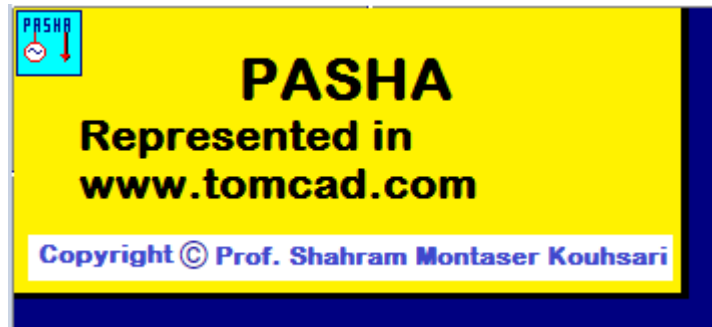




Chapter 2 Overview

With PASHA you can graphically build single-line diagrams of your systems and perform load flow, optimal power flow, short-circuit, motor starting, transient stability, protective device coordination, harmonic analysis, reliability evaluation, on line monitoring and even send your network to the other programs like EMTP® to do fast transient studies. The engineering properties of each circuit element can be edited directly from the single-line diagram and/or the controllers and the plant special models designed by using User Defined Equipment Modeling (UDEM) can be included in your network. Calculation results are displayed on the single-line diagram for your convenience.

PASHA also contains built-in databases that are easily accessible from project files. In addition, you can add to the existing library data or create new databases. Therefore, PASHA is a graphics-oriented Computer Aided Design suite for the designing, planning, and operation of power systems. The package combines some very advanced integrated power system analysis programs with extensive editing and graphical input/output facilities, allowing a high degree of interaction. The user can conveniently control the system configuration and operating conditions as well as the degree of detail and the sequence in which the required studies are executed, by selecting appropriate options from menu lists displayed on the screen.

2.1 The menu concept

There are many methods of providing an interface between the user and an interactive applications program, some of them easy to understand and some only useful to experienced computer users. One of the simplest methods is to provide a set of menus that list all the available functions of the program and allow the user to select and run the desired function.

The term 'menu' is used because the process of selecting program functions is very similar to the way in which a meal is ordered in a restaurant. As the menu is opened, the customer sees the various main titles: Aperitifs, Fish, Poultry, and Vegetables etc. To order a full meal he would look at the details under each main title, choose and order one or more items and then make his selection from the next, e.g. he would choose an aperitif, then select his main course from the Fish, Poultry and Vegetables etc.

A very similar process is involved in a menu driven power systems program. Here the main categories might include the following options:

- 1 Input of system details
- 2 Load Flow calculations
- 3 Fault calculations
- 4 Stability studies

If the user wants to do a loadflow calculation, he selects option 2 and he is then provided with a further menu with the options available within the loadflow section, which could be:

- 1 Flow under normal conditions
- 2 Flow when certain outages occur
- 3 Potential overload conditions

The power engineer could then select one of these options and perform his loadflow calculation.

Both the above lists are examples of menus, one subordinate to the other, i.e. there are two distinct levels which creates an 'hierarchy' of control. The top level contains the general sections of the activity and the subordinate or lower levels contain more and more detailed definitions of the activity. The use of menus simplifies the decision-making process by splitting it into separate levels. In a complicated computer program where there are many different possible activities the use of menus in this way has many advantages. If there were say ten sections in the package and each of these ten sections had ten subordinate functions, this would mean that there would be 100 different selections that the user could make. It would be very confusing to the user if all these were displayed at once and could make selection of a particular activity more difficult.

Menu driven applications programs are generally the easiest to operate and because PASHA is designed primarily for power system engineers not computer specialists, the package utilizes the menu concept and structure.

2.2 Menu Bars in PASHA

PASHA uses four kinds of menu bars:

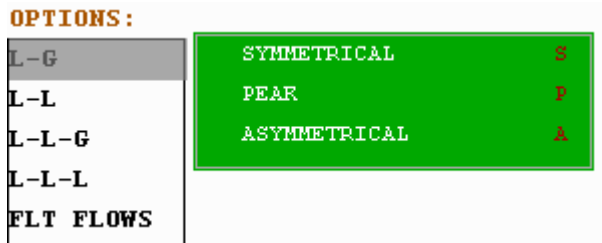
- 1- PASHA ordinary menu bars. These are platform independent and are what is explained in section 2.1 of this manual. The following figure shows an example of this menu bar in

OPTIONS:

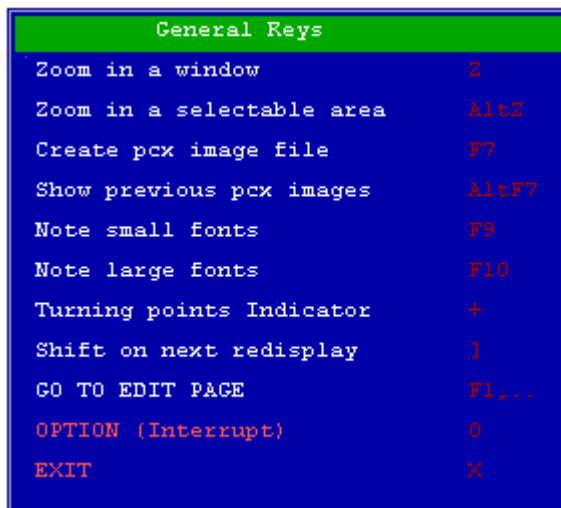
L-G
L-L
L-L-G
L-L-L
FLT FLOWS
C.B CHECK
PROTECTION
SCALE
WAVEFORMS
FLT IMP
FLT TIME
LOAD FLOW
FLT/NET
PRINT
FULL LIST
HELP
RETURN

fault level analysis.

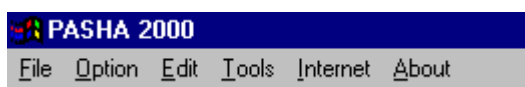
- 2- PASHA green box menu bars. These are also platform independent. They are subdivided from the ordinary menu bars to provide users with special cases of certain variations of ordinary menu option. Beside they might activated by pressing a special <key> at any particular time while the mouse is located on ordinary menu option. The following figure shows a part of the above ordinary menu bars with an example of green box derived from L-G option. The special keys that do the same job as selecting the green box options are written in red in front of each option.



- 3- PASHA Mouse Right Click menu bars. These are also platform independent and provide the user with extra options available in each page.



- 4- PASHA platform dependent menu bars. These are platform dependent and those, which are related to Windows, Unix, and etc. environments. An example of this menu on Windows® is shown in the following figure.



2.2.1 PASHA ordinary menu bars

The PASHA package is driven by a set of menus that contain all the options permitted to the user at any particular time. By option we mean a specific PASHA function, e.g. one of the main options is titled [DRAW A NEW NETWORK], which enables the user to enter the network drawing sub-system and construct a new system diagram.

Merged version of PASHA and POUYA: Main menu has been changed to what you see in POUYA when ACCESS PASHA are selected.

The initial, MAIN menu contains the set of options that define the main functions of the program; this menu is shown in the following figure. As can be seen from the figure the menu is contained within a 'box'; this is used to distinguish menus from other text, and is true for all menus in PASHA.

When one of the MAIN options is selected further menus of local options are presented which permit more detailed steering of a particular section of PASHA. When a local menu is finished with, selection of the [RETURN] option passes control back to the previous menu in the hierarchy, the MAIN menu being the highest. This hierarchy of control is inherent in PASHA to make it easy to both operate and understand by presenting the user with only those options necessary to run the particular section that he is in.

TOM INDUSTRIAL CONSULTANTS

MAIN OPTIONS:

DRAW A NEW NETWORK DIAGRAM RETRIEVE A NETWORK FROM FILE SAVE THE PRESENT NETWORK MODIFY THE PRESENT NETWORK DIAGRAM EDIT THE PRESENT NETWORK DATA LOAD FLOW CALCULATION AND OPF FAULT ANALYSIS & PROTECTIVE RELAYS TRANSIENT STABILITY CALCULATION CALCULATE THE RELIABILITY INDICES EMTP CONNECTION FAST TRANSIENT HARMONIC PENETRATION CALCULATION ON LINE MONITORING & CONTROL ACCESS THE DATA BASE USER DEFINED EQUIPMENT MODELLING INTRODUCTORY HELP INFORMATION SET COLOUR AND SYMBOLS EXIT FROM PASHA

- USE THE MOUSE CURSOR TO SELECT ONE OF THE OPTIONS

The menus of available options are displayed automatically in each section except when diagrammatic displays are involved, in which case they can be called up by pressing key <0> (for Options), or just clicking mouse.

2.2.1.1 Blank lines in the menu boxes

The ordinary menus will occasionally contain blank rows. These indicate that some further options exist, but prevailing conditions make them inappropriate or irrelevant and are suppressed from the display. Option titles are self-explanatory but additional details are available and can be displayed on the screen either by pressing key <H> or by selecting [HELP], when this is one of the available options.

2.2.1.2 Gray lines in the menu boxes

The ordinary menus will some times contain gray rows. These indicate that the use of this option needs a preprocessed calculation. For example, Transient stability needs load flow has been executed. Option titles are self-explanatory but additional details are available and can be displayed on the screen either by pressing key <H> or by selecting [HELP], when this is one of the available options.

2.2.1.3 Selection of the options contained in the menu

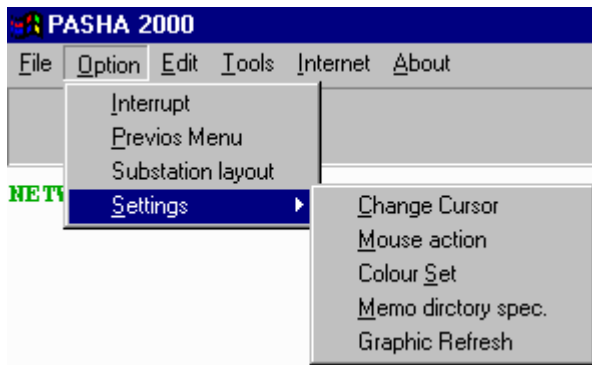
Options can only be selected when the mouse cursor is displayed on the screen. The selection is accomplished by clicking (anywhere within the band taken up by the title) or pressing any key-users may press the space bar. In some special cases, certain variations in response can be obtained by pressing special keys. Details of these additional facilities are given throughout this manual. In PASHA 2000, these special keys are shown in red inside the green box menus.

