated with the data you are collecting. We supply a default set of codes and text, but you can edit these to meet your needs. Each code is assigned to the keys G through W. This means that you just hit the key that corresponds to the topo feature you're collecting. Once you have collected the data you can process it into a cogo file for doing coordinate geometry. The process procedure works by defining a cogo control file that contains coordinates of any Occupied, Backsite, or Benchmark points.

→ TOPO

0 This will prompt you for the current topo file. If you input a new file name then you will be prompted to create a new file. The file name can be up to 8 characters long.

1 This will toggle between four (4) different types of raw data input.
Automatic - Uses current Total Station selected within the **CONFIG** program.
The following types of input are for manual entry.
H<, Z<, Sd. Horizontal, Zenith angle, Slope distance
H<, V<, Sd. Horizontal, Vertical angle, Slope distance
H<, Hd, Vd. Horizontal angle, Horizontal, Vertical distance

Topo Collection Page 1



[2] This allows you to define the current setup. The Occupied point, Backsite point, Benchmark point if any, and the plus distance from the ground to the instrument are defined.

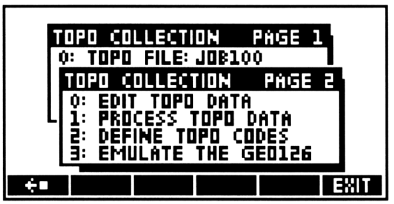
[3] Takes you into the collection menu.

■→ Takes you into page 2 of the topo collection program. (See the next page)

EXIT Exits the topo collection program, and causes the current topo file to be updated with a new date and time.

Topo Collection Page 2

The second page of topo collection allows you to edit the topo data, process the raw data into a cogo file, define the topo codes and info2 (text) for the topo keyboard, and download the raw topo data to emulate the GEO126 data collector for doing digital terrain mapping.



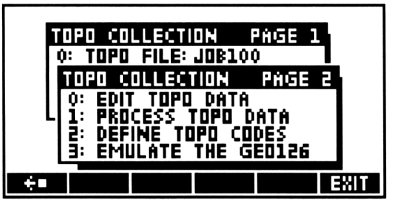
0 Takes you into the edit program.

1 This will prompt you for the cogo control file and a new cogo file name for the processed topo file. The control points are the occupied, backsite, and benchmark points you defined in the define menu before collecting the topo data. The instrument elevation for each setup is determined as follows:

Benchmark Point
Occupied Point
Backsite Point

A benchmark point out weighs all others. The program processes the topo file so that the point numbers in the new cogo file will coincide with the topo file. This means that the control points within the topo file will have the value of the control points used. The control setup within the topo file takes up a total of three points. The code number and info2 (text) of the topo points collected are combined to make up the text of the points within the new cogo file.

Topo Collection Page 2



2 This allows you to edit all the codes and info2 (text) that are associated with the topo keyboard. See page 116 to see how the point index number corresponds with each key.

3 This will download the topo data emulating the GEO126 data collector for doing digital terrain mapping. Digital terrain mapping allows you to produce a finished map of all the topo features including contouring. For more information on what CADD systems offer this software, please contact us.

Takes you back to page 1 of the topo collection menu.

Takes you back to page 1 of the topo collection menu.

Topo Collection Main Collection Menu

This menu allows you to collect the raw data associated with the control points and the topo data itself. When you make a new setup in the field to locate topo data you must tie the topo data in with some type of control. A backsite measurement must be recorded before you can collect any topo data. The benchmark may be located to tie the data in vertically, but it's not necessary. The program will give you an error message if you try to collect topo data without locating the backsite point. Once you have shot or entered the data to the control points the program will display the raw data and ask you if it is correct. Look the data over and hit either the **YES** or **NO** softkey. If the control points are correct then you can begin to collect the topo data.

The topo collection menu displays the current topo file name, the next point to be recorded, the occupied point, the backsite point, the plus distance, the current prism height, the current code, the current info1 data, and the current info2 data.

The topo collection process works by you selecting a key **G through W**. The software will then shoot the Total Station or prompt you for the raw data and store the point and move on to the next point to be collected.

Raw topo is stored into a temporary file until you collect up to 50 points. The program will automatically store and resize the file as you collect topo. If you should perform an abnormal exit while collecting topo you can recover the points by entering the TOPO program and answering **YES** to the prompt "Recover Topo Data?".

Topo Collection Collecting Topo

G to R Selects line codes.

S to W Selects symbol codes.

PT↑ Allows you to delete the last point recorded, or adjust the horizontal angle, horizontal distance, vertical distance, and the prism height recorded on the last point. This can be used to locate trees and things of that nature where you must alter the measurements to get the true location of the topo feature.

RAW Allows you to view the raw data recorded on the last point. This can be used to make sure the data the computer is reading is the same as the data on the total station.

TEXT This will toggle on/off. If set to **ON** then a solid block will show up next to the softkey. When Text is **ON** you will be prompted at each shot to type in text that describes the point you're locating.

