

USER GUIDE



Instructor Operator System Lesson Plan Editor

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SECTION 1

INTRODUCTION

The Lesson Plan Editor (LPE) is an interactive utility, which allows users to create/edit lesson plans off-line on a portable computer (PC) or on the development workstation. A PC/workstation-based editor with a Graphical User Interface (GUI) provides a user-friendly and familiar environment to the non-technical user. A GUI uses popup panels, scrollable lists, as well as mouse and keyboard inputs to ease lesson plan creation.

Once created, the lesson plans can be transferred and installed into the simulator, then used during training at the instructor station.

The following sections describe the Lesson Plan Editor in detail.

Section 2 provides a list of references for use with this user guide.

Section 3 provides a brief description of lesson plan concepts. Components making up a lesson plan are identified and described.

Section 4 describes how to set up the editor, start the editor and the input and output files for the editor.

Section 5 provides all the information required to get started on coding a lesson plan. This includes a brief description of windows concepts and interaction, and a detailed demonstration showing the coding of a lesson plan.

Section 6 describes, in detail, the Lesson Plan Editor pull-down menu functions that are accessed from the **Menu Bar**.

Section 7 describes, in detail, the Lesson Plan Editor convenience functions that can be accessed from the **Tool Bar**.

Section 8 describes the Lesson Plan Editor window layout and modification procedures. This includes a description of the features of the Profile Edit Window.

Section 9 gives a listing of all abbreviations used in this User Guide.

Appendix A describes the Lesson Plan Editor Initialization file (LPUINIT.DAT). This includes general attributes, compulsory and optional keywords, and its proper syntax.

Appendix B describes, in detail, how to code the Frame Database for the Lesson Plan Editor, which includes the frame definition, selection commands, instruction syntax and all related keywords.

SECTION 2

REFERENCE DOCUMENTS

[1] **VIEWS II User Guide**

SECTION 3

LESSON PLAN CONCEPTS

The lesson plans provide the framework for repeatable, structured, and efficient training sessions by grouping several actions into single lesson steps.

A lesson plan sequences predefined steps of ground or in-flight activities performed by the crew. It also sets the environmental, ambient, and simulator conditions for these activities. The instructor selects these lesson plan steps during simulation.

Lesson Plan Structure

A lesson plan has two components:

- Lesson Plan Index Page
- Lesson Plan Pages

The lesson index page displays all the lesson plans available for selection and allows the user to select a lesson plan. The lesson index page is not created using the Lesson Plan Editor but is coded as a regular LCD page.

The lesson plan pages display the lesson steps that can be activated by the instructor. The instructor can follow the preprogrammed sequence of lesson plan steps or can select the steps in any order. The instructor can also deviate from the lesson plan to regular LCD pages. A lesson plan page may contain initial conditions, Automatic Terminal Information Service (ATIS) messages, steps, and comments. In addition, a profile lesson page may contain line/arrow graphics and popup buttons.

Initial Condition Steps

Initial Condition (IC) steps contain a set of functions whose corresponding values set the simulator to the state required for the subsequent steps to be performed.

ATIS Messages

The ATIS messages provide recorded information for arriving and departing aircraft, ambient conditions, and active runways. These messages are static text on lesson plan pages and are displayed in a different color from other information on the page.

Steps

A lesson plan step changes conditions on the simulator. Steps perform a variety of functions: the activation/cancellation of malfunctions, repositioning of the aircraft, changes in environmental, visual or aircraft conditions, system resets and freezes.

The lesson plan steps may be coded to activate based on the satisfaction of a criterion (e.g., altitude > 10000 ft). In this case, a step is considered armed. The maximum number of criteria one can associate for each step is defined in LPUINIT.DAT file, using MAX_CRITERIA keywords. Up to 10 may be specified.

The lesson plan steps may either be manually or automatically activated. Manual steps require instructor action to activate or arm (if criteria are specified on the step). Steps can also be activated automatically based on auto sequencing logic coded with the step. Automatic sequencing may consist of more than one condition, which can be related via logical AND or OR.

Comments

Comments are text directives which complements the step and serves as static informative elements for the instructor.

Line/Arrow Graphics

The Line/Arrow graphics feature applies only to profile lesson pages.

It provides visual representation of the expected flight profile, as well as an indication of when specific events will occur during the flight.

Popup Buttons

The Popup buttons are used to call up popups. This feature complements the lesson plan pages where alternative selections can be coded as direct input button within popup pages, meanwhile it provides additional information to the instructor. Activation of these direct inputs will not affect the flow of the lesson plan.

SECTION 4

LESSON PLAN EDITOR SETUP AND OPERATION

Input/Output Files Overview

Figure 1 illustrates the input/output files used by the Lesson Plan Editor. The following sections describe the input and output files.

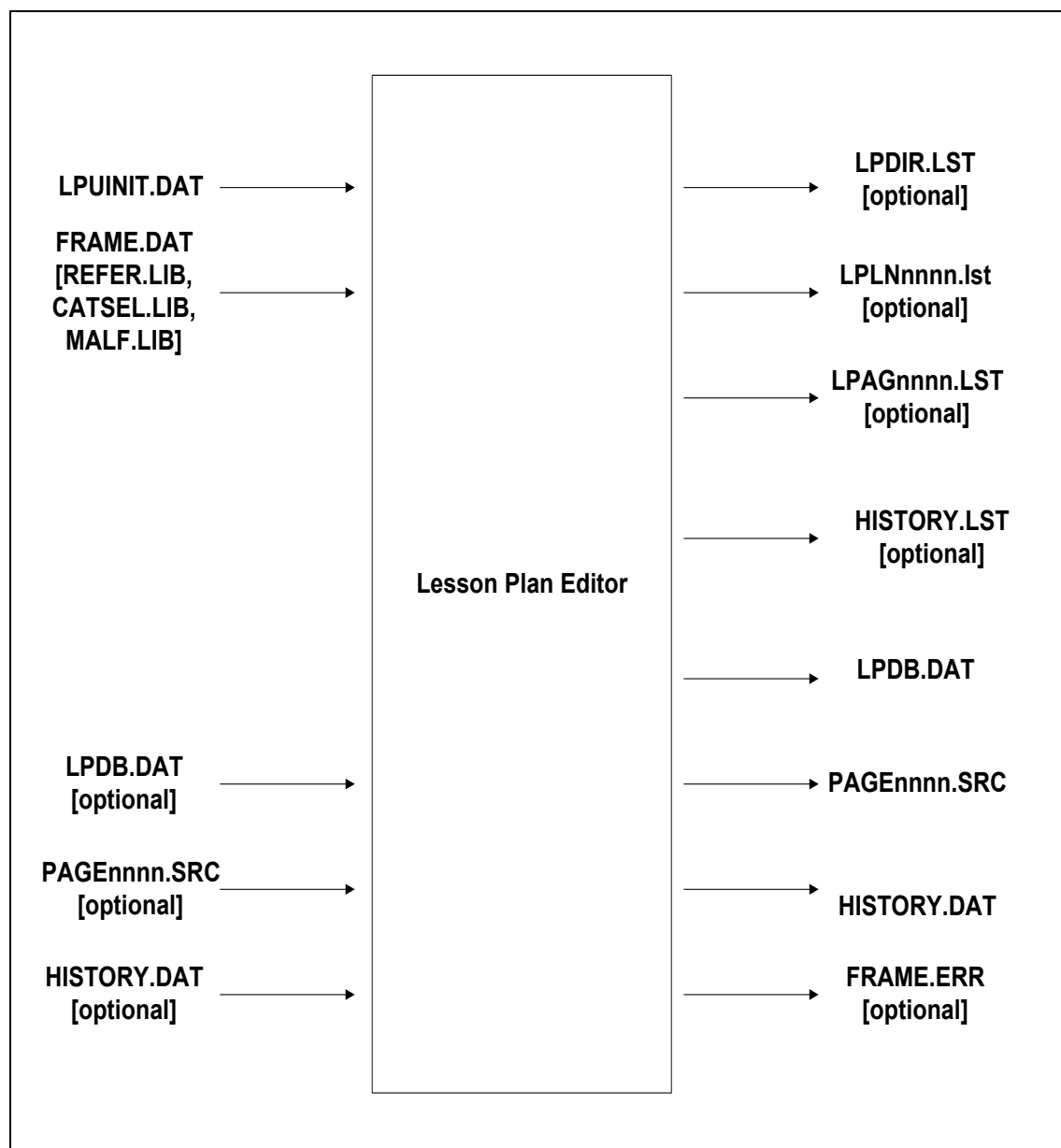


Figure 1 Input/Output Files Overview

Input Files

To run the Lesson Plan editor, the LPUINIT.DAT file is required, by default, in the current or working directory.

If the user does not intend to have this file in the working directory, the file path and filename may be specified on the command line when the editor is run or on the icon property definition.

LPUINIT.DAT is the initialization file for the Lesson Plan Editor. It specifies the pathnames for the following files:

- FRAME.DAT
- LPDB.DAT
- Lesson plan page source files (PAGEnnnn.SRC)

If FRAME.DAT is not in the directory specified in LPUINIT.DAT, the user gets an error when the utility is invoked and the execution is aborted.

If LPDB.DAT does not already exist in the directory specified in LPUINIT.DAT, implying that no lesson plan exists yet, the utility will create an LPDB.DAT, and the user will begin with the empty lesson plan index.

Lesson Plan Editor Initialization File (LPUINIT.DAT)

The initialization file (LPUINIT.DAT) specifies the pathnames for the input files and the page source files, which constitute the output of the editor.

This file also specifies certain general attributes for the lesson plan pages such as page attributes, desired touch box specifications and colors related parameters ... etc.

Refer to Appendix A for a complete description of the initialization file.

Frame Database File (FRAME.DAT)

The FRAME.DAT file contains all the selections available to code the lesson plans. The selections frame sequence appearing in LPE will be the direct result of the structure in this file. The user can organize the structure of the frames selections in any desired manner. It may make references to selections contained in the library files:

- REFER.LIB
- CATSEL.LIB
- MALF.LIB

Refer to the Frame Database User Guide (Appendix B) for more detailed information.

Lesson Plan Database File (LPDB.DAT)

This file is created by the Lesson Plan Editor and contains history information about all lessons and pages created using the editor. Each time the user updates or creates a lesson this file is updated.

Output Files

The output from the Lesson Plan Editor is the page source files and the database file. The page source filenames are in the format PAGEnnnn.SRC, where nnnn is a number assigned by the editor in the range defined for the lesson plan pages. These source pages are the same as the regular LCD pages (see Reference 1, Section 2 for a more detailed description). Once these source files are transferred to the simulator host computer they are imported into Views (see Reference 1) for lesson display on the IOS.

Listing Files

The Listing files are created by the utility when a directory, preview or history listing is requested. The file formats are as follows:

Directory Listing : LPDIR.LST

Preview Listing : LPAGnnnn.LST
(Lesson page) where nnnn is the source page number

Preview Listing : LPLNnnnn.LST
(Lesson Plan) where nnnn is the lesson plan number

History Listing : HISTORY.LST

There is also an error listing file generated when any object reference in the frame database cannot be found.

Error Listing : Frame.err

Foreground Update of Lesson Plans

Updating the foreground with the source files created using the editor is accomplished using one of the following methods:

Foreground Update by Diskette

The user may copy the updated lesson plan(s) into the diskette and then transfer the source files into the host-designated directory (use VIEWS preferences dialog to define target folder).

To copy a lesson plan into the diskette while in the Lesson Plan Editor, use the **Copy To Disk** action on the **LP Pull-down**, which will copy the highlighted/selected lesson plan pages, including the associated popup pages - if any.

If the user does not wish to copy the lesson plan source to the floppy within the editor, the PC File Explorer can be used instead.

Foreground Update by Ethernet

The Ethernet File Transfer Protocol (FTP) is the most frequently used method and it is often used to transfer files from the PC workstation to the master pages directory of the host computer. The user needs to know which page source filenames to use when transferring.

Invoking the Editor

To invoke the PC Lesson Plan Editor, position the cursor on the Standard LP Editor icon in the LPE window of the **PC desktop** and double-click the left mouse button on the icon.

Once the editor is running, the CAE LOGO window appears. Select the **OK** button when prompted **and** then enter your **name**. The Lesson Plan Index window appears and the user may proceed to edit a lesson plan.

SECTION 5

GETTING STARTED

Lesson Plan Editor Window Concepts

The following provides an overview of the window concepts and terminology used in this document. In addition, general interaction with the Editor via the mouse and keyboard is described.

The primary user interface component of the Lesson Plan Editor is the window. A window (refer to Figure 2) consists of a **Title Bar**, a **Border**, a **Menu Bar**, a **Tool Bar**, a **Client Area**, a **Status Area**, buttons, and **Scroll Bar**.