2.2.1.4 Accessing the on-line help file from the options

Detailed on-line help information can be obtained for the main options by placing the cursor over the required option title and pressing key <H>. The other method of displaying the help information is by selecting the [HELP] option when it exists on a menu.

2.2.2 PASHA platform dependent menu bars (NOT AVAILABLE IN MERGED with POUA)

PASHA platform dependent menu bars contain a list of menu options which, when an option is selected, activates a drop-down list of commands. Some of the menu options also activate an additional list of menus (the arrow pointing to the right denotes an additional menu). For example, select Option, Settings, and Mouse action as shown in the following figure.

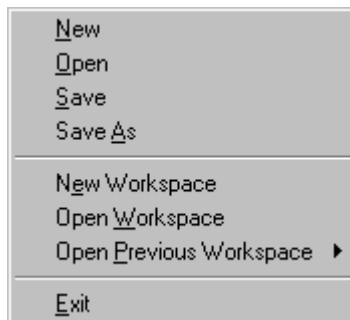


When you are using it in UDEM facility of PASHA, remember that all function of this menu bar will be related to UDEM modules instead of networks.

At the present time, PASHA platform dependent menu bar consists of the following main options:

2.2.2.1 File Menu

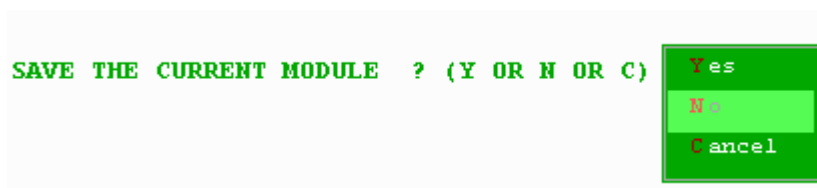
The File Menu option on the Menu Bar provides commands for open/save a network or a combination of networks which are related to each other and it is called workspace.



New:

Starts the drawing section. This option performs the same tasks as DRAW A NEW NETWORK option which may also be selected from the main ordinary menu of PASHA as explained in chapter 3.

If you are working with a network and you want to start a new network, you will be prompted to save the current network.



Open:

You can open an existing network file (previously saved) by clicking Open in the File menu. This option performs the same task as described for [RETRIEVE A NETWORK FROM FILE] in chapter 5 section 5.2.2.

If you are working with a network and you want to open a previously saved network, you will be prompted to save the current network, as indicated for previous option.

If you select to change directory, you will be prompted with the following dialog box to select the desired workspace. The process is the same as that is described with the save as option.

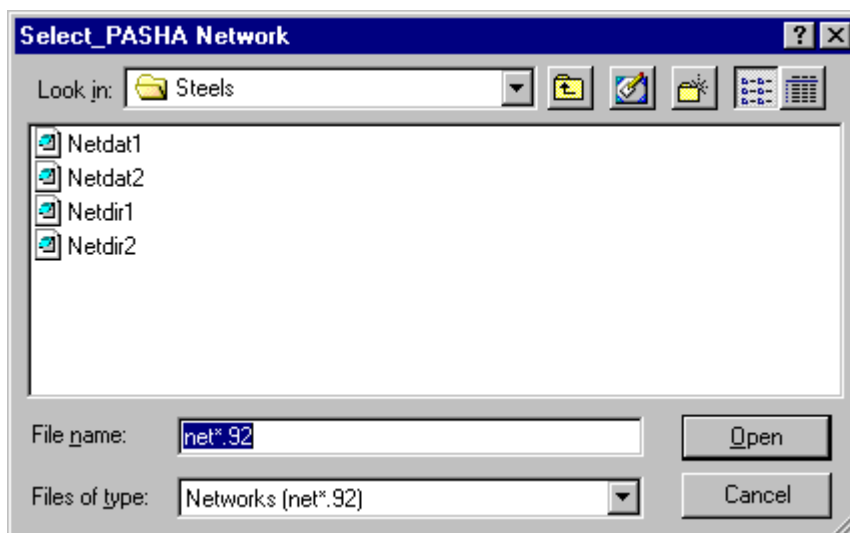
Save:

Saving a network can be done by clicking Save in the File Menu. This option performs the same task as [SAVE THE PRESENT NETWORK] as described in chapter 5 section 5.2.1. If the network you are working with is originated from existing network file (previously saved), the network simply replaced with the new one, otherwise you will be prompted with the same dialog as described in chapter 5 or as will be asked for in the next option i.e. Save as.

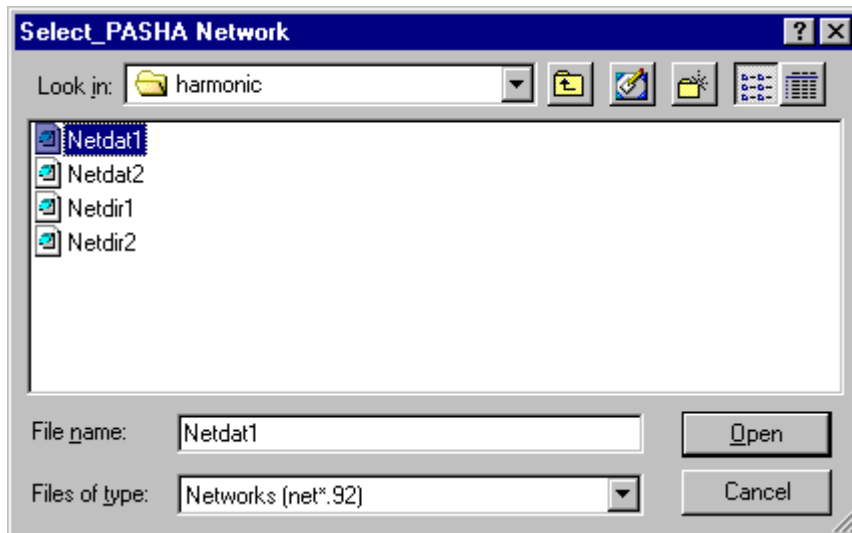
Save as:

This option performs the same task as [SAVE THE PRESENT NETWORK] as described in chapter 5 section 5.2.1.

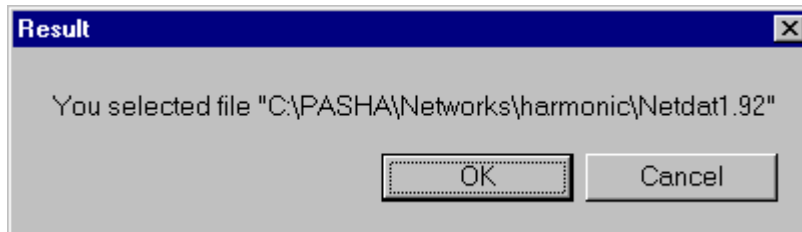
If the user select to change directory (changing the workspace), he will be prompted with the following dialog box:



He can select his desired folder (workspace) where the PASHA network files are located. These are NETDIR1.92, NETDIR2, NETDAT1, NETDAT2 for networks and CONDIR1, CONDIR2, CONDAT1, CONDAT2 for UDEM modules. The user may then select any one of these networks and open it. Because PASHA uses Father-Son backup process for its data filing, the function of all would be the same. As recommended in the following sections when dealing with workspaces, it is a good practice to choose the directory name of a workspace with the desired project. For example the workspaces are called STEELS for steel mill plants projects and HARMONIC for harmonic and filter design projects as shown in the dialog boxes of this section.



He will then be prompted to accept the new directory (workspace) by the following dialog box:



Upon accepting the new directory (workspace) the same dialog as described in section 5.2.1 will be followed.

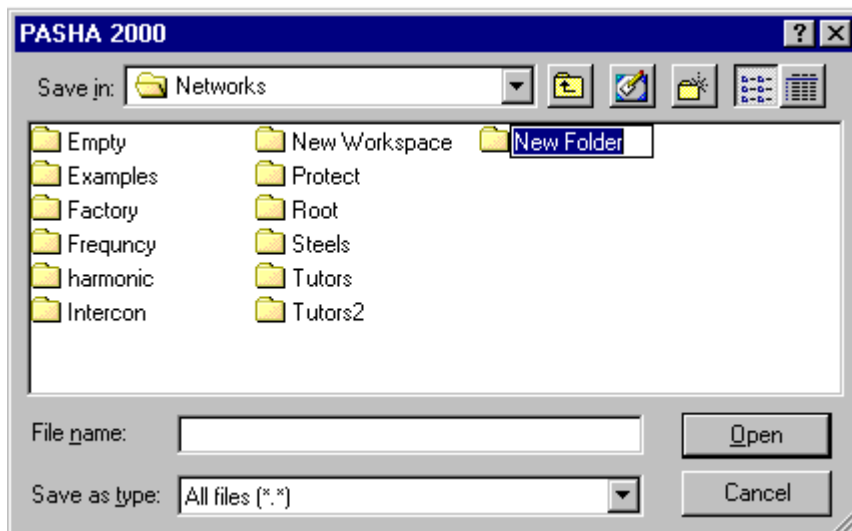
New workspace:

A workspace is a directory where all the PASHA data files relating to a group of projects can be stored in this place. PASHA data files consist of the following files:

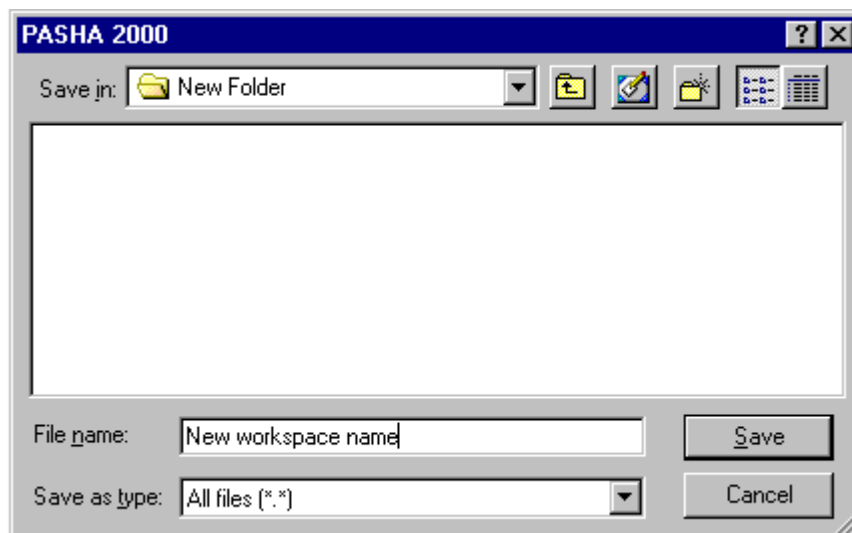
- Network files: NETDIR1.92, NETDIR2, NETDAT1, NETDAT2, which is called network group.
- Data bases files: DBASE1, DBASE2, DBASE3, which is called databases group.
- UDEM files: CONDIR1, CONDIR2, CONDAT1, CONDAT2, which is called UDEM group.

When you create a new workspace, these three groups of files are created to store information at the workspace level. They are empty files i.e. containing no data when they are new. You may save your networks in a workspace using Network files, or you may store your databases in a workspace, or you may save your UDEM modules in a workspace. Changing the appropriate directory to the desired workspace using the ordinary menus of PASHA (as described in sections 5.2.2.2, 9.6, 10.6 or as described in this chapter using Open Workspace Menu) can do the job. The difference is that, when you open a workspace, you bring all the data groups from one place. You may also use different workspaces for your networks, databases, or UDEM modules in any particular instant of PASHA run. However, it is a good practice to put all related files in a single workspace. A workspace may also contain just one group of files e.g. data bases group. Notes If you work in a team, you can put the project workspace file in a directory with your name and share them with other members of your team so that they can use your constructed networks or modules or they can share your data bases defined in your workspaces. The users may access your files through a computer network including those that can be accessed through Internet.

Selecting new workspace option prompts the user to choose a directory. He can also create a new folder as shown below. The directory must not contain old PASHA group files.



After selecting the required directory, the user must assign a file name and select Save option

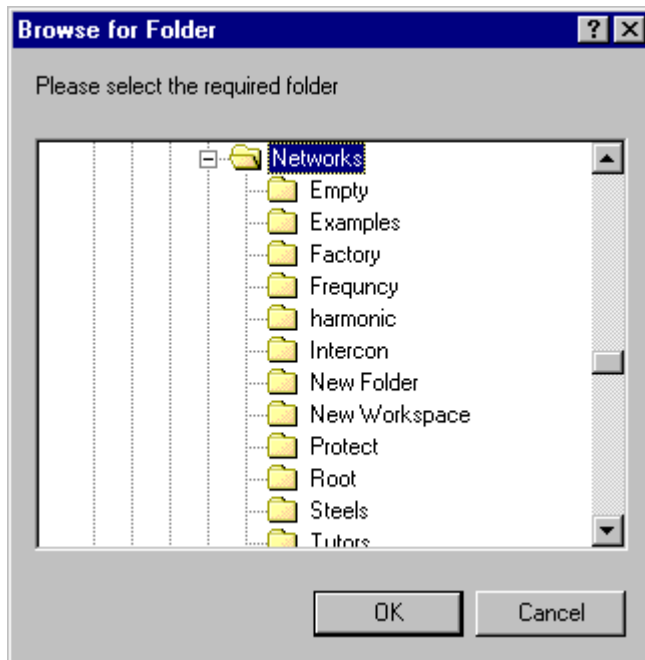


as shown in the following figure.

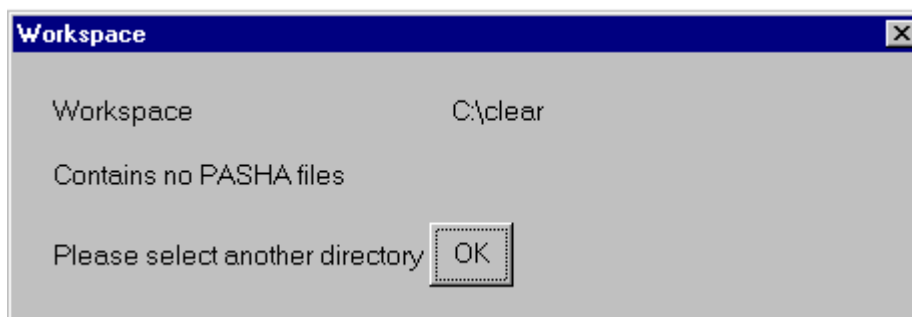
Now a new workspace with PASHA group files is available in the selected directory. However, PASHA does not change the current workspace to the new one, and it is the user task to change the workspace by selecting Open Workspace Menu option or by changing directory for any particular group of PASHA data files.

Open workspace:

This menu option allows the user to browse and select a workspace folder as shown in the following figure.



The selected folder must contain at least one of the PASHA file groups as described in New Workspace Menu option. Otherwise the following message will be displayed and invites the user to select another folder.



When a workspace is selected all the current file groups of PASHA will be related to the new workspace. If you need to just select a file group of PASHA i.e. Network group from a workspace please use [SELECT TO CHANGE DIRECTORY] from the appropriate ordinary menu option of PASHA. In this case you may choose your network files from a workspace and data bases files from another workspace.

Included in the PASHA installation program is a folder (workspace) named Example. To open this workspace, click Open workspace from the File Menu on the menu bar. This will open the Open workspace dialog box, as shown here and locates the folder in the PASHA\networks directory called Example. The Example files are located in this folder. The description and the purpose of practicing of each example network will be shown on screen when the mouse is located on its name.

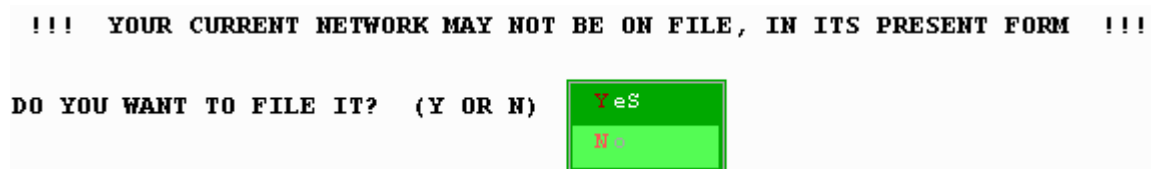
Open Previous Workspace:

You may open a recent workspace by using this option as shown in the following figure. The figure is selected from File Menu option.

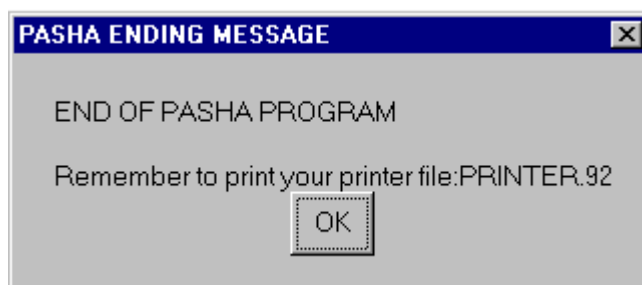


Exit:

Using this command prompt you with a question if you have not saved your network file in its present form, as shown in the following figure.

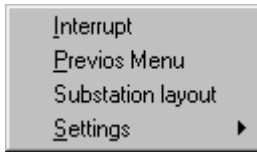


You may then proceed as either to save your network or to exit from PASHA program. Before closing the program, PASHA saves the databases group files automatically without any prompting. If you are connected to Internet as a member of PASHA classes, PASHA inform the class teacher that you are exiting the class. The information box as shown below will be prompted before closing the program. The printer.92 file is a file that PASHA stores all your selected text results to print on. Before the next session of PASHA you must employ this file as you wish, since PASHA erase the content of this file when it starts to run.



2.2.2.2 Option Menu

The Option Menu contains the following options:



Interrupt

It generates and passes a key <O> to the PASHA routines. It is used for interrupt when a calculation is undergoing or calls up ordinary option menus when one is available. The function of <O> key is described throughout this manual.

Previous Menu

It generates and passes a key <X> to the PASHA routines. It is used to exit from current routines/ordinary menus and return back to the previous routines/ordinary menus.

Substation layout

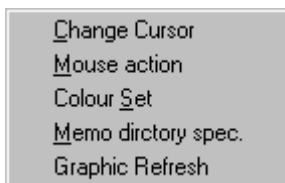
This is used to show and modify the current substation internal layout. When selected, invites the user to choose a substation, busbar, or junction by clicking the mouse on the required plant. The computer will then show the internal layout of substation as previously entered by using PASHA Substation Layout Drawings (optional add in program).

Settings

Mouse actions, default system color palate options, and default properties of graphic can be set from this menu item. It is advisable to go through your options for each relevant editor in the defaults section before working with PASHA.

Annotation fonts, default display options, and default properties of elements can be set from [SET COLOURS AND SYMBOLS] option of PASHA ordinary menu, as described in this chapter. In this view the settings Menu option is a complimentary for [SET COLOURS AND SYMBOLS].