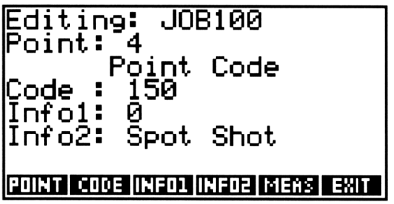
AUTO This option allows you to hold the last code (topo feature) recorded. This is useful when you have to repeatedly locate the same topo feature.

HELP This option will prompt you to hit a key from **G** through **W**, and return the index number along with the current code number and info2 for the key pressed. This allows you to view the code number and info2 information before taking a shot.

EXIT Exits back into the Main Collection Menu.

Topo Collection Editing the Topo File

Before you can edit the topo file you must have collected data first. The program defaults to the last point within the topo file. It allows you to edit the code, info1, info2 (text), and the measurements associated with a topo point. This works similarly to the cogo edit program in that you can scroll up and down through the points using the [▲] and [▼] keys.



POINT Allows you to define which point you want to edit.

CODE Allows you to edit the code.

INFO1 Allows you to edit info1. (decimal value)

INFO2 Allows you to edit info2. (alpha string)

MEAS Allows you to edit the measurements made on the point. (Toggles Between codes and measurements)

EXIT Takes you back to the Topo Collection Menu.

Topo Collection Understanding the Keyboard

The topo collection program was designed to allow you to define the code numbers and info2 (text) of topo features. The keys that are associated with the topo collection program are keys **G** through **W**. Keys **G** through **R** are for line types while keys **S** through **W** are for symbols. When using line types you will be prompted for the location on the line. There are four options to choose from. (Beginning of line, connect from the last point with a straight line, the mid-point of a curve, and connect from the last point with a slick curve)
The list below shows how the keys and point index numbers corresponds to the **Default** topo codes we supply.

KEY	INDEX	CODE	INFO2 (Description)
	Line Codes		
G	1	108	Centerline
H	2	104	Curb Line
I	3	105	Edge of Road
J	4	104	Edge of Shlder
K	5	100	Break Line
L	6	106	Building Line
M	7	110	Flow Line
N	8	111	Fence Line
O	9	112	Tree Line
P	10	100	Guard Rail
	Utility Lines Menu		
Q	11	115	Sewer Line
Q	12	117	Water Line
Q	13	116	Storm Drain
Q	14	119	Electric Line
Q	15	120	Telephone Line
Q	16	118	Cable TV Line
Q	17	113	Power Line
Q	18		
Q	19		
Q	20		

Topo Collection Understanding the Keyboard

KEY	INDEX	CODE	INFO2 (Description)
	Miscellaneous Lines Menu		
R	21		
R	22		
R	23		
R	24		
R	25		
R	26		
R	27		
R	28		
R	29		
R	30		
	Miscellaneous Symbols Menu (A)		
S	31	150	Spot Shot
S	32	167	Utility Pole
S	33	168	Pole W/Light
S	34	170	Sign Post
S	35	152	Mail Box
S	36	151	Bldg. Corner
S	37	159	Parking Meter
S	38	173	Bush
S	39	157	Trash Can
S	40	151	Head Wall
	Miscellaneous Symbols Menu (B)		
T	41		
T	42		
T	43		
T	44		
T	45		
T	46		
T	47		
T	48		
T	49		
T	50		

Topo Collection Understanding the Keyboard

KEY	INDEX	CODE	INFO2 (Description)
	Utility Symbols Menu		
U	51	166	Water Well
U	52	158	Water Meter
U	53	162	Value Box
U	54	169	Fire Hydrant
U	55	159	Clean Out
U	56	160	Sewer Manhole
U	57	165	Gas Riser
U	58	164	Telephone Riser
U	59	163	Electric Riser
U	60	161	Storm Inlet
	Monument Symbols Menu		
V	61	153	Iron Pin
V	62	154	Iron Pipe
V	63	155	Conc. Monument
V	64	160	Stone
V	65	156	R/R Spike
V	66	159	Iron Axle
V	67	151	Nail
V	68	153	Fence Post
V	69	158	Angle Iron
V	70	156	Traverse Point
	Tree Symbols Menu		
You will be prompted for the size of the tree.			
W	71	180	Banyan Tree
W	72	178	Citrus Tree
W	73	172	Coniferous Tree
W	74	171	Deciduous Tree
W	75	176	Maple Tree
W	76	179	Oak Tree
W	77	175	Palm Tree
W	78	177	Pine Tree
W	79		
W	80		

Topo Collection Step By Step Check List

The list below shows the steps taken in collecting topo data.

1. Select or create a topo file.

2. Select the way you want to input the raw data.

3. Define the current setup. Occupied point, Backsite point, Benchmark point, and Plus Distance.

4. Collect the raw data for the Backsite point and the optional Benchmark point.

5. Collect the topo data.

6. Process the topo data into a cogo file.

Steps 3 through 5 should be repeated for every new setup you make in the field. There is no limit to the number of new setups within a topo file.