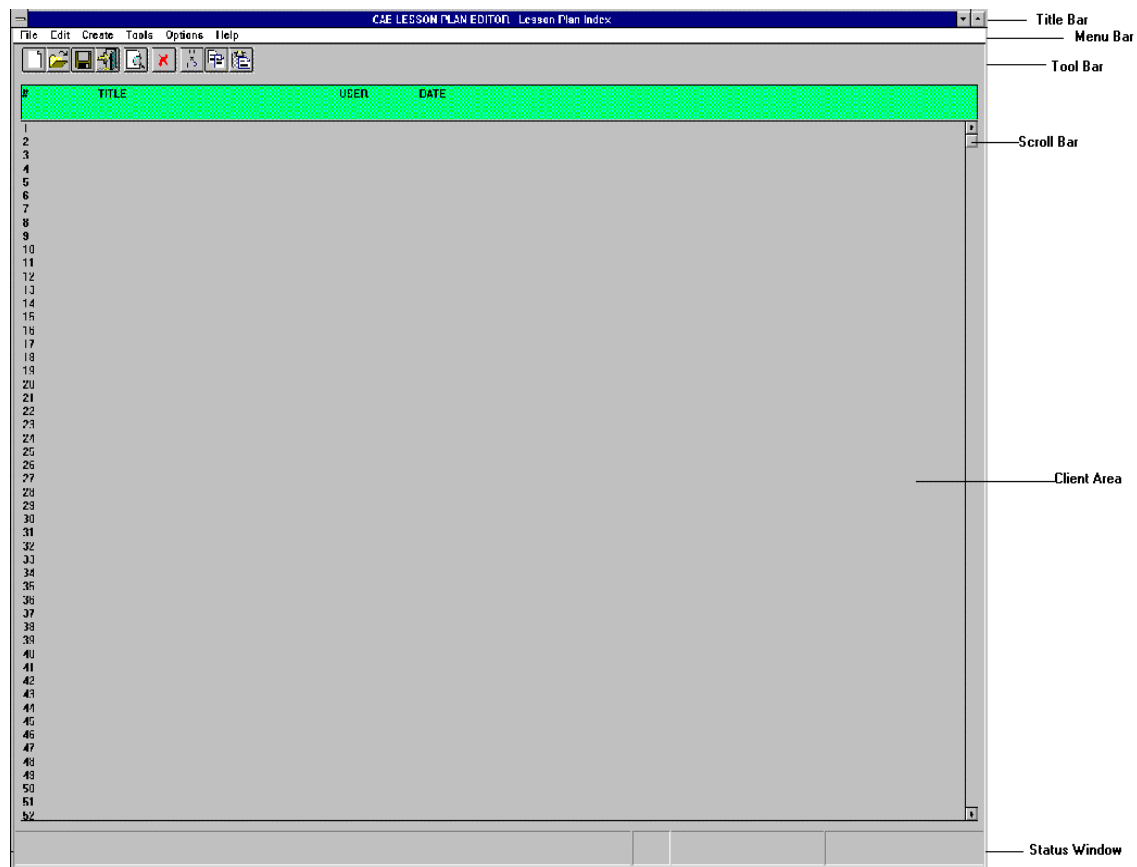


Figure 2 Window Components

The **Title Bar** identifies a window to the user and is a cue to the user that the window may be moved. The Lesson Plan Editor has the following windows:

- **Logo window**
- **Lesson Plan Index window**
- **Lesson Plan Sub-Index window** [optional]
- **Profile Edit window**
- **Page Edit window**

The **Menu Bar** contains the actions (or commands) of the Editor. It is positioned right below the **Title Bar**. Actions that contain ellipses (...), call popup panels **providing** further interaction with the user.

Also, a **Tool Bar** contains the frequently used functions, and is located below the **Menu Bar**. **To move a** popup panel, **the user positions** the mouse pointer on the popup panel Title Bar and **drags** the popup panel to the desired location.

The client area is the focus of the user's attention. It contains the lesson plan components (e.g., lesson plan title, steps, text).

The session status window at the bottom of the screen displays information about the present editing session. The information includes the page source number, and the row-column position of the cursor.

Scroll bars provide the user with a cue that more information is available and the information may be scrolled into view via the **Scroll Bar**.

Interaction

Interaction with the Lesson Plan Editor is through the mouse and/or the keyboard. The Keyboard interaction consists of moving the keyboard cursor to a choice and selecting that choice. The cursor is moved by pressing the arrow keys, the tab keys, or by selecting <ALT> and the mnemonic for a choice. Selection is made by moving the cursor to a choice and pressing <ENTER> to select the choice. Selection is also possible via one character mnemonics. A mnemonic is underlined to provide the user with a visual cue as to which mnemonics may be used.

The mouse interaction consists of moving the mouse pointer to a choice and selecting that choice. Selection is made by either single clicking, double clicking, or dragging selection with the left mouse button.

Single Click: A single click on an object or item in a window selects the item. The selected item is highlighted in reverse video. Any further actions performed from either the **Menu Bar** or **Tool Bar** (e.g., delete or modify) will directly affect the selected item.

Double Click: A double click selects an item and performs a default action. Double clicking on an item with the left button (for example, a step description) selects the item and allows the user to modify the item specifics (selections and criteria). This has the same effect as single clicking on the item and selecting Modify from the Edit pull-down in the **Menu Bar**.

Dragging: Dragging consists of single clicking and moving the mouse pointer while keeping the left mouse button depressed. Dragging is terminated with the release of the mouse button and the selected item is dragged to the position upon releasing the mouse button.

The Menu Bar

The actions performed on a selected function are selected from the pull-down menus accessed from the **Menu Bar** (refer to Figure 3).

Actions, which are unavailable from a pull-down, are dimmed or displayed in reduced contrast (gray).

Section 6 provides a complete description of the actions available from the **Menu Bar**.

The Tool Bar

The **Tool Bar** contains icons representing frequently used features (refer to Figure 3).

NOTE: Section 7 provides a complete description of the actions available from the **Tool Bar**.



Figure 3 Lesson Plan Editor Menu Bar and Tool Bar

Lesson Plan Coding Demonstration

The following demonstrates how to code a lesson plan. This example shows the step-by-step creation and saving of a lesson plan page with two steps coded. A sample frame database is used to demonstrate the selection of simulator parameters and malfunctions (actual database may differ).

STEP 1 Invoke the Lesson Plan Editor as described in Section 4.

- The CAE logo window appears (refer to Figure 4).

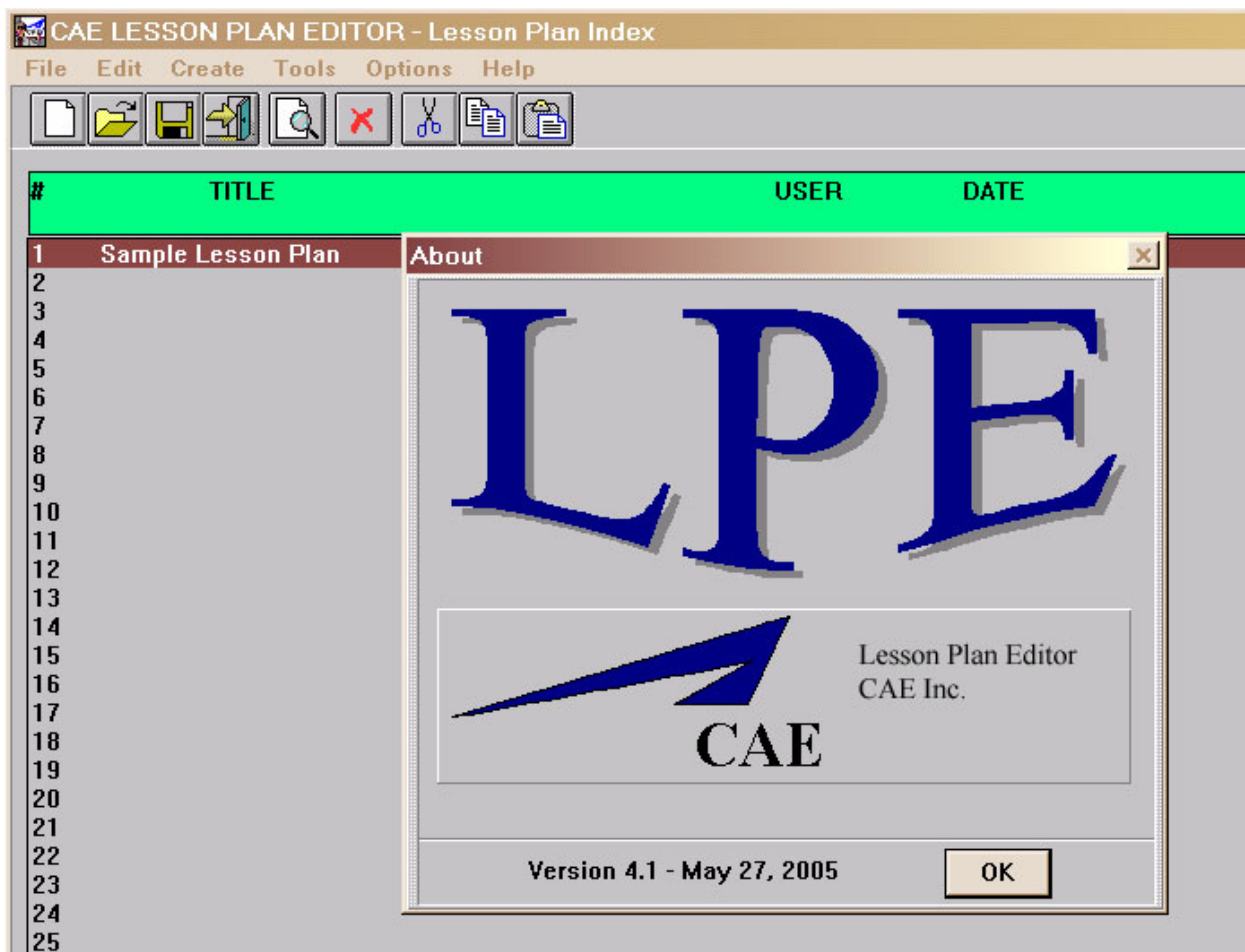
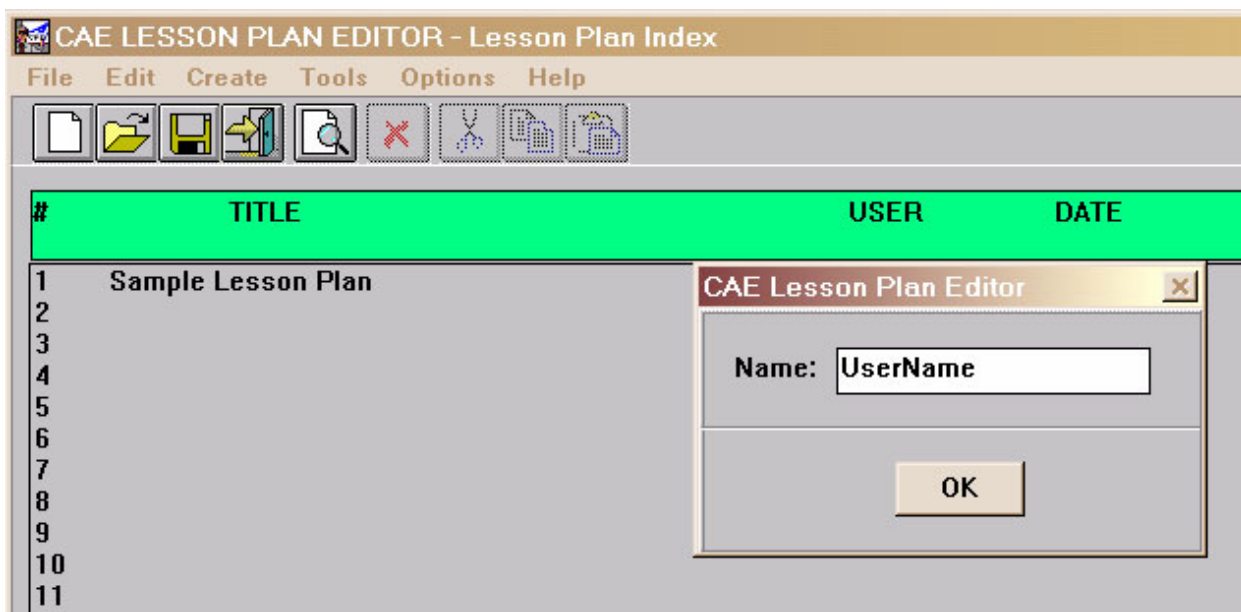


Figure 4 CAE Logo Dialog

STEP 2 Select **OK**.

- The logo disappears and a popup panel appears requesting input of the user's name (refer to Figure 5).

**Figure 5 Name Popup Panel**

STEP 3 Enter your name and select **OK**.

- The popup panel disappears and the Lesson Plan Index window is in full view.

STEP 4.1 Select a lesson index number in the client area to create the lesson plan.

- The selected line of the corresponding lesson plan is highlighted.

STEP 4.2 Select **LP..** from the **Create** pull-down menu.

- The **Create LP** popup panel appears (refer to Figure 6) with profile lesson as default.

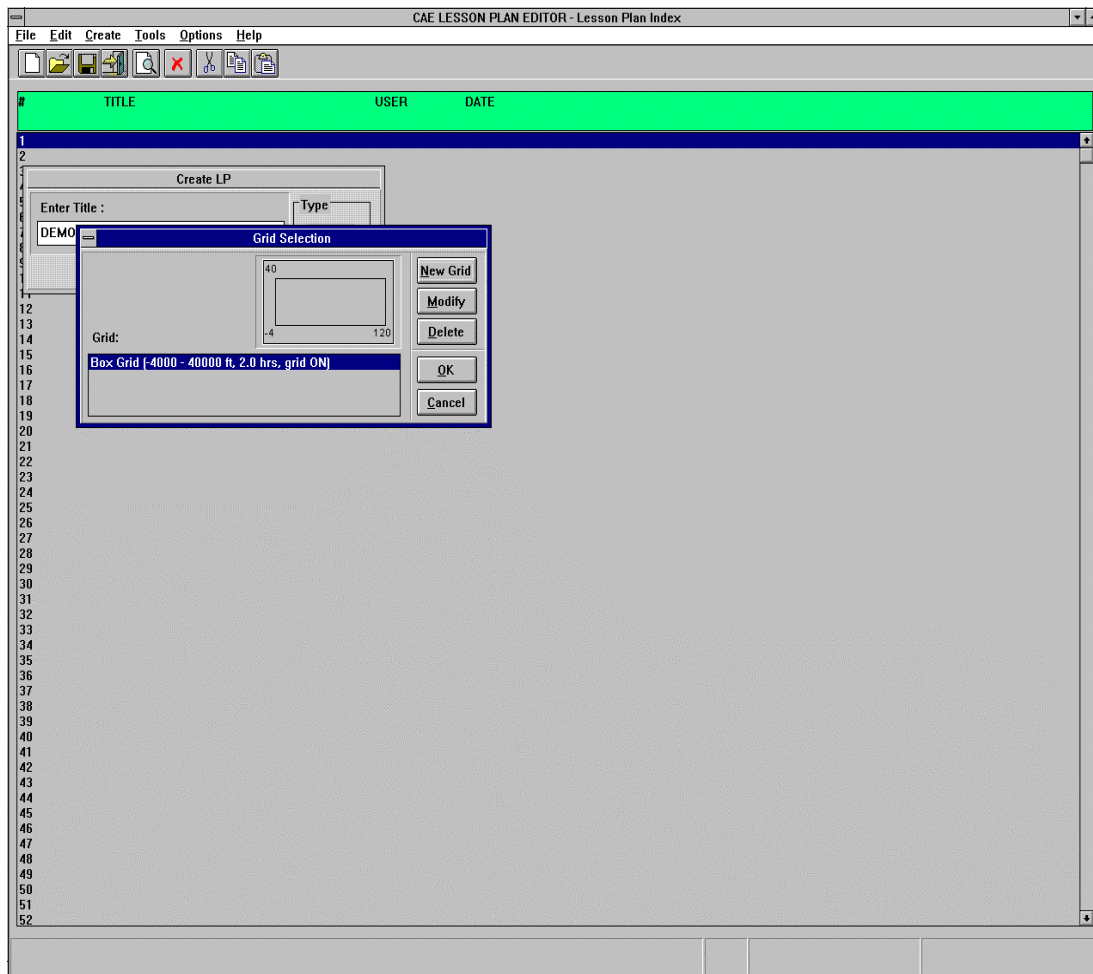


Figure 6 Create LP Popup Panel

STEP 5.1 Enter the lesson plan title and select **OK**.