PASHA maintains default values for each selection in the project database. As each new session is started, PASHA initializes the system with these default values. You may modify the default properties of any system through the Defaults Menu. PASHA will then use the modified values to initialize the basic requirements. The Defaults Setting Menu offers the



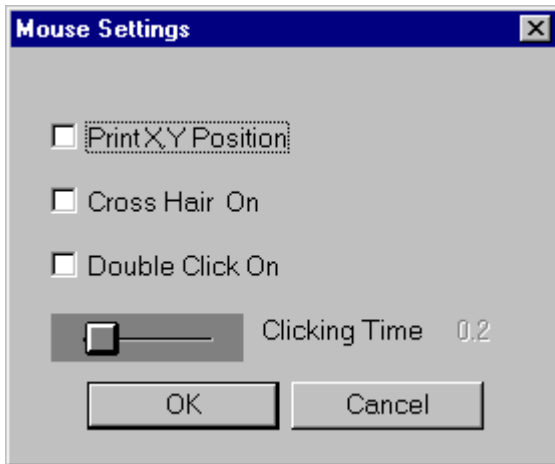
following commands:

Change Cursor

Changes cursor appearance on the graphic area.

Mouse action

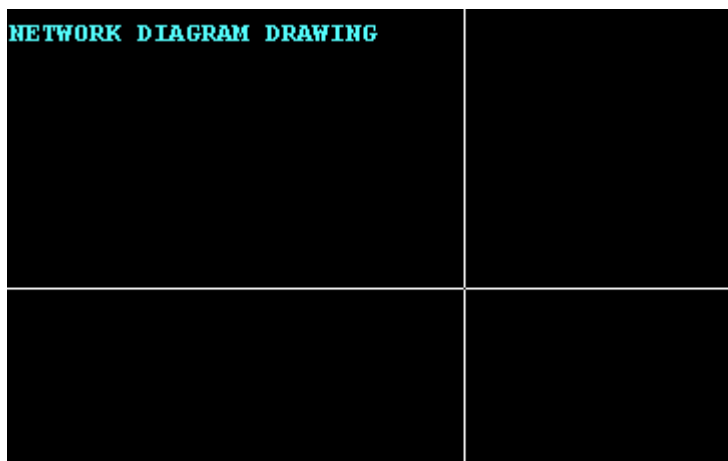
Brings the following setting menu:

**_Print X,Y Position:**

Select the check boxes under this heading to display the X,Y position of cursor in the graphic area. The position of cursor will be displayed in PASHA message box, described in section 2.6 of this chapter.

_Cross Hair On:

Select the check boxes under this heading to change the mouse cursor to horizontal and vertical cross hair. This shape is useful when you are drawing a network. It helps you to position the elements of the diagram in the precise location respect to each other. It is also useful when you want to know the exact position of a point in a curve on XY axes.

**_Double Click ON:**

Select the check boxes under this heading to initiate the function of double clicking of mouse. following figure shows the mouse cross hair presented in PASHA.

Mouse double click does the same task as <F1> key. If F1, F2, F3, F4, F5, F6 typed while the cursors are positioned on an element (Busbar, line, transformer, generator, motor, etc.) the appropriate edit page corresponding to that element will be displayed, (see Chapter 3). The specified element data is red highlighted and is ready for editing. These keys are function whenever the system diagram is available on the screen. For double clicking to work properly, you must set the clicking time appropriate for your computer and mouse system. Depending on your system some trial of this time setting is required.

Colour Set

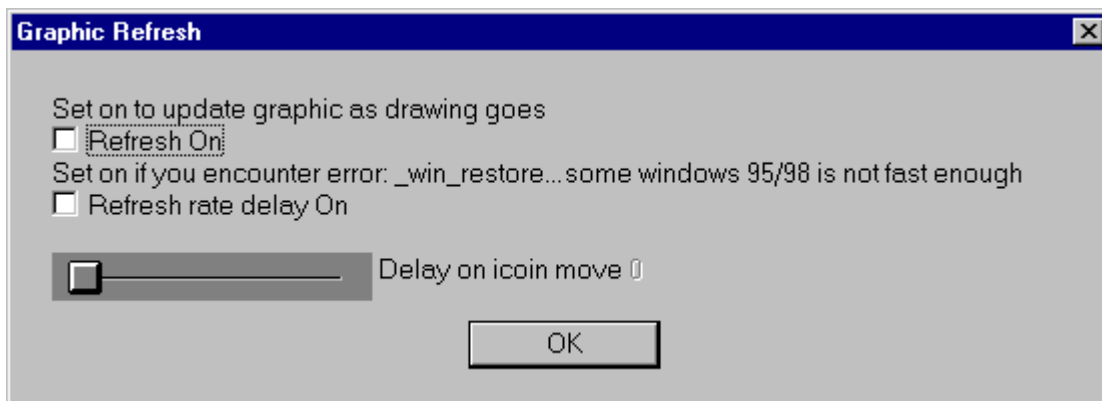
Selecting this option can modify palate register of graphic cards. The intensity and the appearance of the color on the screen depend on palate register settings. The user who is familiar with palate register must set this option. Using [SET COLOURS AND SYMBOLS] option, not this option, can set the color of network elements in PASHA.

Memo directory spec.:

Each elements drawn in PASHA may have a memo file associated with. Please refer to chapter 4 and 9. This option permits you to change the directory where PASHA will look for the memo files.

Graphic Refresh

This contains the following settings:



_Refresh On

When you redisplay a graphic area, by default Windows uses a heap in computer RAM to store the graphic screen, and then map the graphic on the screen. If the graphic area contains many elements, the elapsed time for refreshing is obvious. Select the check boxes under this heading to refresh the graphic as redisplaying of elements on the screen is undergoing.

_Refresh rate delay on

Windows 95/98 (not 2000 or NT), uses the heap mechanism to store the refreshing of the green boxes of PASHA. By default the storage heaps maintain for some times in RAM cache of your computer. So, depending to how many green boxes is used sequentially and the time they have been refreshed, the computer may lack enough memory to save and release the

storage heap. That might bring an error. Select the check boxes under this heading and tune the corresponding delay time to avoid this error in Windows 95/98 environment.

2.2.2.3 Edit Menu

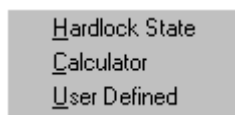
This menu options copies the graphic area in clipboard, or paste a clipboard to the graphic area or create a PCX file of the graphic area or shows the previous PCX files. If you select copy an area (to clipboard), you will be invited to drag the desired area until the required area of your choice is selected. The process starts with “please select the desired area and ends up with “copied to clipboard” as will be shown inside the PASHA message box.

In this way the graphics can be easily copied to other programs. This allows you to add PASHA single-line diagrams and graphics to your word processor documents or slide presentations. The simplest way to copy a diagram to another program is to use the Windows Clipboard. This is accomplished as follows:

- In PASHA or Viewer, zoom and/or pan the display to the portion of the diagram you would like to copy.
- Select Copy Window to Clipboard menu item. This places a copy of the diagram into the Window’s clipboard.
- In the other program, use Paste or Paste Special to copy the contents of the clipboard into that program. The diagram is pasted into the program.

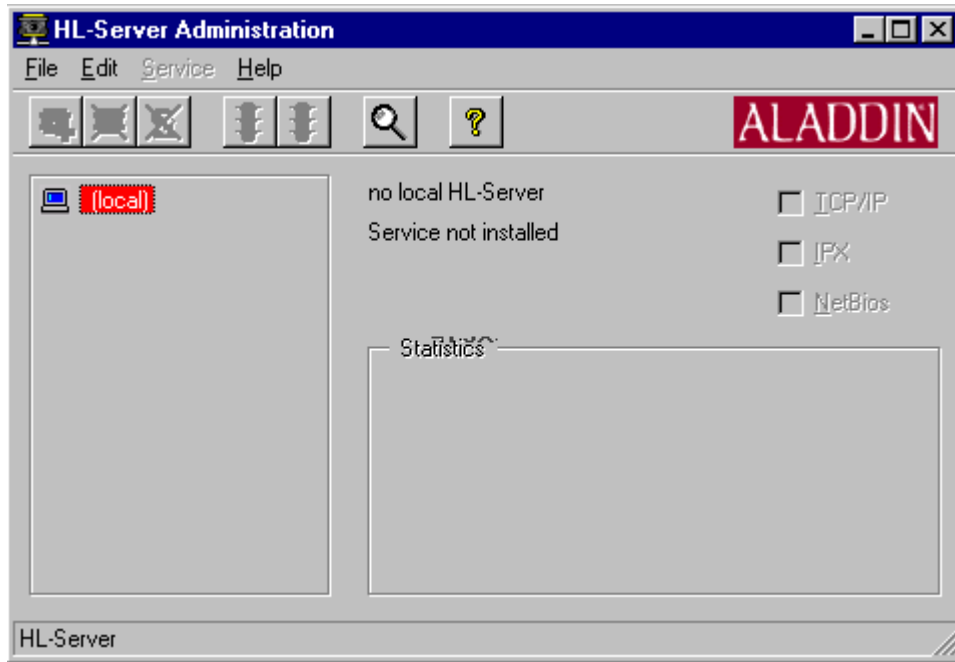
2.2.2.4 Tools Menu

Extra tools are available under this option. The current tools are shown below.



Hardlock State

In order to run PASHA you need HARDLOCK module (PASHA Security Key) that comes with PASHA package. If you are using a Network Key refer to the section PASHA Installation which pertains to the PASHA License Manager setup procedure. Hardlock State brings up the HL-Server Administration program provided with ALADDIN®, the manufacturer of the Hardlock. Using the menus available in this program, you can be informed of the state of Hardlock e.g. how many users are running PASHA in each instant of time. Please use the help menu of this program to get familiar with the Hardlock functions and the available facilities.



Calculator

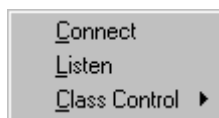
This is used to run the calculator program. The calculator program must be installed in your computer.