Program Access

If you need additional information you can contact us directly since it would take far to many pages of this manual to document all the features of **Party Chief**.

Running **Party Chief** will cause the HP48 to create a directory called "pc48". If this directory already exists then the program will switch to that directory. The directory "pc48" contains all the variables used by **Party Chief**. When writing your code you should use this directory to house your variables.

The software was designed to allow for future growth. Software can be loaded on RAM cards and run with **Party Chief** with ease. Programmers can write their own software to work directly with **Party Chief**. The backbone of the system is the **Party Chief** module which contains subroutines and functions needed to run software on RAM cards. A total of 256K of software can be loaded if you are using a 256K or 512K RAM card. Please note that you should leave room for data storage if you are using a 32K or 128K RAM card.

Programmers Tools

The following routines will allow you to store and recall points from a existing Cogo File. Before you can access a file it must be set as one of the 5 current cogo files. **Warning:** The store routines do not check for existing data.

Function	Levels of Stack	Input	Output	
STOXY	**3**		**North**	
	2		**East**	**North**
	1		**Point**	**East**
STOXYZN	**5**		**North**	
	4		**East**	**North**
	3		**Grade**	**East**
	2		**Text**	**Grade**
	1		**Point#**	**Text**
RCLXY	**2**			**North**
	1		**Point#**	**East**
RCLXYZN	**4**			**North**
	3			**East**
	2			**Grade**
	1		**Point#**	**Text**

Trouble Shooting

If you are having a problem with your computer, and you need assistance please feel free to give us a call.
You should look in the HP48 owner's manual first. It explains most of the problems you may encounter. The following information pertains to the **Party Chief** software in general.

The computer locks up and doesn't respond to keystrokes.

Perform a warm start by pressing the ON and C keys simultaneously.

Type **RESET** to reset the Party Chief software.

The computer doesn't display the graphics correctly.

Type **RESET** to reset the computers graphic parameters.

When hitting a program key the computer doesn't execute the program.

Make sure that the "USER" annunciator is on.
Press ← USER

Type **RAMSS** to reboot the software

Make sure that the port the **Party Chief** ROM is installed correctly.

The error "undefined name" appears in the display.

Make sure the USER annunciator is on and type **RESET** to get back into the pc48 directory.

Trouble Shooting

The error "->HMS" appears in the display.

Check the data you're using to compute with.

You're having problems sending and receiving files to your personal computer.

Check the batteries in the HP48

Check the cable connections

Check to see if the baud rate and parity are set the same on both computers.

Check to see if the file you want to send is available.

When the HP48 is turned on it displays the message "Invalid Card Data"

Initialize the RAM card within the **SYSTEM** program.

INDEX

Party Chief Version 4.1

Party Chief Version 4.1 includes numerous improvements. Some of these such as optimization of code for improved speed and reliability are not immediately obvious to the user. Other changes which you will notice right away are:

You can now overwrite points in a Nonsequential Cogo file.

Point number limitations in Compass Rule Traverse adjustment have been eliminated. You just need to ensure that the point numbers used can be stored in your Cogo file if you use the Convert to Cogo option.

The Circle program now tags all data returned to the stack for easy identification. It also computes the External & Midordinate values.

Offset/Run & Radius now offer advanced mode operation from the stack in addition to their previous beginner mode.

The Stake program now has an angle check with user settable tolerance.

When using Station/Offset in Stake & Grade even station intervals can be calculated automatically with the Station Increment option.

The Config program allows you to select either North or South Azimuth mode. Bearings are still displayed in addition.

Update Installation

To update to version 4.1 we recommend clearing the memory of your HP48. This will eliminate old variables which are no longer used. Clearing the memory of your HP48 **will not affect your data files stored on the RAM card. If you are using an OTHER total station driver make sure you have the driver on disk and know how to reload it before proceeding.**

Turn your HP48 off and remove the old Party Chief card from port 1.

Insert the Party Chief 4.1 card into port 1 and turn HP48 on. The HP48 should perform a cold start (waking up slowly, with USER mode off) and you will see the message "Attaching Party Chief" displayed briefly.

Caution: This step will clear all data from the main memory of the HP48.
Press the ON, "A", and "F" keys simultaneously and then release them. Answer NO to the "Try to recover memory?" prompt.

Ensure that user mode is off for the following steps (it should already be off at this point).

Press [⌐ >] [Library] (the number 2 key) to display the libraries installed in the HP48.

Press the "PARTY" softkey to enter Party Chief.

Press the "PC48" softkey to boot the software.

Enter the correct date and time (in military format) when prompted.

This completes the basic installation. If you purchased the Advanced Cogo or Topo Collection modules they can now be loaded from the System menu. You may also wish to go to the Config program now and make any custom settings you choose.

RAMSS

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Westminster, Maryland 21157

For information concerning any of our products call:
410-876-7267