- The **Grid Selection** popup panel appears with the default grid type highlighted (refer to Figure 6).

STEP 5.2 Choose a Grid type from the Grid Selection Popup and select **OK** (refer to Section 6 for detail description of GRID information).

- Both the popups disappear and the **Profile Edit** window appears with the page title and source page number. The **Initial Conditions** step is automatically created and its Detail window popup is opened automatically ready for the user to make step selections (refer to Figure 7).

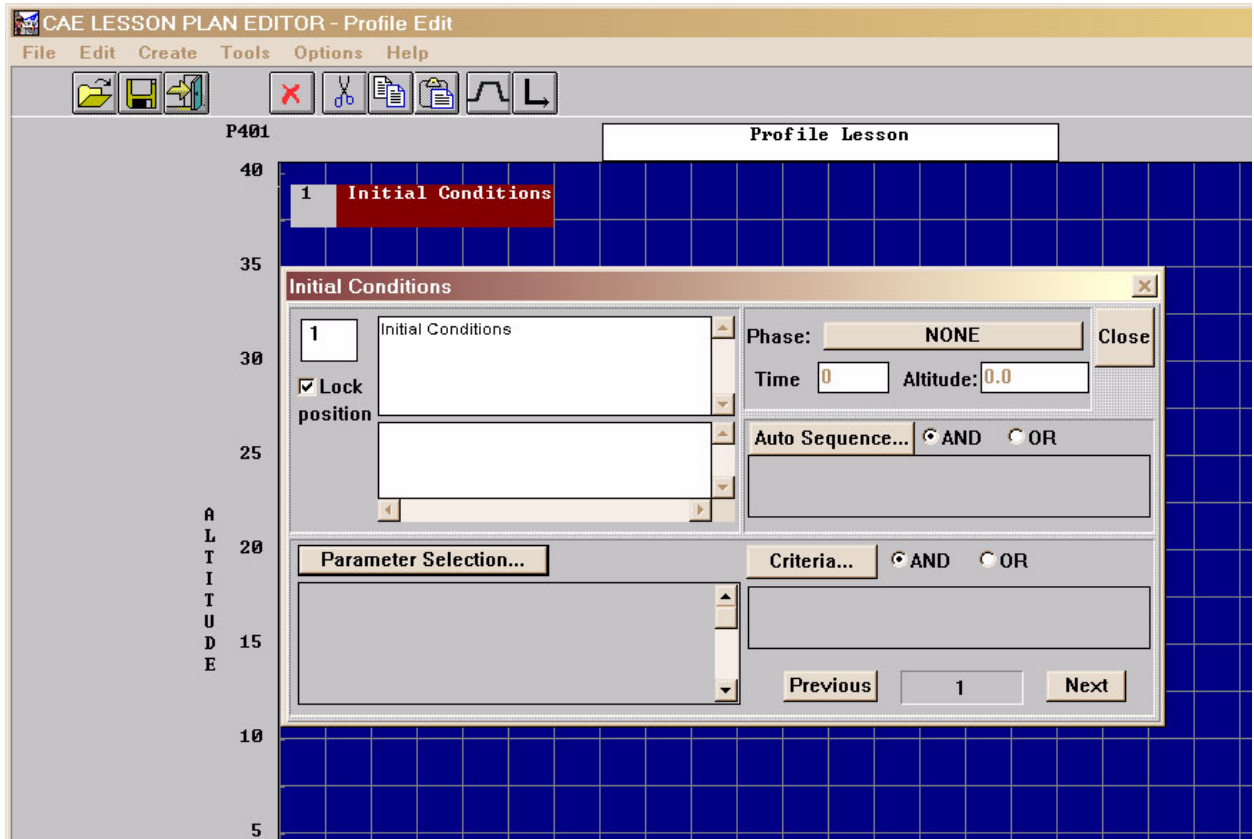


Figure 7 Profile Edit window with Initial Conditions Step and Detail window

- STEP 6** Select the **Parameter Selection..** button from the Detail window popup.
- A list of available frames is displayed ready for user's selection.
- STEP 7** Select the **Initial Conditions** frame from the list.
- The Initial Conditions frame popup is displayed, showing all the selections that can be made from within it.
- STEP 8** Select the **Default** button from the popup.
- All selections within the frame that possess a default value are automatically assigned that value (refer to Figure 8).

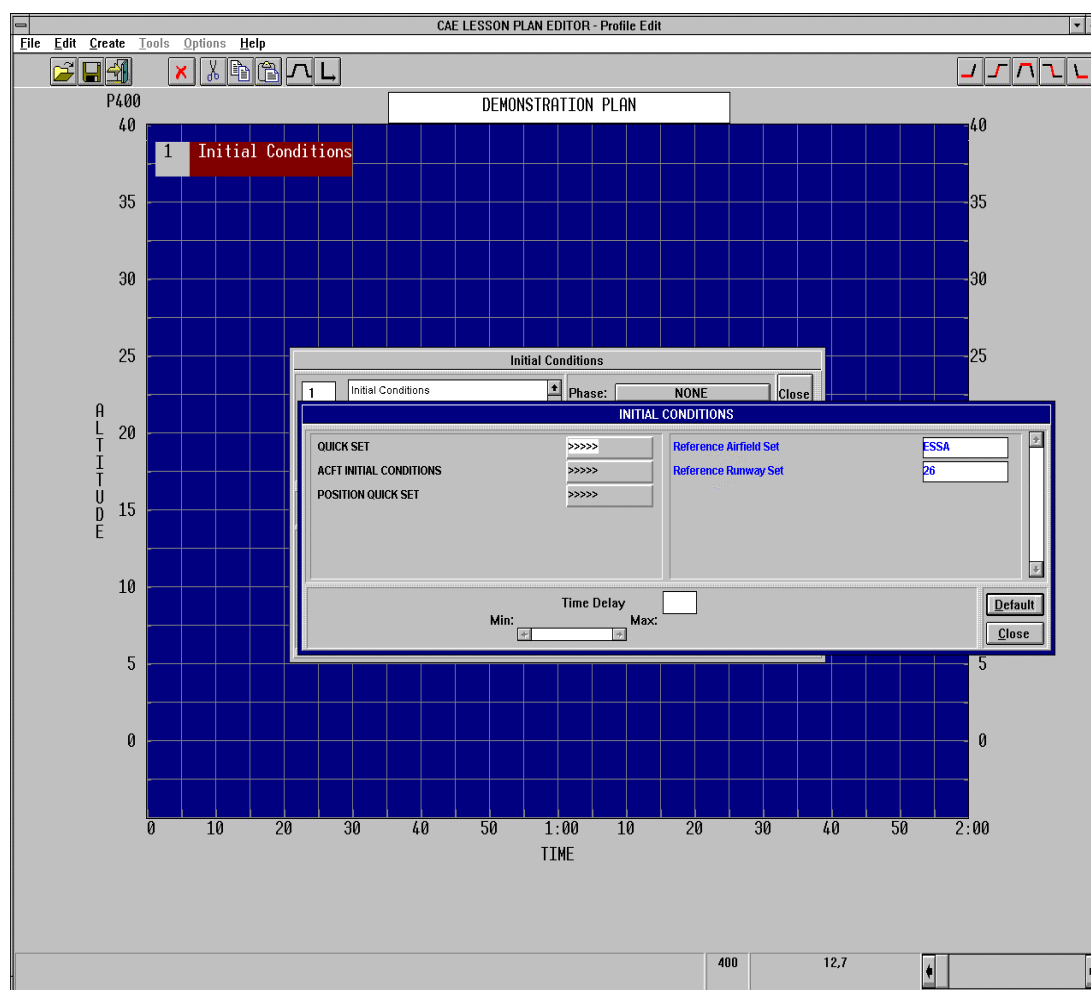


Figure 8 Profile Edit window with Initial Conditions Frame

STEP 9 Select the **Close** button.

- The Detail window now contains a list of the Parameters selected. These can be used as Step description on the page.

STEP 10 Enter the step description in the upper text window and/or click on the selected parameters from the list.

- The selected parameters are highlighted and the auto generated text is copied into the lower left area of the window (refer to Figure 9).

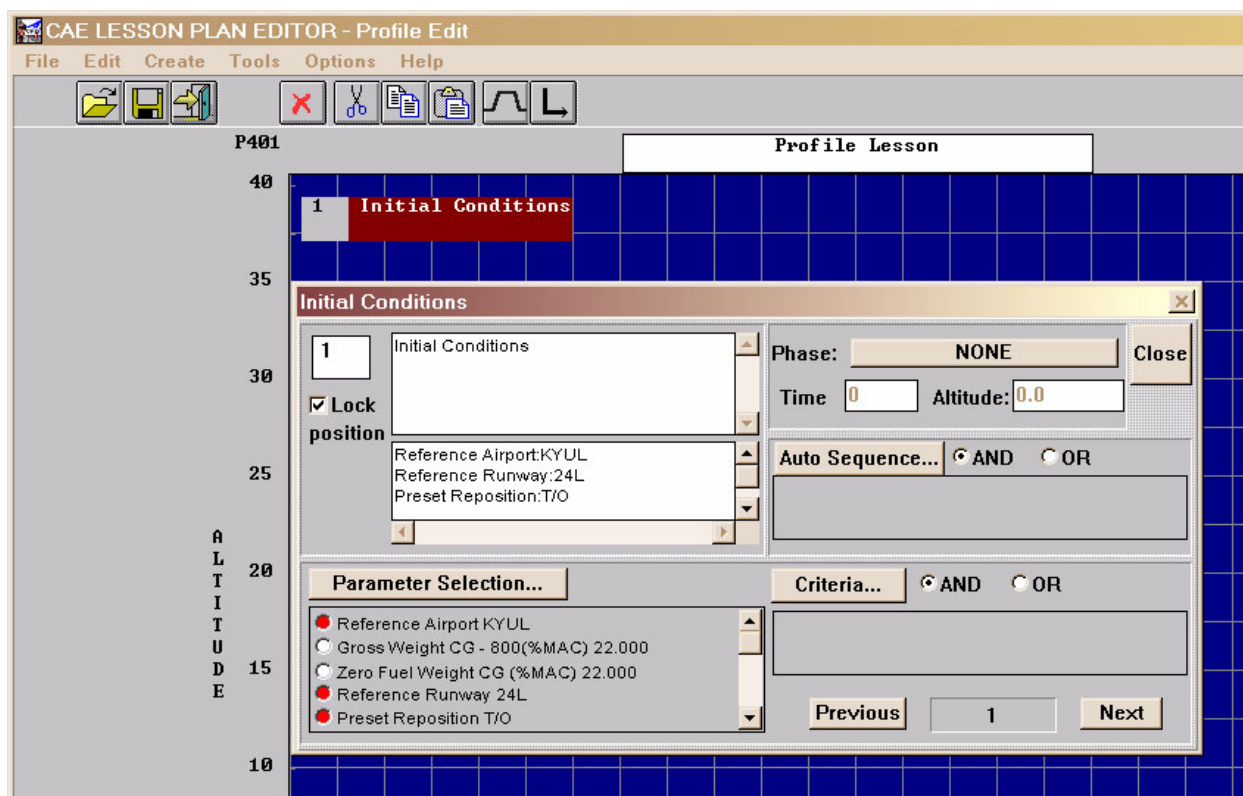


Figure 9 Detail window with List of Auto-Generated Text

STEP 11 Close the Detail window.

- Both the manual text and the selected auto generated text are entered into the step (refer to Figure 10).

STEP 12.1 Select the **Line** button from the **Tool Bar**.

- The **Line** button turns red indicating that the editor is in line draw mode, and user is now able to draw the profile for the lesson (refer to Figure 10).

STEP 12.2 Move the cursor to the desired position in the graph and click on the left mouse button.