User Defined

This is used to define a software program that you like to execute during PASHA run. The software program must be available on your computer.

2.2.2.5 Internet Menu

PASHA employs Internet to do Tele_education, On line remote connection to SCADA system for its On Line Monitoring and Control module, Communicating with other PASHA software working in a network environments. The Internet menu provides the basic setting for various functions of PASHA. The following commands and options are available.



Connect

Selecting connect option from the Internet Menu Bar prompt the user with the Tele PASHA menu as shown in the following figures.

TELE PASHA

PASHA TELE CONNECTION

User Name : User Email :

This page is used for:

1)Tele education - PASHA Class ☐ Student ☐ Teacher

Connection IP Address : Port :

☐ Talk on ☐ Video on

2)PASHA On line connection

Connection IP Address : Port :

3)Connect to TOM Industrial Consultant site

4)Send mail to our support group

- (1) **Tele Education** : Enter you name in the User Name box. Enter your email address in the User Email box. Enter an IP address in the Connection IP address. Enter port number in the Port box. You must get an IP address and a Port number from the teacher. This is an IP, which together with Port number provides a communicating channel through which data and signals are going to be transferred. If you would like to enter a class of PASHA as student, you must select the check box under this heading and click the GO TO CLASS option. The teacher must do the same. He must check box under Teacher heading and select GO TO CLASS option. He must have a password too. TOM Industrial Consultant will provide the passwords for teachers of PASHA classes.

If you are in the class as a student, you must look at the message box of PASHA. There would be enough information over there to guide you what you must do next and what is the situation of the class. The class situation inform you that if the teacher is in the class, or how many students are currently in the class and if the class has started yet. After the start of the class your PASHA will be under the teacher control. You may ask questions by sending messages. Please refer to the following options in the next section to find out how you can send a message. The options Talk On and Video On may be activated to have the voice or picture of teacher. However, these options need special programs. Please refer to the latest readme files, comes with your PASHA package.

- (2) **PASHA on line connection:** This needs you to enter IP and Port numbers and select Go On Line option. Please refer to the relating chapter , On Line Monitoring and Control for the guidelines to connect to remote devices or remote PASHA software.
- (3) **Connect to TOM Industrial site:** select the option under this heading to connect to www.tomcad.com site to be informed about the latest development of PASHA program.
- (4) **Send mail to our support group:** select the option under this heading to send an email to our support group. If you have any questions or inquiry, please do not hesitate to send us your questions. We will be glad to be your assistance.

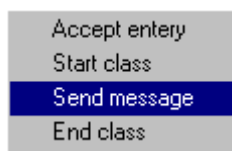
Selecting OK option will transfer your latest setting to PASHA. You may choose this option to get out of a class. If you wish to do this, you must be sure that the student and teacher check boxes are empty and then click on OK option.

Connect

This option is used for interaction of PASHA packages through Internet. Please note that this is optional to PASHA programs and it is currently under extensive development.

Class control

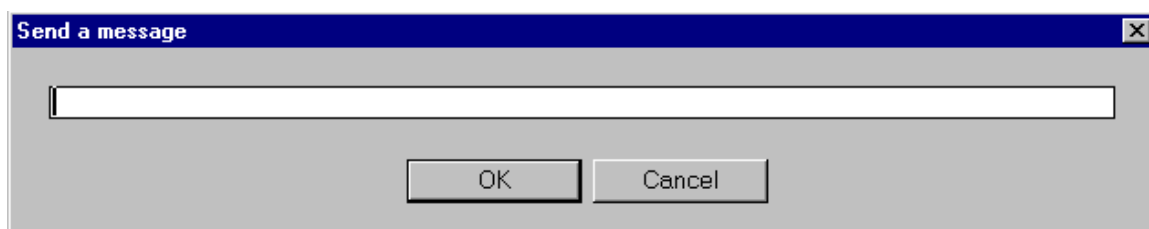
Most of the options under this heading are in the control of teacher, except sending message, which can be used by students. The following options are available:



_Accept entry: When a student comes to the class, his name and his email address will be send to teacher. If teacher wants to allow him to get into the class, he must press this option.

_Start class: Pressing this option starts the class. Usually the teacher starts the class after he convinces that all the proposed students are present in the class. Late incoming students can not enter the class in the present version of PASHA.

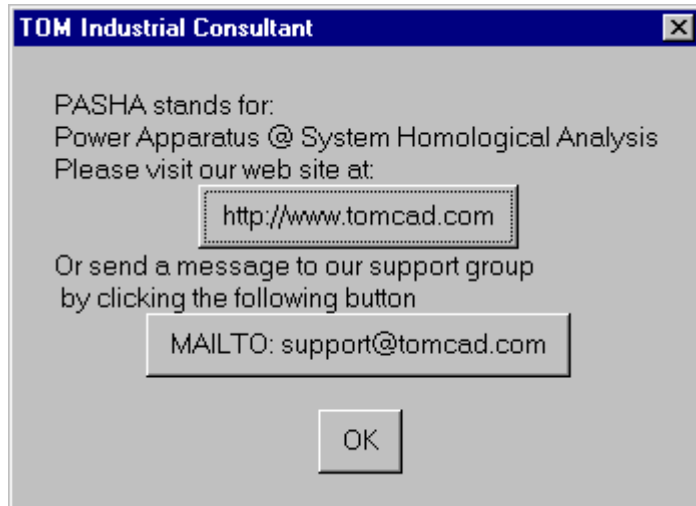
_Send message: You may send a brief message using this option. You must enter your message into a box shown in the following figure.



_End class: Teacher presses this option to end the class. Upon the selection of this option by the teacher the students will face with an ending message and they have complete control of their PASHA programs. They can work with PASHA as usual, or they may practice the teacher exercises.

2.2.2.6 About

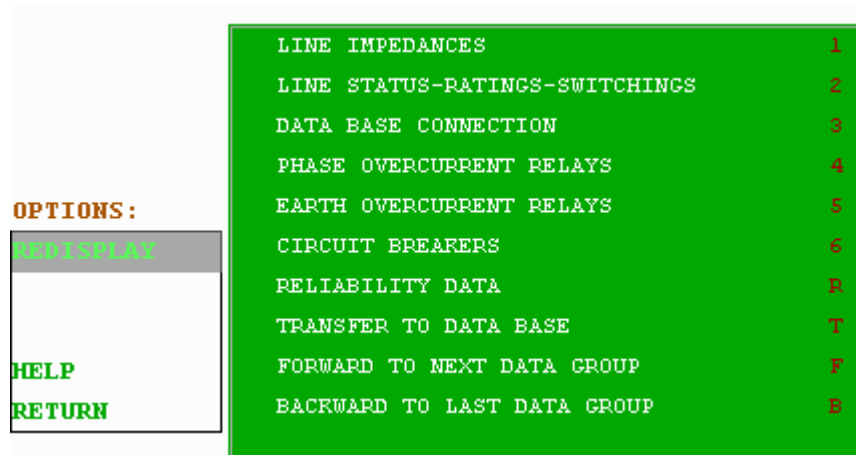
By selecting this option you will be faced with the options shown in the following figure.



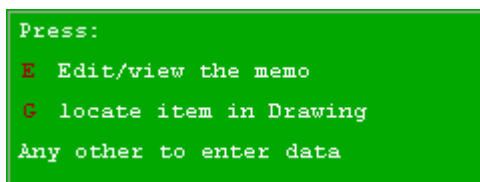
2.2.3 Green Boxes Menu Bars

Green box menu bars are used to demonstrate the special keys available for each ordinary menu bars option of PASHA described throughout this manual. PASHA Green box menu bars are platform independent. The contents of the green box menu bars change depending on the position of the mouse cursor on the ordinary menu options, or over some texts or graphs of the screen. By moving the mouse the green boxes appear or disappear accordingly. Five different types of green menu bars exist in PASHA for different purposes, as listed below:

- (1) To activate the special keys. The mouse cursor can be located on the green menu bars options. A click activates the option and redirects the process by the meaning of the special keys available on that option. The meanings of the special keys available for each option are described throughout this manual. An example of this kind of green box is shown below. Red characters show the special keys.



- (2) To display the special keys which are available in the edit pages. The user must press the <key> to activate the function of that particular key, i.e. it can not be selected by mouse. The contents of green box menu bars may be changed depending on the mouse cursor location. Each data entry box associated with the edit pages may have some of these special keys. As stated before the meanings of these special keys are described in this manual. An example of this kind of green box is shown below.



- (3) To provide a list of element names such as Busbars, Lines, Generators when the user required entering these names in order to display the results, or to set the control functions. The names can be selected from these kinds of green box menus when they are available. You may also type the names using normal data entry of PASHA (Chapter 4).

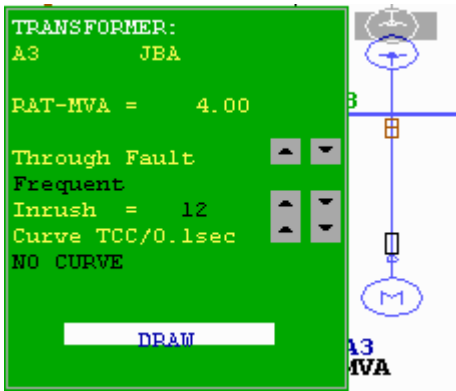
The screenshot shows the PASHA interface with a green box menu open. The menu is titled "AC-BUS" and contains the following options: FILL F, CLEAR C, NETW, SUB 1, SUB 2, SUB3, EMERG-C, NETEQU, MOT1, MOT2, MOT3, and G1. The menu is displayed over a background that includes a list of traces (TRACE 1 to TRACE 8) and plotting options (PLOT ONE BY ONE, POLAR PLOT).

Facilities for scrolling the names are provided as it is shown in the figure.