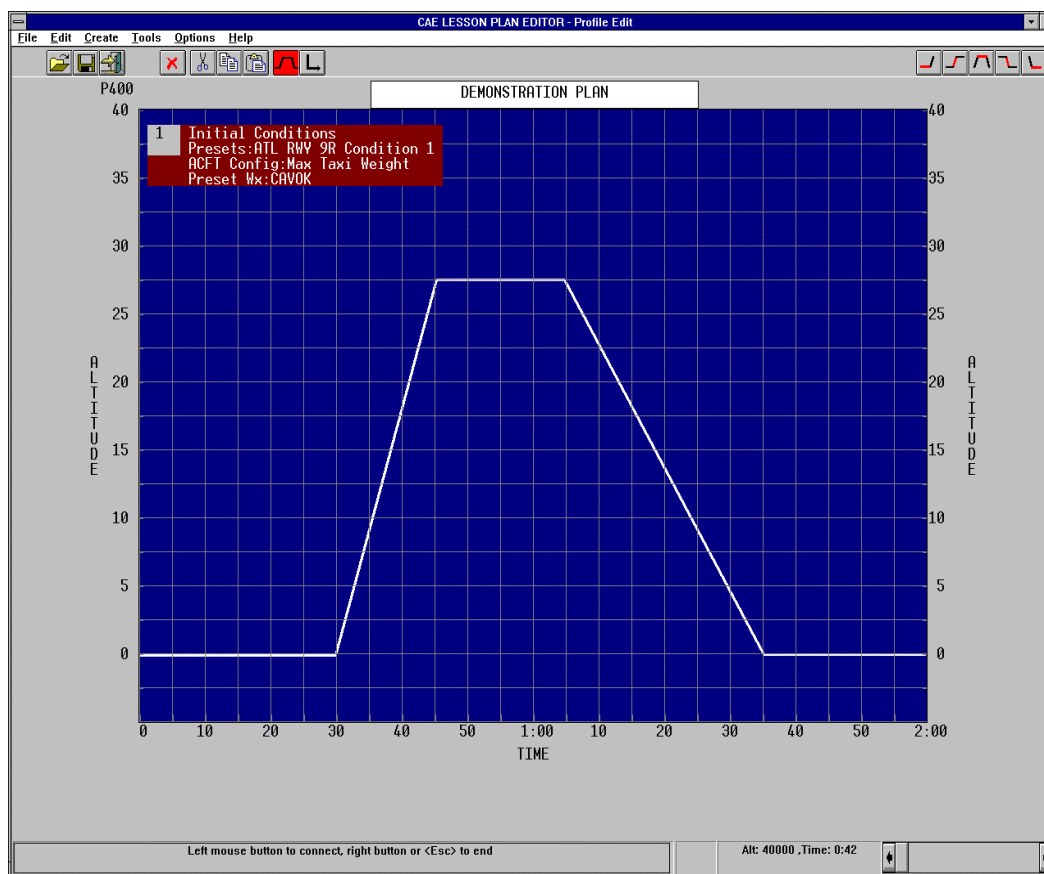
- The line's starting point is selected, the line is now "rubber-banded" as the cursor moves between the starting point and the current cursor position.

STEP 12.3 Click on the left mouse button again at the next desired position.

- The line is connected, the current cursor position now becomes the starting point for the next line and so on.

STEP 12.4 Continue this process (repeat step 12.3) until the entire profile line is drawn.**STEP 12.5** Click on the **right mouse** button (or select <ESC>) to end line drawing (but user remains in line draw mode).**STEP 12.6** Deselect the **Line** button from the **Tool Bar**.

- The **Line** button reverts from red to regular color.
- The editor exits line draw mode.

**Figure 10 Profile Edit Window with Initial Conditions Step and Profile**

STEP 13.1 Select a point on the profile to create a step.

- The selected profile line turns red.

STEP 13.2 Select **Step** from the **Create** pull-down menu.

- A new step is created (at the bottom left of the Profile Edit Window) and its **Step Edit** window is displayed ready for user to make selection. This detail window will show the step's phase as well as its time and altitude (refer to Figure 11). The time and altitude of the step are calculated based on the position of the mouse click on the profile line.

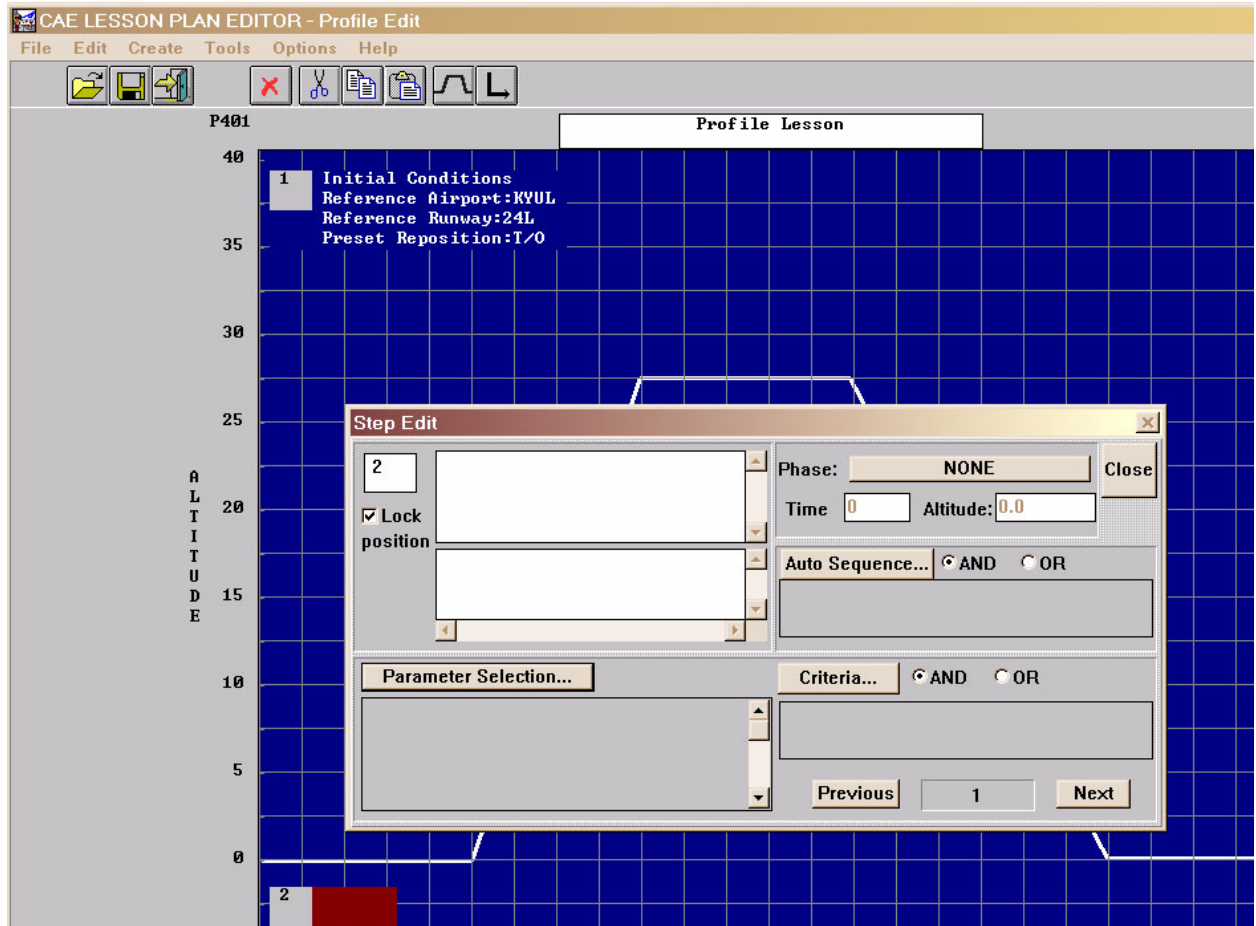


Figure 11 Profile Edit window with Detail Window Popup for Second Step

STEP 14 Select the **Parameter Selection..** button and choose the Aircraft Conditions Frame.

- The Aircraft Conditions frame is displayed.

STEP 15.1 Select the **CG** selection. Enter a value using either the keyboard or the horizontal slider located at the bottom of A/C frame. (Refer to Figure 12.)

- The selected value is reflected on the edit box on the right of the CG description.

STEP 15.2 Select the **Close** button.

- The A/C frame is closed and the selection is displayed in the detail list window.

NOTE: Steps 14 to 15 can be repeated to code other selections for the step.

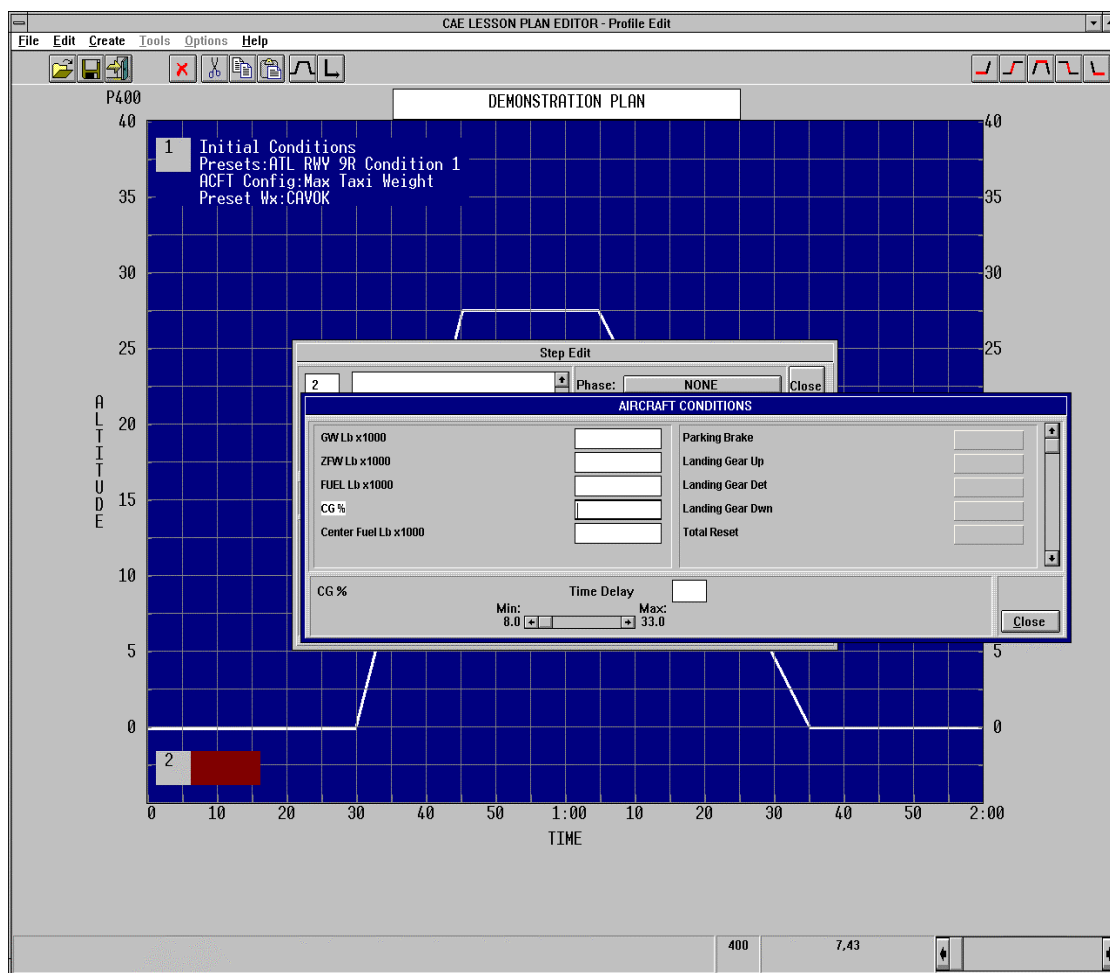


Figure 12 Profile Edit window with Selection Popup Panels

STEP 16 Select the **Parameter Selection..** button and choose the Malfunction Index Frame.

- The Malfunctions frame is displayed with the malfunctions grouped together by Air Transportation Association (ATA) Chapter.

STEP 17 Select **Doors**.

- The corresponding Doors malfunctions appear at the lower portion of the malfunction frame.

STEP 18 Select the **AFT CARGO DOOR OPEN**.

- The malfunction is highlighted and set to **ON** (refer to Figure 13).

NOTE: Steps 17 and 18 may be repeated to code other desired malfunction selections for the current step.

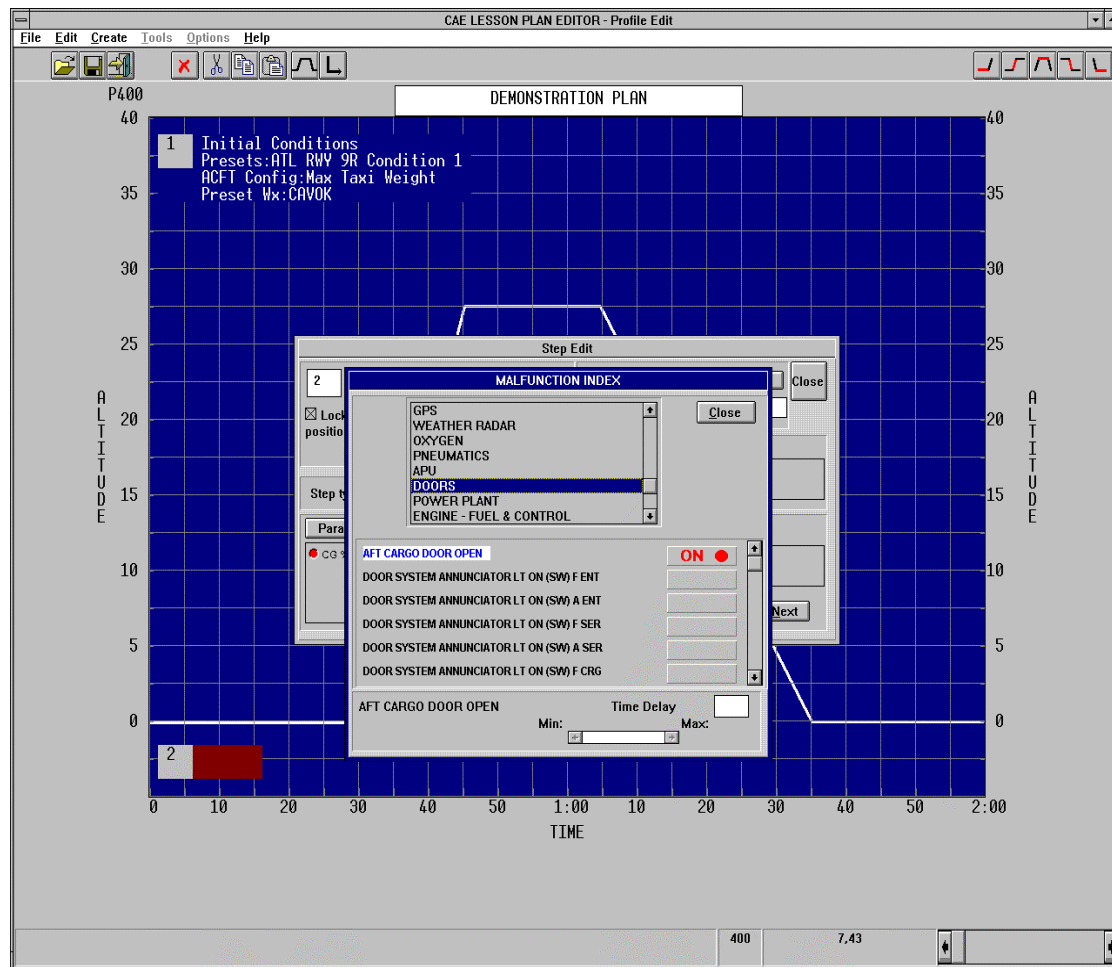


Figure 13 Profile Edit window with Malfunction Selections

STEP 19 Select **the Close** button.