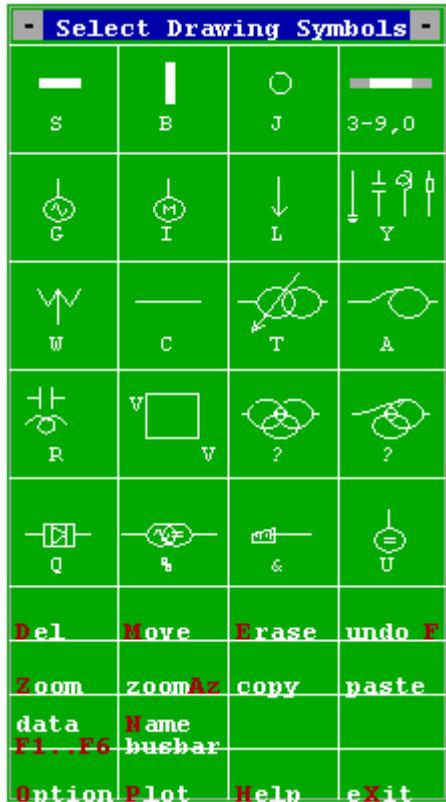
- (4) To display the data associated with the available elements in the X,Y axes graph pages. The user may change the data and pass the new data to PASHA in order to execute and redisplay the new conditions. In the following figure you may change the relay settings and apply the new data. The computer applies the settings and redisplay the X,Y axes graph page. The green box appears when you locate the mouse on the line name. This is shown in the following figure where a relay, located at the sending end (denoted by S) of the line between C11 and D132, is selected.

The screenshot shows a green box menu for selecting relay settings. The menu is titled "6. C11 D132 S" and contains the following options: PHASE O/C RELAY TYPE: E.INV O*C RLY CDG14, CT/RATIO= 500, P/S = 160, T/S = 0.25, HIGHSET = 0, and TIMESET = 0. The menu is displayed over a background that includes a list of traces (TRACE 1 to TRACE 8) and plotting options (PLOT ONE BY ONE, POLAR PLOT).

Another example of this kind of green box is shown in the following figure. The green box appears when you locate the mouse cursor on the transformer symbol. You can specify a characteristic curve (using the small arrow keys) and draw it on the existing graph in that page.



- (5) To display the graphic tool bars. The user may select the required symbol by clicking mouse over the graphic tool bars and then locate the cursor in his desired position, clicking the mouse again, draws the selected symbol on the screen. The procedure just described performs the same task as those described in chapter 3 for drawing a network. The green box appears by clicking the small icon in the right hand corner of the screen. In order to activate the small icon the OPTION CODE WINDOW ON must be in on position in the [SET COLOUR AND SYMBOLS]. PASHA uses two graphic tool bars. The one for network drawing is shown below. This is the tool bars used for drawing a network, as described in Chapter 3.



Another graphic tool bars are shown in the following figure. This is used to draw UDEM elements or to apply special options available. Please refer to chapter 10 for more information on the symbols and options available for UDEM drawing.

Select Drawing Symbols							
In (2)							
I	1	2	3	C, (+, -)	+	J	*
OU (1)							
Y	Q	F	G				
Del	Move	Rstore (undo)	Number	Locate	zoomAz	Title	F10 (note)
F9 (note)	Simplify	Un simplify	data F1	Erase	Option	Help	eXit

2.2.4 Mouse right click menu bars

Right clicking on the screen displays the extra menu bars. If you click (left) once more the "right click menu bar" will disappear. This is also platform independent. You may select any of the options available in mouse right click menu bars by clicking the option. The number of options available depends on the instant you are working at. For example, right clicking when you are in Load Flow will bring extra menu bars which is different from the one you get in Transient stability calculation. A right click menu bars is shown in the following figure.

General Keys	
Zoom in a window	Z
Zoom in a selectable area	AltZ
Create pcx image file	F7
Show previous pcx images	AltF7
Note small fonts	F8
Note large fonts	F10
Turning points Indicator	+
Shift on next redisplay	J
GO TO EDIT PAGE	F1...
OPTION (Interrupt)	O
EXIT	X

The function of each option is described here.

Zoom in a window

It has the same function as pressing <Z>, i.e. zooms in an area of the graphic single-line diagram enclosed in a window. You must click the option and then click inside the window that you want to zoom.

Zoom in a selectable area

Selection of this option invites the user to drag an area on the screen. Computer zooms on the area that is dragged. The key Shift+Z will do the same task in Windows environment while in other platforms Alt+Z will do the job.

Create PCX image file

In some platforms it copies the screen into a PCX file. PCX files are named PASH----.PCX where ---- stands for a four digit number starts from 1001. In the next PASHA run the PCX file number starts from 1001 again, i.e. overwrites the PCX files created in the previous run. In Windows platforms use the option Copy to clipboard described in section 2.2.2.3.

Show previous PCX files (Plot the entire graphics)

Like its counterpart option works on some platforms. It displays the PCX files one by one on the screen using Page Down and Page up keys. In Windows environment this option (Plot the entire area) is used for plotting the entire graphics inside or outside the screen area.

Notes small fonts

This option allows you to write a small note on the screen, using small fonts. After selecting this option, click on the screen where you want to start writing your text.

Notes large fonts

This option allows you to write a small note on the screen, using large fonts. After selecting this option, click on the screen where you want to start writing your text.

Turning Point indicator

Turns on and off the knee points indicator (+ sign). The knee points of the graphic lines are described in Chapter 3. If this option is on the indicator will be displayed inside the single-line diagram. The + signs will be shown after redisplaying the screen.

Shift on next redisplay

Shifts the screen 30% to left and right on next redisplay. It is used for the screens that their resolution is less than 1024*768. Use this option, if you can not see the entire variables of the edit pages of PASHA This might be the case if the screen is in low resolution.

Go to edit page

The function of this option is the same as pressing <F1> or double clicking. If F1, F2, F3, F4, F5, F6 typed while the cursors are positioned on an element (Busbar, line, transformer, generator, motor, etc.) the appropriate edit page corresponding to that element will be displayed. The specified element data is red highlighted and is ready for editing. These keys are function whenever the system diagram is available on the screen.

Option (Interrupt)

It generates and passes a key <O> to the PASHA routines. It is used for interrupt when a calculation is undergoing or calls up ordinary option menus when one is available. The function of <O> key is described throughout this manual.

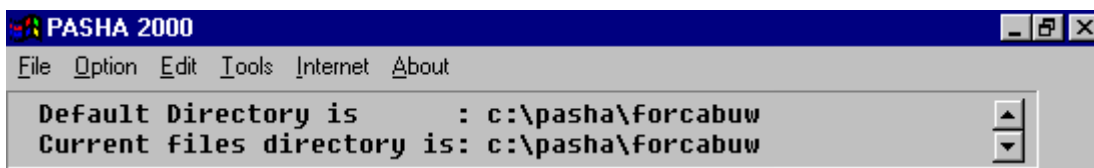
Exit

Selecting this option generates a key <X> to the PASHA routines. It is used to exit the current page and enter to the previous page of PASHA. If you are in some page and you do not know what to do, right click and then select this option in order to exit from that page and enter to the previous page.

2.2.5 Message box

PASHA running in Windows platforms employs a fixed message box just under the menu bars as shown in the following figure. Information messages, some warning messages, and some error messages will be displayed in this message box. The same message box exists in Linux and Unix platforms. PASHA running in DOS platform does not employ a specific message box.

You may use the small scroll bar adjacent to the message box to see the previous messages.

**2.3 Non-menu sections in PASHA****Chapter 2**

The usefulness of menus diminishes as the number of available options increases. For example when drawing a network it is possible to proceed in any one of a large, almost infinite, number of ways. Similarly there are an infinite number of combinations in which data can be entered. For this reason, it is convenient to draw a network or to enter data by using keys. However, as stated in section 2.2.3(4) and 2.2.3(5) the graphic green tool bars are there to assist user in entering data or selecting elements for drawings.

2.3.1 Interactive drawing mode

When the drawing section of PASHA is entered the user is no longer provided with a menu but is confronted by a blank screen on which the mouse cursor is displayed. A graphic green tool bars is also available to select. The diagram is drawn by pressing the special keys defined to represent the plant; e.g., if a <S> is pressed the drawing routines will display a substation symbol at the mouse cursor position. It is also possible to select element from tool bars and click the mouse in the required position. The cursor can then be moved to a different position and another symbol can be drawn in the similar manner. The interactive drawing 'mode' therefore functions differently from the menu 'mode'. The drawing mode is described in detail in chapter 3.

It is possible to call up some options from drawing mode by pressing <O> (letter O); this provides a menu to rescale and recentre the diagram. However, this option may use less,

considering that the zoom, padding, and scrolling facilities in Windows environment brought more efficiency in rescaling and recentring.

Interactive drawing mode is entered whenever the user selects the network drawing options from the main options. Network drawing procedures are also used in some other instant when a one-line diagram is on screen. For example, to define the plant outages in load flow section, where the user is invited to use Mnemonics to select the plants.

2.3.2 Parameter entry mode

Whenever parameters are entered to PASHA, whether they are numbers or characters, the menu approach is impractical. It is necessary for the graphics terminal to act like an ordinary alphanumeric terminal in which the string is terminated by pressing the <CR> key. The alphanumeric mode can be easily detected by the fact that the mouse cursor disappears and is replaced by a small square cursor, which is flashing. When this is displayed it means that alphanumeric characters can now be entered terminating them with a <CR>.

As an example of parameter entry mode the file writing section of PASHA can be described. When a network has been drawn it is customary to store it for future use. To do this it is necessary to give the network a title; the program prompts with a message:

TYPE IN THE NETWORK NAME:

after which the alphanumeric cursor is displayed. The user will then type in the title, say:

TEST NETWORK NUMBER 1

followed by the <CR> key or a click.