- The Malfunctions frame disappears and the malfunction is displayed in the Step Edit window.

STEP 20 To select a criterion, the current step still highlighted, select **Criteria..** button in the **detail** window.

- The **Criteria** popup panel appears (refer to Figure 14).

STEP 21 Select the **Speed (Kts)** criterion, enter a corresponding value (example 70.0), then select **Increasing**. Select **Close** button when done.

- The criteria, direction, and value appear in the Criteria box of the Step Edit/Detail window.

NOTE: The steps 20 and 21 can be repeated to code more criterion for this step.

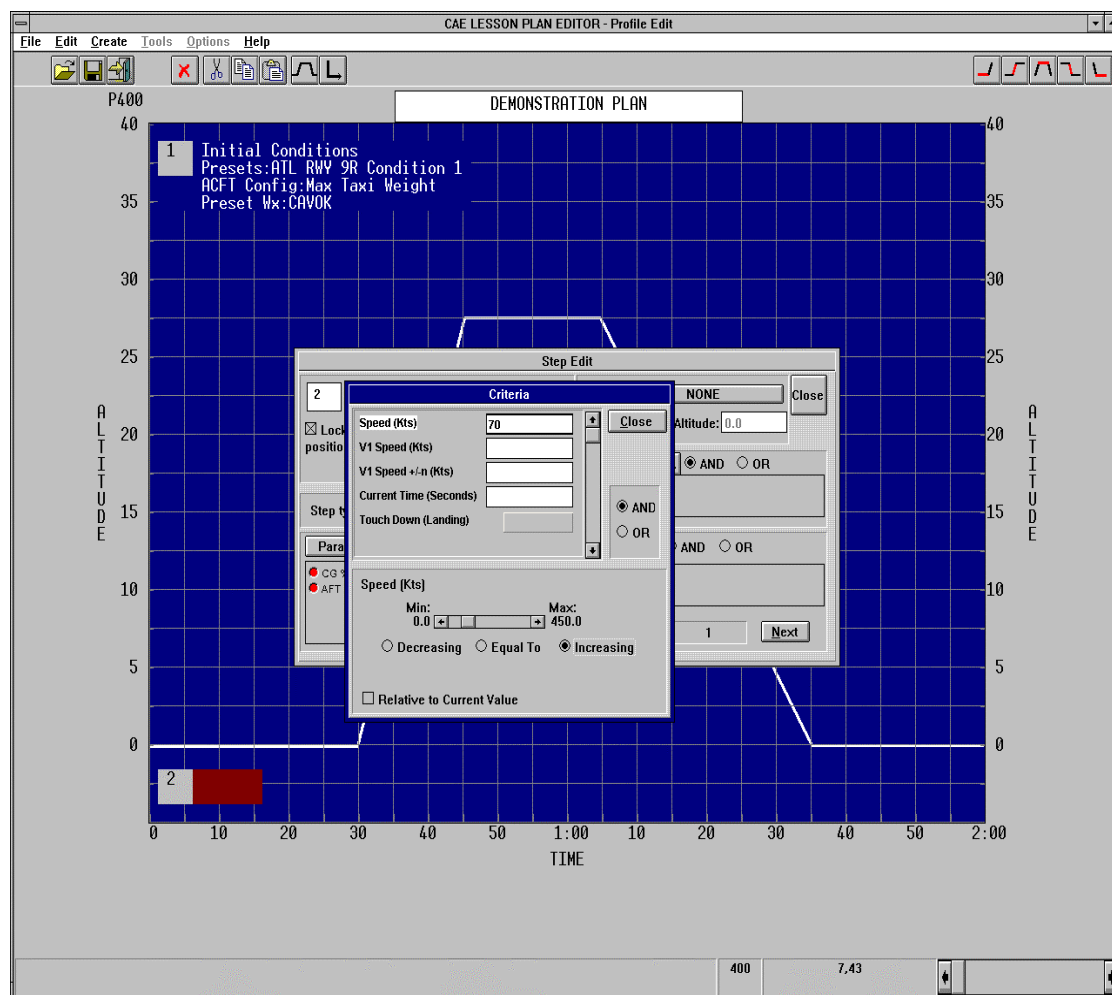


Figure 14 Profile Edit window with Criteria Selection

STEP 22 Exit the Step Edit by selecting the **Close** button.

- The Step Edit window disappears and the step text is displayed within the step. Also, the step is automatically placed near the profile and an arrow is drawn connecting it to the profile (refer to Figure 15).

NOTE: User may move the step by highlighting the step and dragging the mouse to the desired location, the arrow will be automatically updated without affecting the joining point of the arrow and profile.

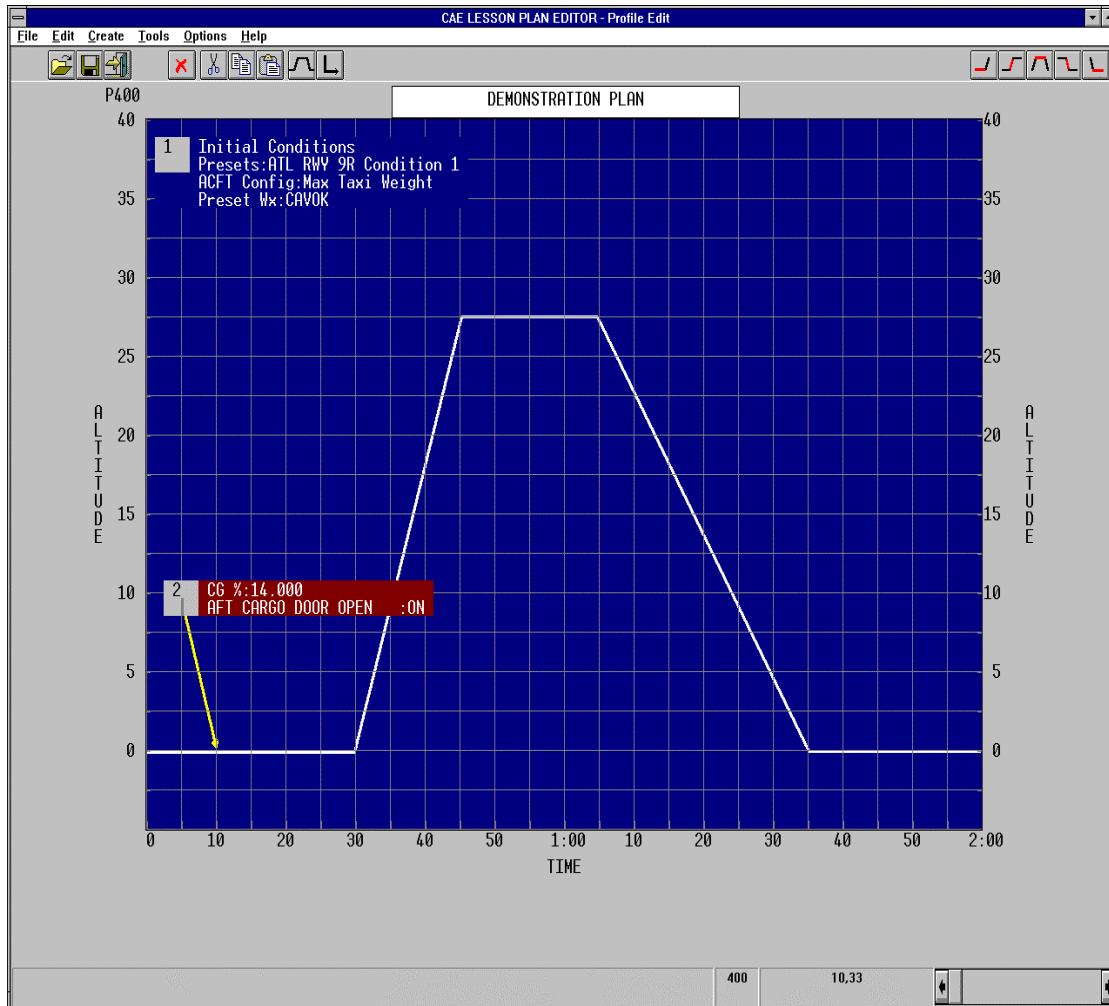


Figure 15 Profile Edit window with Second Step Coded

STEP 23 To exit and save the lesson plan, select **Close..** from the **File** pull-down menu.

- The Close popup panel appears (refer to Figure 16).

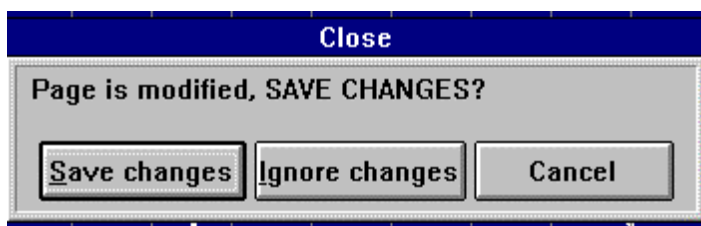


Figure 16 Close Popup Panel

STEP 24 Select the **Save changes** button.

- The **Close** popup disappears and the **Revision History** popup panel is displayed (refer to Figure 17)

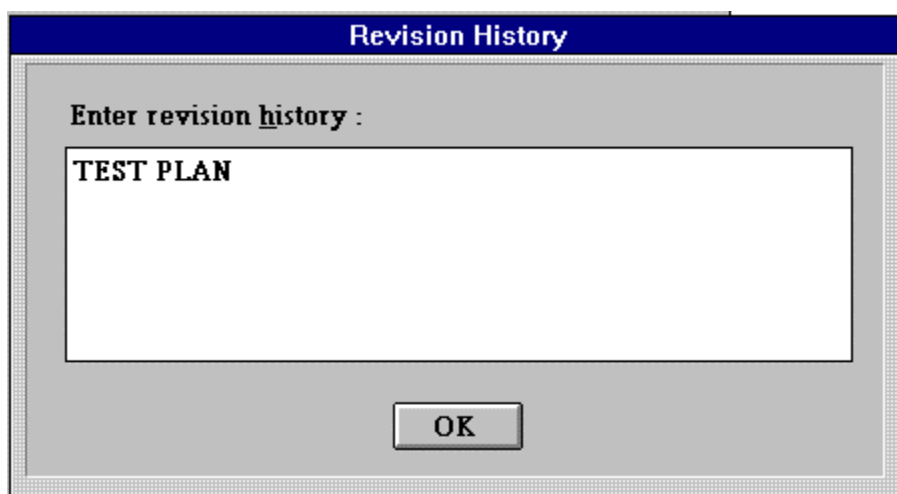


Figure 17 History Popup Panel

STEP 25 Enter revision history comment **Test Lesson** (refer to Figure 17) and select the **OK** button.

- The user will be returned to the Lesson Plan Index window and the lesson plan will be saved.

SECTION 6

LESSON PLAN EDITOR MENU BAR

DESCRIPTION

The Menu Bar

The following is a description of the actions/commands available from the action or **Menu Bar** (refer to Figure 18).

The ellipses (..) indicate that a popup panel will appear when the corresponding action is selected (e.g., Preview.. in Figure 19).

Actions in a pull-down, which are unavailable, are dimmed and displayed in reduced contrast (gray).

Actions, which have an associated quick selection keystroke, have the keystroke displayed on the right side of the pull-down (e.g., "<Ctrl> +<Delete>" in the Edit pull-down).



Figure 18 Lesson Plan Editor Menu Bar

NOTE: In the following sections, the square brackets [] are used to reflect the actions/commands which are optional. They may or may not show on the **Menu Bar**, depending on the definition in the lpunit.dat file specified by the user.

File Pull-Down

The **File** pull-down (Figure 19) allows the user to manipulate the selected (highlighted) item. **This item can** either **be** a lesson plan, **a** page or **step**.

Directory

The **Directory..** action provides the user with a listing of the lessons coded thus far.

Popup View

The **Popup View..** action calls the popup window which allows users to view all the popup pages created thus far and their dependencies corresponding to the created lesson pages.

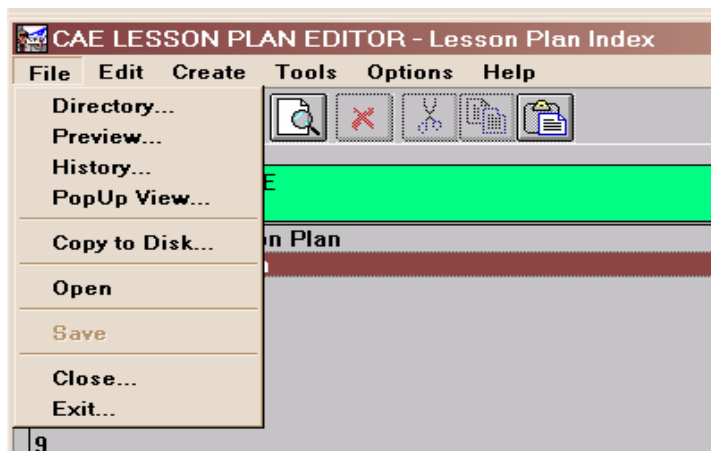


Figure 19 File Pull-Down

Directory.. Action

The **Directory..** action provides the user with a listing in a file or on a printer (if one is connected) of the lessons coded thus far. The directory contains the lesson plan number, the lesson title, the date (month-day-year) on which the lesson was last updated, and the username who last modified the lesson.

Preview.. Action

The **Preview..** action is only available on the Lesson Plan **Index**. Preview.. generates a summary of the selected lesson plan or page. The Preview.. action displays the popup panel (refer to Figure 20). The user has the choice of obtaining the following:

- a full summary of a plan or a page
- a partial summary in text only
- or
- a partial summary in function only

then,

- route the output to the printer (if one is connected)
- or
- to the display

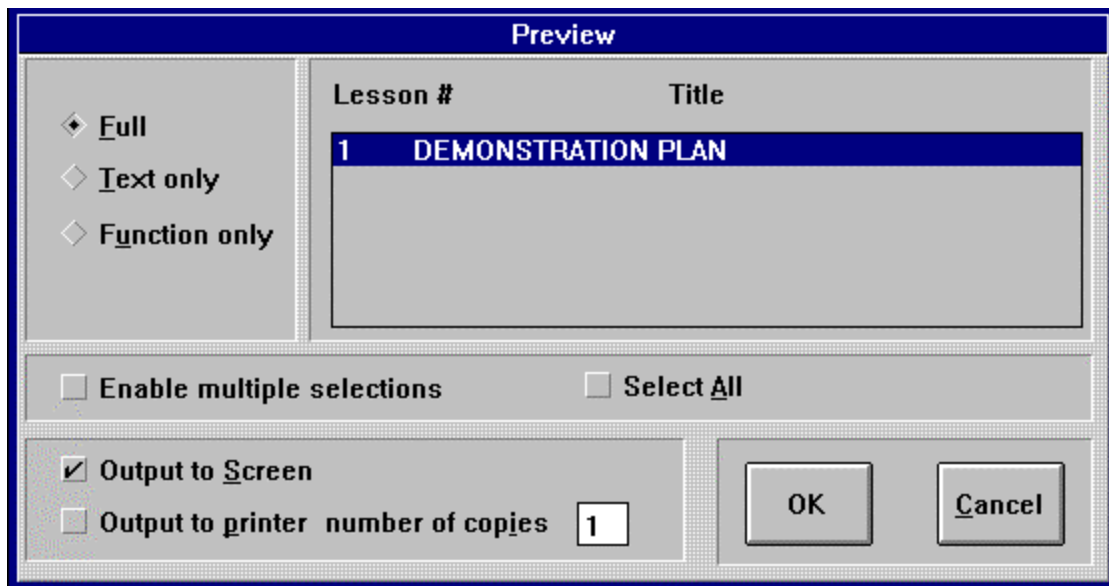


Figure 20 Preview Popup Panel

History.. Action

The **History..** action allows the user to view or print a revision history of either the selected lesson plan or of all lesson plans.

The History.. action is only available when the Lesson Plan Index window is displayed. Selection of History.. displays the popup panel (refer to Figure 21). If no lesson plan is selected (highlighted), the default is Full history of all lesson plans/pages. The user may select the Partial button and enter the lesson plan number to output.

In addition, the user has the option of routing the revision history to the display or to the printer (if one is connected). If the printer option is selected, the user may enter the number of copies to be printed.

The revision history consists of the date of each update, the user who last made the update, and a description of changes made.

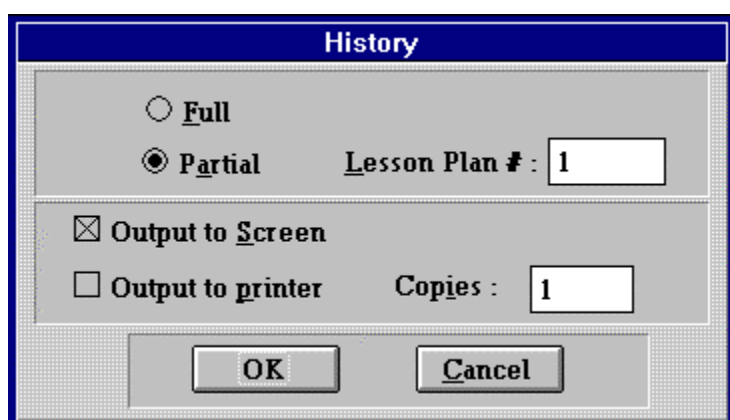


Figure 21 History Popup Panel

Popup View.. Action

The **Popup..** action allows the user to view the existing popup pages created thus far. The Popup View action provides the information of popup page number, the title and each of its dependency that corresponds to the lesson pages. This action is available during both **Page Edit** window and **Lesson Index** window.

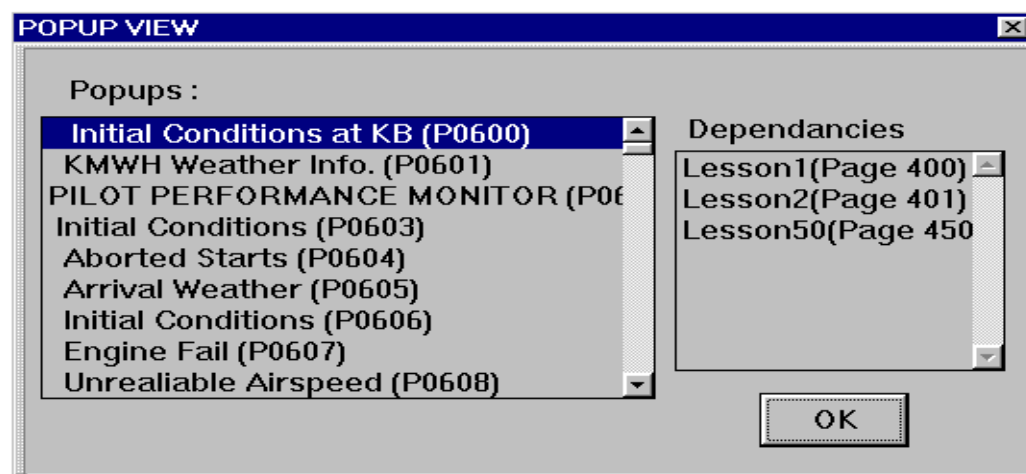


Figure 22 Popup View Window

Copy to Disk.. Action

Selection of the **Copy to Disk..** action causes the popup panel (refer to Figure 23) to appear and allows the user to copy the highlighted lesson plan sources to a floppy disk.

This feature is used to make backups of the lesson plans onto floppy disks.

The **Copy to Disk..** action is also used when the user wants to transfer the coded lesson to the host computer for **training** use. It is useful for foreground updates if an Ethernet connection to host is not available.

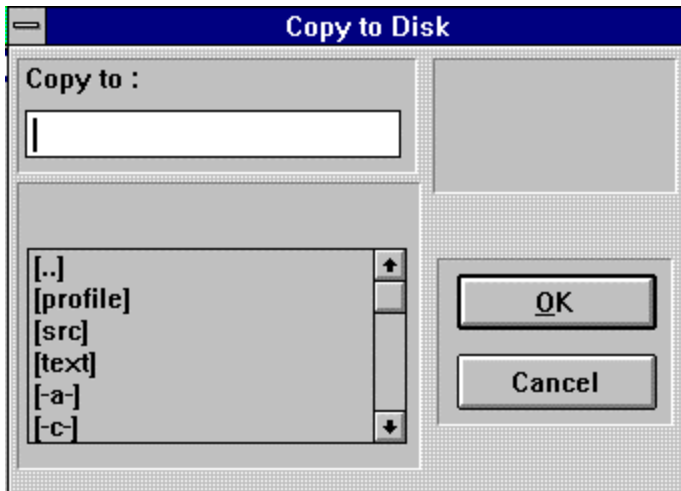


Figure 23 Copy to Disk Popup Panel

How to Copy to Disk

To copy the lesson plan source pages to the disk, the user should be in the Lesson Index window and should highlight the lesson plan, which is to be copied. **Then**, from the **Copy To Disk** popup panel:

- Type the floppy drive name in the **Copy To** box and select **OK** button
- or
- Double click the drive name from the directories list in the scrolling window

NOTE: A message will be displayed in a popup panel to notify the user of the status of copy: either the page file (pagennnn.src) has been successfully copied or an error has occurred if fail to copy.

Open Action

Selecting the **Open** action opens the selected item and allows the user to modify it. This is the implied action when the left mouse button is double clicked on an item.

If the current edit status is Lesson Plan Index window (consisting of one large scrollable list), and a lesson is selected, the Open action display either of the following:

- **Profile Edit** window if it is a profile lesson
- **Page Edit** window if it is a text lesson
- **Lesson Plan Sub-Index** window if the multiple pages option is specified in the initialization file (Reference LPUINIT.DAT - Appendix A)

If the current edit status is the **Lesson Plan Sub-Index** window, and the lesson is selected, the Open action displays the **Page Edit** window.

If the selected item is a popup in the Page/Profile Edit window and Open is actioned, a **Popup Edit** window is displayed.

Save Action

Selection of the **Save** action saves the current lesson plan, both the page source file and the database file (LPDB.DAT) are updated accordingly. It is available only in the EDIT window.

Close.. Action

Close.. exits the current window and returns to the previous window. The user has the choice to exit with or without saving edits (refer to Figure 24).

Exit.. Action

Selection of **Exit..** ends the editing session. If any modification has been done, and user selects Exit before saving, user will be prompted with the **Close** popup (refer to Figure 24). The user has the choice of exiting the editor with or without saving changes, or canceling the exit action and remaining in the current window.

Upon exiting the current window, if any modifications were made and the file was saved, the user is requested to enter a revision history comment.

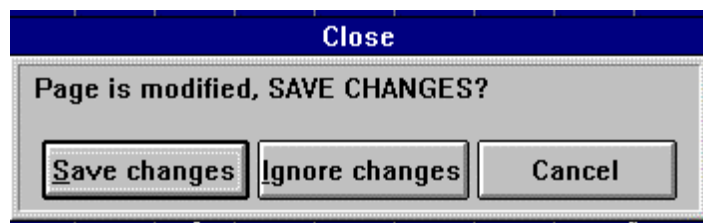


Figure 24 Exit Popup Panel

Edit Pull-Down

The Edit pull-down (refer to Figure 25) contains editing actions which apply to different levels of edited items such as lesson plans, lesson pages or lesson steps. Some of the actions will only appear when it is applicable (e.g., modify grid only appears when editing a profile page).

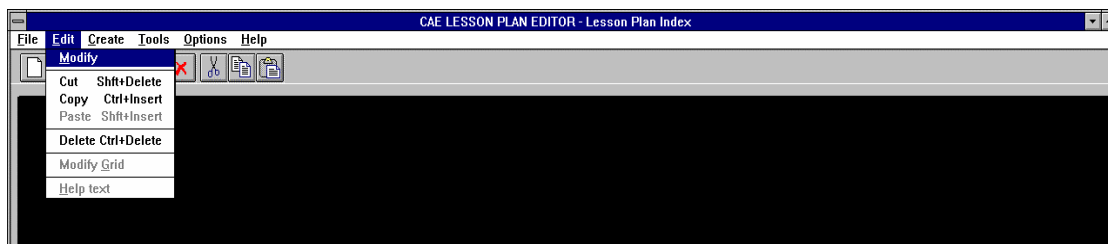


Figure 25 Edit Pull-Down

All the edit actions apply to a selected item, depending on the edit window type, for example:

Index window

→LP

Edit window

→ Step / Text/Popup ... etc

Modify Action

Selecting the **Modify** action allows the user to change the selected item. This is the implied action when the left mouse button is double clicked on an item.

If an item is selected via the **Lesson Plan Index** window and the **Modify function** is selected:

- The **Profile Edit** window is displayed if it is a profile lesson
- The **Page Edit** window is displayed if it is a text lesson
- The Lesson Plan Sub-Index window is displayed if the multiple pages option is specified in the initialization file (Reference LPUINIT.DAT file, Appendix A – keyword: MULTI_PAGE).

If the selected item is on the Lesson Plan Sub-Index window and Modify is selected, the Page Edit window is displayed.

If the selected item is a popup in the Lesson Plan Edit window and Modify is selected, the Popup Edit window is displayed.

NOTE: Refer to the Section 8 for **Page Edit** Window and **Popup Edit** Window, which further describes the Modify action in the respective window.

Cut Action

The **Cut** action allows the user to copy the selected item to a temporary buffer and removes the item from the window. It further allows the user to **Paste** the cut buffer to a selected location or to discard the buffer.

Copy Action

Selecting the **Copy** action allows the user to copy the selected item to a temporary buffer without removing the item from the window. It further allows the user to **Paste** the copied buffer to a selected location.

Paste Item Action

The **Paste** action copies the contents of the temporary buffer to the selected location. The item field is updated dynamically to reflect the current item type for the paste action. For example, it shows:

- **Paste Lesson** if the item to be pasted is a lesson plan, (i.e., Paste is actioned from the Lesson Plan Index window.)
- **Paste Step** if the content of the buffer is step.
- **Paste Text** if the item to be pasted is a text string.
- **Paste Popup** if the item to be pasted is a popup.

NOTE: All the above edit commands (Cut/Copy/Paste) are interactive with the standard window's clipboard. The user can edit between lesson plans windows and other ASCII editors' window, but only text item is applied in this context.

Delete

The Delete action deletes the selected item; before the selected item is removed, a confirmation popup is displayed. The user has the choice to Cancel or proceed with the Delete action.

Modify Grid.. [Optional]

The **Modify Grid..** action displays a popup panel (refer to Figure 26) which controls all the display options for the profile page.

The foreground colors of the various grid components are set through the lpuinit.dat file.