2.3.3 Response to (Yes or No or Cancel) questions

Some parts of PASHA require there to be a 'Yes or No' response to a question, and the user will be required to reply by typing either a <Y> or a <N>. This may be done by simply pressing the key codes or by clicking on the small yes or no green box option. Canceling by <C> will bring you back where you were before selecting the last option.

2.4 The main menu of the PASHA package

The present PASHA design suite is divided into seventeenth distinct sections, which perform the power system modeling along with some necessary housekeeping functions. Some important main sections are:

- (a) **The drawing section** - for graphical input of the power system network diagram.
- (b) **The parameter entry section** - for numerical input of system data.
- (c) **The load flow section** - calculates the outage profile and load flow for the network, under various conditions.
- (d) **The fault level section** - calculates the fault levels and currents for various types of faults.
- (e) **The transient stability section** - simulates how the power system will function in response to user-defined switched disturbances.
- (f) **Other calculations** - Please refer to oncoming lists
- (f) **The database section** - allows the user to develop his own personalized set of plant data that can be easily included in new networks.
- (g) **The filing section** - allows a constructed power network to be stored for future access or enables a previously stored one to be accessed.
- (h) **The Introductory Help section** - provides a new user with some helpful introductory information that is accessed on-line by PASHA.

The present main sections are accessed from the MAIN menu by use of seventeenth main options:

DRAW A NEW NETWORK DIAGRAM
RETRIEVE A NETWORK FROM FILE
SAVE THE PRESENT NETWORK
MODIFY THE PRESENT NETWORK DIAGRAM
EDIT THE PRESENT NETWORK DATA
LOAD FLOW CALCULATION AND OPF
FAULT ANALYSIS & PROTECTIVE RELAYS
TRANSIENT STABILITY CALCULATION
CALCULATE THE RELIABILITY INDICES
EMTP CONNECTION FAST TRANSIENT
HARMONIC PENETRATION CALCULATION
ON LINE MONITORING & CONTROL
ACCESS THE DATA BASE
USER DEFINED EQUIPMENT MODELING
INTRODUCTORY HELP INFORMATION
SET COLOUR AND SYMBOLS
EXIT FROM THE PROGRAM

Of these options only seven (DRAW, RETRIEVE, MODELLING, DATA BASE, HELP, COLOR and EXIT) are displayed, immediately after entering the program, as at this time no system data exist, and the remaining options cannot function. The full set of options is displayed after drawing a network, or retrieving (opening) an old one.

2.4.1 Special keys for the main options.

The program assumes that initially full level facilities will be required and do not limits the data options and data displays. This can be changed to exclude the extra data required for

transient stability studies by pressing key <S> when selecting any of the options. Similarly a study-titling facility can be accessed for the calculation options by pressing <T>, i.e. to vary the standard procedure select the option required using the mouse cursor and:

Press <S> to display the full data for transient STABILITY studies
Press <L> to invert to the limited data displays LOADFLOW and FAULTS.
Press <T> to permit entry of a study TITLE in the calculation options.
Press <O> with transient stability option to skip the calculation and read the results from the last study. In PASHA 2000 these may be selected from green box menus or windows menu.

When a study title is entered, it is printed on listings of results produced by the PRINT or FULL LIST options. Titles can also be displayed anywhere on the diagrams, by selecting the required starting point for the title, using the cursors, and pressing <T>. The study titles are stored in memory and will be automatically included in all listings of the results. Additional NOTES can also be inserted on the diagrams by first locating a suitable starting point, pressing [F9] or, [F10], typing the required message and pressing the RETURN key. These, however, are not stored and will be deleted as soon as the screen is cleared; i.e. NOTES are only useful if a print screen is to be taken from the display.

2.5 A brief description of the main options

Before we describe in detail the functioning of each section of PASHA it is useful to grasp the use of the main options. These are described below.

2.5.1 DRAW A NEW NETWORK

This section is entered when a new system diagram (single-line diagram) is to be drawn. PASHA's single-line diagram is a single-line representation of a balanced three-phase system. The single-line diagram is the starting point for all studies. You can graphically construct your electrical system by connecting the buses, branches, motors, generators, and so in any order using this option. You can connect the elements to the buses graphically or using special keys or double click on elements to open their editors and edit the engineering properties, which include ratings, settings, loading, connection, etc. The data for some elements may modify the symbol of an element to minimize the drawing code entry. For example, a shunt may be represented as capacitor, or reactor depending to its reactance value (minus for capacitors). If the user enters a fuse or relay for a line, computer draws its corresponding symbol on single-line diagram automatically.

Entry to this option automatically clears any 'existing' system data in the computer core and prepares to accept the new network. HELP on how to construct a network can be accessed at any stage during network drawing, without loss of any of the items already drawn.

Instead of selecting this option you may select NEW from Windows (platform dependent menu). Both options have the same effect.

2.5.2 RETRIEVE A NETWORK FROM FILE

This section is entered to access any one of the systems, which were constructed and saved on previous occasions. Selection of this option automatically clears any 'existing' system data in the computer core and prepares to read in the graphic and system data for the system to be selected from the list of files. The RETRIEVE procedure is self-explanatory and is described fully in chapter 5. NOTE: Any 'existing' system data will be lost if it would not be saved. Instead of selecting this option you may select OPEN from Windows (platform dependent menu). Both options have the same effect.

An additional windowing facility exists which merges saved systems inside an existing system. This is described in section 3.7. In this case a network which is selected from the list of saved networks will be added to the existing network and non-of the data would be lost.

2.5.3 SAVE THE PRESENT NETWORK

Enter this section to name and save newly drawn networks, or to save modified networks, or to update the data of networks already on file. New and modified networks should be saved if they are likely to be needed again. Modified networks can be saved to replace the existing, saved version or to create a new, separate file. It can also be saved in another workspace. An individual password can be assigned to each network during the saving procedure and affords protection against unauthorized or accidental file erasure. No restriction is imposed on file retrieval, or on the deletion, or the overwriting of files which have no password (if a blank is entered). The Save procedure is conversational and self-explanatory but some additional on-line information is given in ARCHIVING FACILITIES HELP. Full details are given in chapter 5. The saving procedure does not disturb, or remove, the network data in core. Instead of selecting this option you may select SAVE or SAVEAS from Windows (platform dependent menu) to do the archiving task.

2.5.4 MODIFY THE PRESENT NETWORK DIAGRAM

This section is entered when changes are to be made to the current network. The system held in core is retained and the drawing section is entered to allow the required changes to be introduced. All changes made are automatically reflected in the system data: deletions of network items remove any associated data entries, whilst additional slots are created for each new item drawn. Any new data can be entered through the EDIT option. New items are entered at the bottom of the data lists and will, therefore, appear at the end of the appropriate data pages. The edit pages can be accessed directly from network diagram. The facility is described in chapter 3.

2.5.5 EDIT THE PRESENT NETWORK DATA

This option is selected to enter data for new networks, or to change or supplement the data of existing networks. You may also access the edit pages directly from the drawing using F1, F2, F3...keys when the mouse is positioned in the required item in single-line diagram. It is possible to use tool bars or double click to do this action without using the F keys. It is acceptable to provide data in stages, entering in the first instance part of the data, or just the data essential for the initial studies. The amount of data provided affects not only the type of studies, which can be performed but also, the detail to which plant is modeled in the studies. For example, if only loadflows are to be performed, no generator reactances need be entered,

but if fault studies are planned, either the transient or subtransient reactances, or both must be entered depending on the time interval to be considered.

Data is entered into the arrays in core, and not the system files. It is therefore advisable to save the system immediately after entering a set of data, and not at the end of a session when it may be forgotten, leading to the loss of the data on exit, files retrieval etc.

The significance and units of data required for each column is given in the EDIT section HELP information and can be accessed directly from the page on which the parameters are listed by using the [HELP] option. An alphabetic listing of all the data used in the edit section and the data base section is given in appendix B. Data can be entered directly (in DATA PAGES 1 and 2), or by reading values from the DATA BASE (via DATA PAGES 3). For DATA BASE details see chapter 9.

2.5.6 LOADFLOW CALCULATION AND OPF

Selection of this option initiates checks to ensure that all essential data exist and, if the checks are satisfactory proceeds with the loadflow. Completion is indicated by displaying a comment on convergence and a menu of local options, which indicates the types of display and other available facilities. Drawing options like (Zoom) can be either accessed by pressing special keys e.g. Z for zooming or by selecting the option from right click menu.

You can access Optimal Power Flow (OPF) from the options available in load flow. The OPF problem is decomposed into a P-optimization and a Q-optimization module in which the objective function is to minimize fuel costs and network losses. The control variables are generator real power outputs for the real power module, and generator reactive power outputs, shunt capacitors/reactors, and transformer tap settings for the reactive power module. The constraints are the operating limits of the control variables, power line flows, and bus voltages.

2.5.7 FAULT ANALYSIS & PROTECTIVE RELAYS

Selection of this option initiates checks to ensure that all essential data exist and, if the checks are satisfactory selects the appropriate machine models and proceeds with some preliminary calculations common to all fault types. Local options are displayed when this is completed, and allow the type of fault, output etc. to be selected or further 'HELP' information to be accessed. You may also enter some other important analysis like Protective Relays Checking and Setting or Circuit Breaker Checking by selecting the appropriate option from the fault local options. Like load flow and other parts of PASHA, special keys are functional and they may be selected from the option menu pressing the right click. For the large network the zooming (pressing Z) facility may be required quite frequently.

2.5.8 TRANSIENT STABILITY CALCULATIONS

The transient stability program is available as standard in PASHA and as additional data is required can only be accessed more satisfactory via a high-resolution terminal. The required additional machine parameters, analysis parameters and the extra pages of voltage regulator and governor data are initially displayed but can be called up not to do so when required. On-line HELP on the data requirements and the facilities available can be accessed from the EDIT and TRANSIENT STABILITY sections respectively.