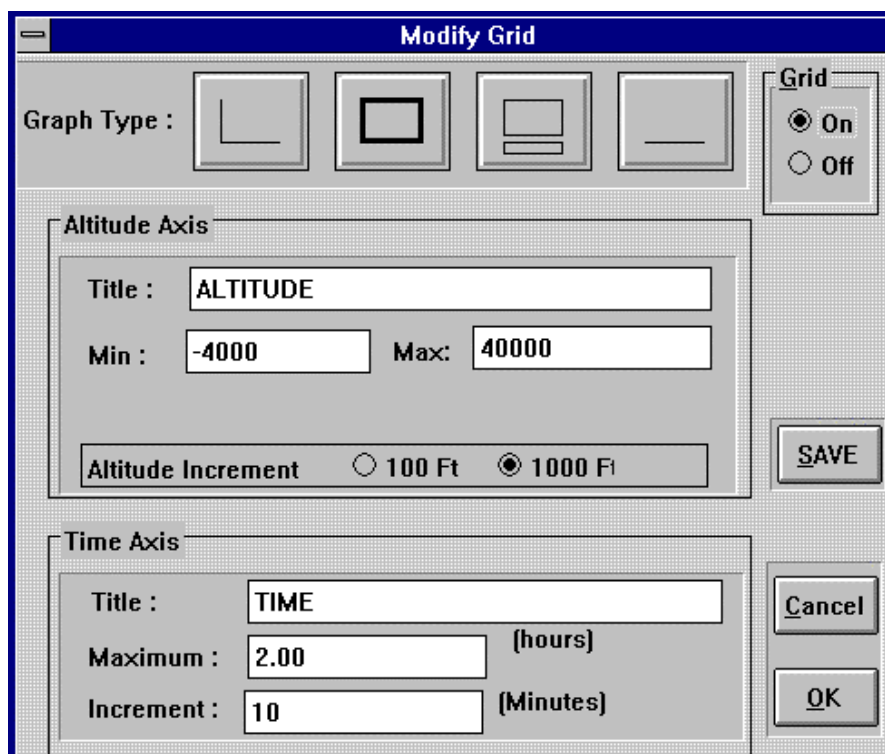


Figure 26 Modify Grid Popup

Graph Type Selection

The Graph Type selection allows the user to modify the graph type by selecting one of the displayed graph types. There are four types of graphs available:

- graph with one set of time and altitude axis
- graph with altitude indication appear on both the left and right side of the vertical axis
- graph with split grids which a discontinuity on the altitude axis is allowed
- a graph with no altitude axis

The user can also toggle the display of a grid on top of the selected profile.

Altitude Axis Information

Allows the user to modify the altitude axis title, minimum and maximum values, as well as the start and end of the discontinuity (if applicable) in the altitude axis. If the graph type selected is not a split graph, the discontinuity inputs will not be displayed.

Time Axis Information

The Time Axis information allows the user to modify the time axis title, the maximum time span for the training, as well as, the scale increment.

Save Action

The Save action allows the user to save the current grid definition (refer to Figure 27) in the lesson plan database. It can then be used as the default grid setup when creating new lesson plans. The user has the choice of either saving it as a new graph definition or overwriting an existing definition.

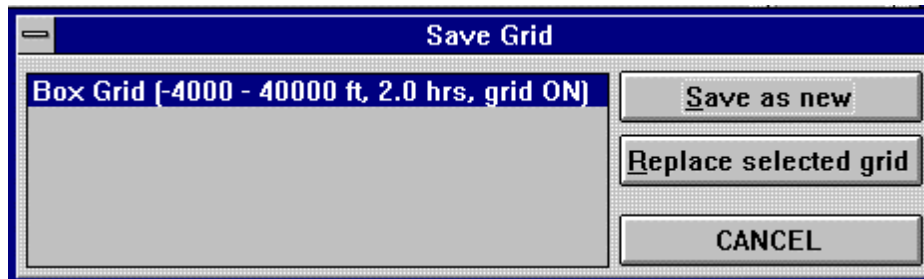


Figure 27 Save Grid Definition Popup

Help Text [Optional]

The Help Text action is an optional action that can be specified via the LPUINIT.DAT file (Appendix A). It brings up a dialog that allows the user to type in the help text associates with the current step or button. This help text will be further used at the foreground HELP feature.

The selection is available only if a step or popup item is selected.

Modify Profile [Optional]

The Modify Profile action allows the user to modify the profile popup, which is associated with the current lesson page.

Delete Profile [Optional]

The Delete Profile action allows the user to delete the profile popup which is associated with the current lesson page.

NOTE: Both the Modify and Delete Profile options are only available if the “**PROFILE_POPUP**” keyword is specified in the lpuinit.dat file (Appendix A). Note that the **PROFILE_POPUP** keyword is mutually exclusive with the standard profile and popup pages option.

Create Pull-Down

The **Create** pull-down (refer to Figure 28) allows users to create different types of lesson plan items depending on the displayed window type. Some create actions are dimmed and displayed in reduced contrast (gray) indicating that the actions are not applicable.

The **LP..** action is available if the Lesson Plan Index or Lesson Plan Sub-Index windows are currently displayed.

The **Step**, **ATIS**, **CDB Label**, and **popup** actions are available if the **Page/Profile Edit** window is currently displayed.

The **Button** action is available if the Popup Edit Window is currently displayed.

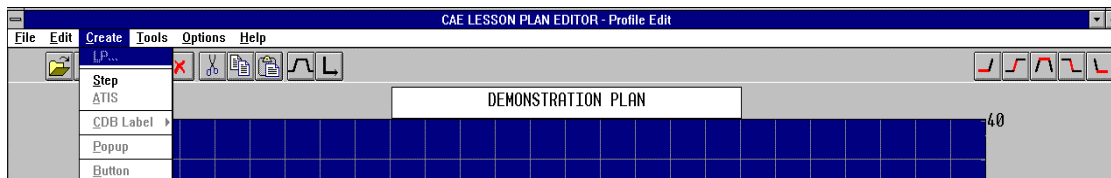


Figure 28 Create Pull-Down

LP... Action

The **LP..** action allows the user to create a new lesson plan or page (from the **Lesson Plan Index** or **Lesson Sub-index** windows).

The lesson plan is inserted before the selected item. Once the LP.. is selected, the user is prompted for the title of the lesson. The user can also choose between a text or profile lesson at this point.

If profile lessons are available and the profile page type is selected, the **Grid Selection** popup is displayed (Figure 29).

Refer to Section 8 for the **Lesson Plan Index** Window and the **Lesson Plan Sub-Index** Window descriptions.

Grid Selection Popup

The **Grid Selection** popup allows the user to define the grid setup for the newly created lesson plan. The user can scroll through the existing grids while viewing them in the small preview window (refer to Figure 29).

The user can create a new grid by selecting the **New Grid** button, which will call up the **Modify Grid** popup. Modifying or deleting an existing grid at this point is also possible.

Select the **OK** button to complete the Grid Selection action.

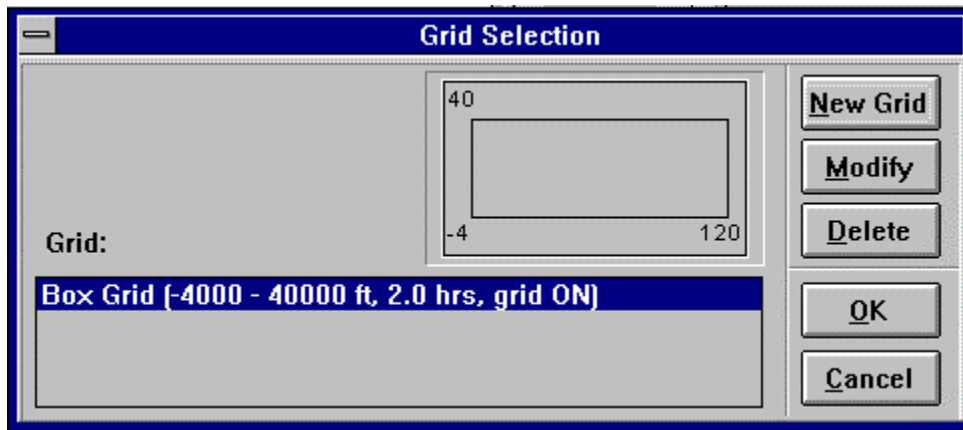


Figure 29 Grid Selection Popup

Step Action

While in the Profile/Page Edit window, the **Step** action allows the user to create a new step. The user can further enter the step text in the display area. The input is highlighted to identify the edited step text. The new step text is inserted before the selected item or at the user-selected cursor position if it is on a blank line.

ATIS Action

While in the Profile/Page Edit window, the **ATIS** action allows the user to specify **ATIS** static text. The input is highlighted to identify it as ATIS text. The text is inserted before the selected item or at the user-specified cursor position if it is on a blank line. The text color is defined via lpuinit.dat file (Appendix A).

CDB Label ➤ Action

The **CDB Label ➤** action is available only if a step is currently **being** edited (the Step Edit window is displayed). The feature complements the predefined selections (FRAME.DAT - Appendix B), where the user can dynamically define **a step**, criteria, auto sequence logic, and variable malfunctions via CDB labels. **Below are** the available options:

Selection...Option

The **Selection..** option allows the user to assign a value to a CDB label for the highlighted step.

When it is selected, a popup panel appears allowing the user to enter the CDB label, data type and value. The validity of label and value are only checked according to the user defined data type, so the user should exercise **caution** before using this feature. Figure 30 shows the Selection CDB Label window.

This value will be set when the step is activated at foreground run-time. This option is useful for **a user** who **wishes** to **create** a step function which is not available in the predefined **Selections** popup panel.

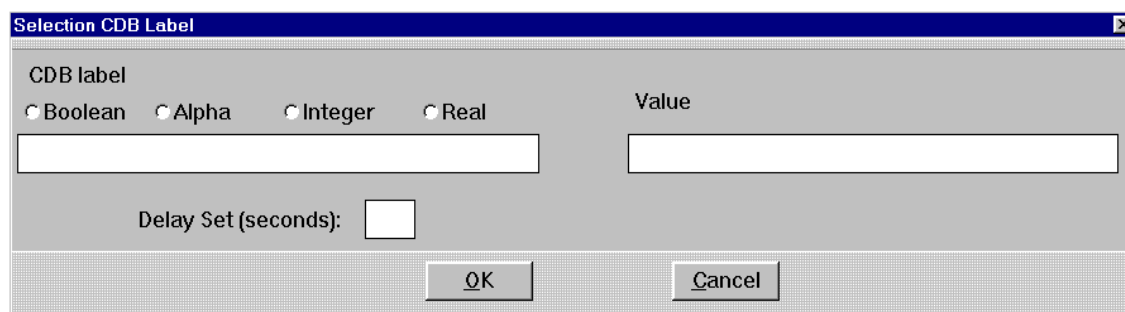
The image shows a dialog box titled "Selection CDB Label". It has a blue title bar with a close button. Inside, there are four radio buttons labeled "Boolean", "Alpha", "Integer", and "Real". Below these is a text input field. To the right of the input field is a label "Value" and another text input field. Below the first input field is a label "Delay Set (seconds):" followed by a small text input field. At the bottom are two buttons: "OK" and "Cancel".

Figure 30 CDB Labels Selection Edit Popup

Criterion...Option

The **Criterion..** option allows the user to set up a criterion condition for a step using a CDB label. When selected, a popup panel appears allowing the user to enter the CDB label, its value and direction. The label, value, and direction are not checked by the editor, so the user should exercise **caution** before using this feature.

This option is useful for users who wish to set up conditional criteria which are not available in the predefined **Criteria** popup panel.

Auto Sequence...Option

The **Auto Sequence..** option allows the user to set up an auto sequence condition for a step using a CDB label. When selected, a popup panel appears allowing the user to enter the CDB label, its value and direction. The label, value, and direction are not checked by the editor, so the user should exercise **caution** before using this feature.

This option is useful for users who wish to set up conditional auto sequence criteria which are not available in the predefined Auto Sequence popup panel.

Popup Action [Optional]

The Popup action allows the user to create a new popup (in the Profile/Page Edit window). The user is allowed to enter the text or create button(s) within the popup display area. The input is highlighted identifying it as popup text. The new popup is inserted before the selected item or at the user specify cursor position if it is on a blank line. Refer to Section 8 for the Popup Edit Window description.

Button Action [Optional]

The Button action allows the user to create a new button (in the Popup Edit window, see Section 8). The user is allowed to enter the button text in the button display area. The input is highlighted to identify the button text. The new button is inserted before the selected item or at the user specified cursor position if it is on a blank line.

Profile Action [Optional]

The Profile action allows the user to create an associated profile popup. This option is only available if it is specified in the lpuinit.dat file (Appendix A). It is mutually exclusive with the standard profile and popup pages.

Tools Pull-Down

The **Tools** pull-down (refer to Figure 31) provides the user with the extra tools necessary for editing, such as to import an existing lesson plan source file or template file, or to recover a source file that was inadvertently deleted or corrupted. It also provides quick and complete update on the lesson plans when the Frame Database is changed.



Figure 31 Tools Pull-Down

Import... Action

The **Import..** action allows the user to import a lesson plan page source file or template file for inclusion in the current editing session.

It is commonly used to include a page source file (with all its associated popups), which **are** not part of the existing lesson plan database (LPDB.DAT).

Once the **Import..** action has been successfully completed, the user is required to check all the popups that came with this imported page file. If the popup is new to the existing pages, it **must** be opened and saved **to complete** process.

If the popup already exists and the user does not wish to have several copies of the same popup, then this new popup **must** be deleted and re-created via the **Create** Popup function (see Section 7 and 8). This allows the user to choose **and** associate an existing popup for the current edit.

The **Import..** action also allows the user to import a template lesson plan page file for inclusion in the editing session. This is used to include a template file to use as a base line for the lesson coding (e.g., to ensure that all lessons have a consistent format).

Import Popup Panel Description

An Open popup panel is displayed **when the Import button is selected. This allows** the user to specify the source location and the file type (i.e., either ended with src or tpl).

From the popup panel, the user can select the file type (whether page sources or template file), then enter/select the location of the source. The popup will list all the files with the specified file type from the selected directory.

Selecting the filename from the directory list in the scrolling window and selecting the OK button, or double clicking on the file (PAGEnnnn.SRC for a page source file or xxxxxxxx.TPL for a template file) will complete the import action, and the selected file will be included in the editing session.