Frequency Dynamics is one of the major submenus of this option. You may access this facility by pressing <F>. In this case the MW/HZ and MVAR/HZ changes of the loads as entered in the Busbar Data 2 page (chapter 4) are considered in the study. When the study runs, the frequency of each busbar will be plotted against the time instead of generator angles.

2.5.9 CALCULATE THE RELIABILITY INDICES

The reliability evaluation uses minimal cut set methods to calculate the reliability indices for each busbar of the network. The data required for reliability calculations must be entered in the reliability data pages. Selection of the option initiates checks to ensure that all essential data exist and, if the checks are satisfactory, local options are displayed. The local options allow the user to select a busbar to calculate and display its reliability indices or to do other related topics in reliability evaluation. The reliability edit pages together with the reliability evaluation process are described in Chapter 14.

2.5.10 EMTP CONNECTION FAST TRANSIENT

Selection of this option converts the existing data of network to a set of data appropriate for fast transient studies. The modified data will be stored in a file with the name of PASHA.DAT ready to use with the EMTP® or ATP® program. Pressing key <E> (E for edit) will show the result file. The manipulation of data might approximate some parameters and/or may pass an equivalent of a part of the networks, in order to compete with what is required in these vendors programs.

2.5.11 HARMONIC PENETRATION CALCULATION

Harmonic Analysis module is capable of performing:

- a) Harmonic Penetration Calculation (HPC)
- b) Frequency spectrum calculation of impedance's seen at each bus
- c) Harmonic sensitivity calculation
- d) Harmonic voltage conversion
- e) Harmonic filter design (single tuned, high pass)
- f) Harmonic filter optimization

Selection of this option initiates checks to ensure that all essential data exist and, if the checks are satisfactory selects the appropriate models and proceeds with harmonic calculation. Local options are displayed when this is completed, and allow the display options or further studies to be selected or further 'HELP' information to be accessed. The calculations are based on an advanced power system modeling, which is described in Chapter 13.

2.5.12 ON LINE MONITORING & CONTROL

The system analysts may use this option to monitor the condition of their network and at the same time use the off-line calculation facilities of PASHA becoming an on-line toolbox. The

TCP/IP protocol is used to enable the interaction of variables between pasha sites and SCADA system. A quasi steady state condition of the system is determined using the inbred on line analysis tools. The circuit overloads, busbar voltage violation, frequency deviation and the condition of the network are displayed while simultaneously the system are watched dogged by the PASHA off line routines.

In order to use this facility PASHA must be connected to a SCADA. PASHA set up program with the SCADA system is also required. The set up process uses an intermediate program called PASHAS. PASHAS is a factory set up program. The process is well described in Chapter 15.

2.5.13 USER DEFINED EQUIPMENT MODELING

This option is selected to access the “User Defined Equipment Modeling” (UDEM) section. The UDEM facility enables you to graphically represent the dynamic models of the power system plants, e.g. AVR, GOVERNOR, LOAD, Arc furnace, etc., in terms of block diagrams. Selection of this option leads you to another main options provided for drawing a module, editing its data and testing its behavior in an isolated condition. UDEM can use other vendors' models like MATLAB® (optional). The UDEM functions are fully described in Chapter 10.

2.5.14 ACCESS THE DATA BASE

This option allows a catalogue of typical or specific plant data to be created. Line, transformer, generator, controller and motor data held in the DATA BASE files can be accessed, by any number of systems, with automatic conversion of the pu values from ‘on rating’ to the present ‘system’ base. Each set of data can be placed in a folder or workspace. Selecting a set of data can be achieved by changing the present folder, and therefore the number of data can be used is unlimited.

2.5.15 INTRODUCTORY HELP INFORMATION

Selection of this option displays some introductory help information on the screen that gives a brief description of how to operate PASHA, and exactly what the main options do. In fact it is a condensed version of this chapter. Always check this help information to find out about new features.

2.5.16 SET COLOUR AND SYMBOLS

Selection of this option displays a page containing some of the drawing options. This page is shown in the following figure. Since most of its option is related to basic graphic representation of PASHA, and therefore it is important for user interaction, it is described here in detail.

Positioning the mouse cursor over the small box in front of each option and pressing any key or just a click can change that option. The following selection may be made;

BACKGROUND COLOUR

Changes the background color. In Windows platforms this is black or white.

NOR / DET

Stays for normal and details. If it is in details mode, the circuit breakers, relays, fuses, and so will be drawn on the single-line diagram. In order to show the single-line diagram in details, the corresponding data of these elements must have been introduced in the edit pages of the elements.

MOUSE SHAPE / RESOLUTION

Mouse shape is the option represented in this page in windows platform. Resolution is the option for DOS platforms. In windows the option changes the mouse shape. In DOS the option changes the 640*480, 800*600 (if 800*600 option is active, see below) and 1024*678 VGA resolution. The appearance of the mouse cursor will also be changed, to suit for the available resolution.

800*600 NOT ACTIVE / ACTIVE (Replaced with the following option)

This option just works in DOS for screen resolution. For Windows/Linux platforms this option has no effect. In these platforms, the setting of your display is under the O/S control and can be changed by setting the display options in control panel.

SINGLE/DOUBLE BRANCH FLOWS (Windows and Linux platform)

By default the single branch flows will be written on single-line diagram for fast display of the results. Setting this option on double branch flows will write both sending and receiving results on load flow and fault analyses.

BUSBAR COLOUR SELECTION ACCORDING TO VOLTAGE

Selects the desired color for each voltage level. The nominal voltage levels can be specified in Busbar Data Page 1. The intermediate voltages will be drawn in the nearest color selected. Nearest means: below or above the average value of two nominal voltages shown in this page.

COLOR DRAWING

Changes the screen background color to white and all the drawing will be appeared in black. Therefore, the graphics are shown in black and white. This option may be set to get rid of the difficulty may be raised for color setting of a non-colorful printers.

TRANSFORMER TYPE

Transformer symbols representation in single-line diagram will be changed to Europe standard, American standard, or IEEE standard according to the option that you select under this heading.

SUBSTATION TYPE, RECTANGULAR / CIRCULAR

This option changes the way substations or busbars are represented in single-line diagrams. Both busbars and substations will be represented in circle form if the circular type is selected. Some distribution engineers prefer to represent their network in circular form.

JUNCTIONS : OUTPUTS INCLUDED

By default the Short Circuit Capacity (SCC) of junctions would not be displayed in single-line diagrams, in PASHA's fault analysis section. You may activate this option in order to calculate and display the SCC results for junctions.

CONNECTION LINES, STRIGHT LINES / DIAGONAL LINE

The connection lines between power system symbols are normally drawn (by default) is straight. It is possible to change the way the connection lines are represented in the single-line diagrams by choosing orthogonal line for connection. Usually single-line diagrams look better by choosing straight option. In this manual all the drawings are drawn when the straight-line option is in action. However, there would be situations that orthogonal representation is preferred.

OPTION CODE WINDOWS ON / OFF

Experienced PASHA users may prefer to work with special keys and not to work with green boxes menus or tool bars. Selection of this option in OFF position removes the small icon for the green tool bars and therefore green tool bars will not be available.

HIGHLIGHT BAR CODE BAR ON / OFF

Like the previous option the experienced PASHA users may prefer to work with special keys and not to work with green boxes menus or tool bars. If you put this option in OFF position, highlight bars will not be shown. Since the green box menu bars are dependent to highlight option, they will also be disappeared.

RETURN

Brings you back to the main menu options.

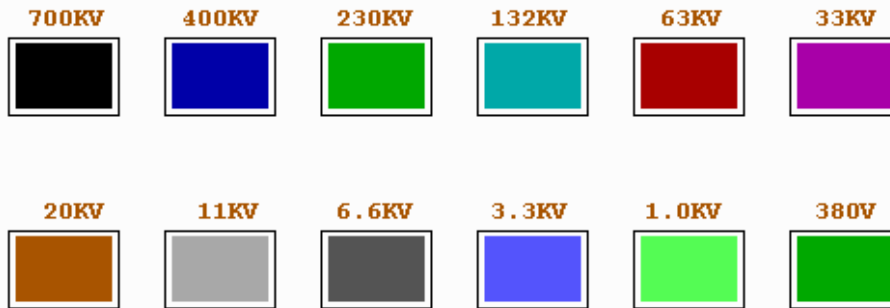
SELECTION OF THE MAP COLOUR

USE THE CURSOR TO SELECT AND CHANGE COLOURS ,OR TYPE 'H' FOR HELP

BACK GROUND COLOUR



BUSBAR COLOUR SELECTION ACCORDING TO VOLTAGE



COLOUR

DRAWING



JUNCTIONS : OUTPUTS INCLUDED



800*600 NOT ACTIVE



TRANSFORMER, EUROPE STANDARD



SUBSTATION TYPE, RECTANGULAR



CONNECTION TYPE, STRAIGHT LINE



OPTION CODES WINDOW ON



HIGH-LIGHT BAR CODE OFF



RETURN

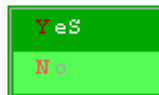


2.5.17 EXIT FROM THE PROGRAM

Selection of this option prompts you with a question if you have not saved your network file in its present form, as shown in the following figure.

!!! YOUR CURRENT NETWORK MAY NOT BE ON FILE, IN ITS PRESENT FORM !!!

DO YOU WANT TO FILE IT? (Y OR N)



You may then proceed as either to save your network or to exit from PASHA program. Note that if you would not like to exit from PASHA, select Yes and in the incoming storage menu select <C> for cancel.

Before closing the program, PASHA saves the databases group files automatically without any prompting.

If you are connected to Internet as a member of PASHA classes, PASHA inform the class teacher that you are exiting the class. The information box as shown below will be prompted before closing the program. The printer.92 file is a file that PASHA stores all your selected text results to print on. Before the next session of PASHA you must employ this file as you wish, since PASHA erase the content of this file when it starts to run.