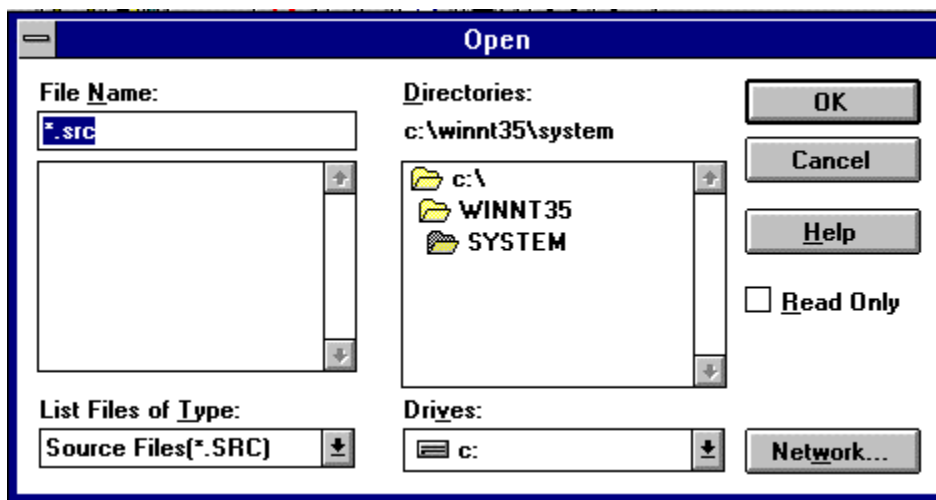


Figure 32 Import Popup Panel

How to Create a Template File

To create a template file, first create a lesson page with the desired basic layout via the Editor. Take note of the source page number which is indicated on the session status window. Save the lesson and Exit the editor.

Rename or copy the source file (PAGEnnnn.SRC) which will be used as a template to xxxxxxxx.TPL, where xxxxxxxx is a user-created mnemonic identifying the template. For example, to make a lesson plan page template, the user may copy PAGE0400.src (the lesson plan page) to BASECKLP.TPL.

IMPORTANT: Once this has been done, the user **must** go back into the editor and **delete** the newly created lesson plan that is now is a template.

When the Import action is successfully performed, the editor will assign the next available page number to the imported page.

How to Import a Template or Source File

Users need to be at the appropriate level of the editing session to **Import** a template or a source page for inclusion of the page.

To use the template file for a new lesson plan, the user must create a new lesson plan and then engage the **Import** action from the Page/Profile window.

To replace an existing lesson with the template, the user must open the lesson plan and then engage the **Import** action from the Page/Profile window.

Update All Action

The **Update All** action allows the user to update ALL lesson plans in the editor when the Frame Database is modified. This option is only available from the **Lesson Plan Index** Window. Editing a plan automatically invokes the selected plan page update using the new Frame Database.

Lock All Step Action

The **Lock All Step Action** allows the user to lock all the steps in the lesson plan currently being edited. This is to avoid the possibility of steps being moved around by the **Automatic Step Placement** algorithm (see Section 8 on how to create a step), which is especially used when the lesson is crowded. This option is only available when editing a Profile lesson and most often used when importing a profile from **LPE version 2.4X** (using the binary FRDB.DAT frame database) or below, where the **Automatic Step Placement** feature did not exist.

Options Pull-Down

The Options pull-down (refer to Figure 33) allows the user to customize the editing session.



Figure 33 Options Pull-Down

Row/Column Display Action

The **Row/Column display** action displays the row and column numbers along the top and left side of the page. This feature helps the user position the page information at a precise row and column. If the action is in effect, a check mark preceding the Row/column display action is shown. This feature is available only for text type of lesson plans.

Typeover Action

The **Typeover** action is used to select the mode of typing text.

Selection of the Typeover action allows the user to toggle the Typeover mode. If the action is in effect, a check mark preceding the Typeover display action is shown. By default the editor is in insert mode.

In insert mode, characters are inserted to the left of the cursor position and existing text after the cursor is shifted to the right.

In Typeover mode, entering text at the cursor position causes any previous text to be overwritten.

Help

The Help pull-down (refer to Figure 34) provides context sensitive help on how to use the Editor.

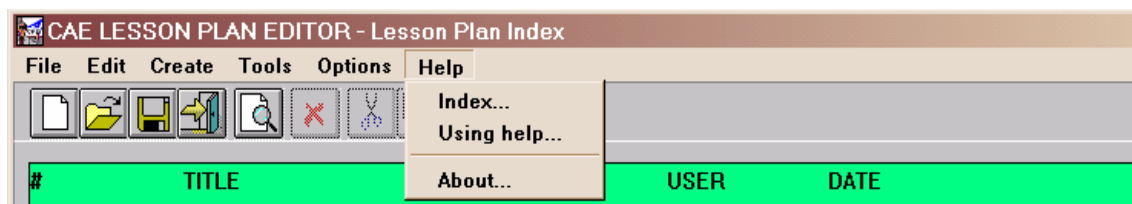


Figure 34 Help Pull-Down

Index... Action

The **Index..** action displays a popup panel which lists all help topics available to the user.

Using Help... Action

The **Using Help..** action displays a popup panel with information on how to use the editor help facility.

About... Action

The **About..** action displays the CAE logo window with the Editor version.

SECTION 7

LESSON PLAN EDITOR TOOL BAR

DESCRIPTION

The following is a description of the actions available from the **Tool Bar** (refer to Figure 35). The icons within the **Tool Bar** represent features and functions that are commonly used, and are thus placed for convenient access.

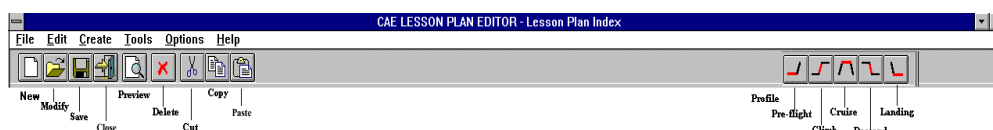


Figure 35 Lesson Plan Editor Tool Bar

NOTE: Refer to Section 6 - **Menu Bar** for the detail descriptions of the corresponding actions.

New Icon

The **New** icon is used to create a new lesson and is equivalent to using the **Create** Pull-Down menu to create a Lesson Plan. This icon has no effect in the **Profile/Page Edit** Windows (i.e., while the plan is being edited).

Modify Icon

The **Modify** icon is used to open/modify an existing lesson, step or popup. It is equivalent to using the Edit Pull-Down menu from the **Menu Bar** to Modify an editing item.

Save Icon

The **Save** icon is used to save the current Lesson in the Profile/Page Edit Window and is equivalent to the Save function in the File Pull-Down menu.

Close Icon

The **Close** icon is used to exit the current window (i.e., the Page Exit Window, the Popup Edit Window or the Lesson Plan Index Window). The user has the choice of exiting with or without saving. This function is equivalent to the Close in the File Pull-Down menu.

Preview Icon

The **Preview** icon generates a summary of the selected lesson plan or page. It is equivalent to using the Preview function in the File Pull-Down menu.

Delete Icon

The **Delete** icon deletes the selected item. It is equivalent to the Delete function in the Edit Pull-Down menu.

Cut Icon

The **Cut** icon allows the user to copy the selected item to a temporary buffer and remove the item from the window. This is equivalent to using the Cut function in the Edit Pull-Down menu.

Copy Icon

The **Copy** icon allows the user to copy the selected item to a temporary buffer without removing the item from the window. This is equivalent to using the Copy function from the Edit Pull-Down menu.

Paste Icon

The **Paste** icon copies the contents of the temporary buffer to the selected location. This is equivalent to using the Paste function in the Edit Pull-Down menu.

NOTE: The four edit icons: Delete, Cut, Copy and Paste, are dimmed/not available if no item is selected in the Edit window.

Line Icon (Profile Mode Only)

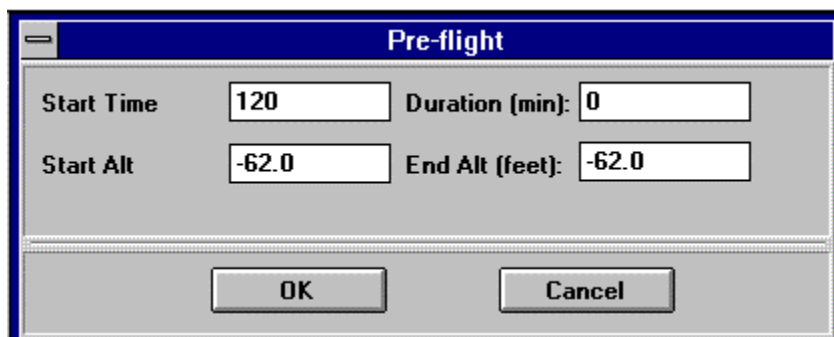
The **Line** icon allows the user to draw a profile line in the Profile Edit Window. To draw a profile line, the user first selects the icon (in red), then uses the cursor to draw lines by left clicking the mouse to create the starting point, and dragging the line to the joining point(s). The line is terminated when the user clicks the right mouse button, or hits the <ESC> key. The line draw function is terminated when the user deselects the **Line** icon.

Arrow Icon (Profile Mode Only)

The **Arrow** icon allows the user to draw arrows in the Profile Edit Window. To draw an arrow, the user selects the icon (in red) and then uses the cursor to draw the arrow by selecting the starting point and then dragging the line to its next point. The arrow is terminated when the user clicks the right mouse button. The Arrow draw function is terminated when the user deselects the **Arrow** icon.

Profile Icons (Profile Mode Only)

The **Profile** icons are used to generate the profile lines automatically from the time/altitude information supplied by the user. Five different icons indicate its associated flight phase. Selecting any of the five Profile icons brings up a popup with four user-enterable fields: Start Time, Duration, Start Altitude and End Altitude (refer to Figure 36). The user is then required to supply the time/altitude information for the profile to be generated. Besides the pre-flight phase, the popup is brought up with default values for its starting point (taken as the ending point of the previous phase), thus usually requiring that the user only enter the duration and end altitude of the phase.

A screenshot of a software dialog box titled "Pre-flight". The dialog has a blue title bar. Inside, there are four input fields arranged in a 2x2 grid. The first row contains "Start Time" with the value "120" and "Duration (min):" with the value "0". The second row contains "Start Alt" with the value "-62.0" and "End Alt (feet):" with the value "-62.0". At the bottom of the dialog, there are two buttons: "OK" and "Cancel".

Pre-flight			
Start Time	120	Duration (min):	0
Start Alt	-62.0	End Alt (feet):	-62.0
<div>OK Cancel</div>			

Figure 36 Pre-flight Profile Popup

Pre-Flight Icon

Selecting the **Pre-Flight** icon brings up the Pre-flight phase popup. The user is required to enter the Start Time and Duration of the Pre-Flight phase, as well as specifying its altitude in the End Altitude field.

Climb Icon

Selecting the **Climb** icon brings up the Climb phase popup. The user is required to enter the duration and end altitude to complete this phase profile.

Cruise Icon

Selecting the **Cruise** icon brings up the Cruise phase popup. The user is required to enter the duration of the cruise phase, as well as specify its altitude in the End Altitude field.

Descent Icon

Selecting the **Descent** icon brings up the Descent phase popup. The user is required to enter the duration and end altitude to complete the descent phase profile.

Landing Icon

Selecting the **Landing** icon brings up the Landing phase popup. The user is required to enter the duration of the landing phase, as well as specify its altitude in the End Altitude field.

NOTE: For all above selections, although the default values of start altitude and start time are provide, user is always allowed to alter these values, and all the profile phases will be adjusted automatically (the previous phase and the following phase joins are changed accordingly).

SECTION 8

LESSON PLAN EDITOR WINDOWS**DESCRIPTION**

The following sections describe the different window layouts used by the Editor and the different operating procedures for windows.

Logo Window

The first window displayed when the editor is invoked is the CAE logo window (refer to Figure 37). The **CAE logo** window contains the following information:

- CAE logo
- Name of the Utility, Lesson Plan Editor
- Editor Version Number
- Name of the Company

An **OK** button appears at the bottom of the Logo Window allowing users to close the window.

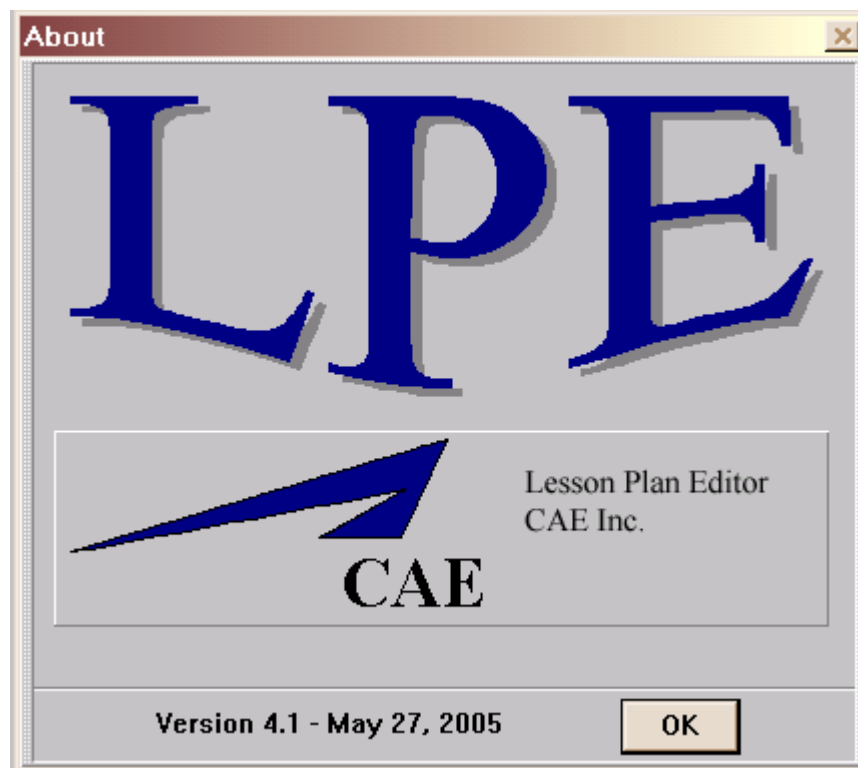


Figure 37 CAE Logo Window

Lesson Plan Index Window

After the logo window is removed by selecting the **OK** button, the Editor prompts the user to enter their name or initials. The user's name or initials identifies who created or updated the lesson. The Editor now displays the **Lesson Plan Index** Window (refer to Figure 38).

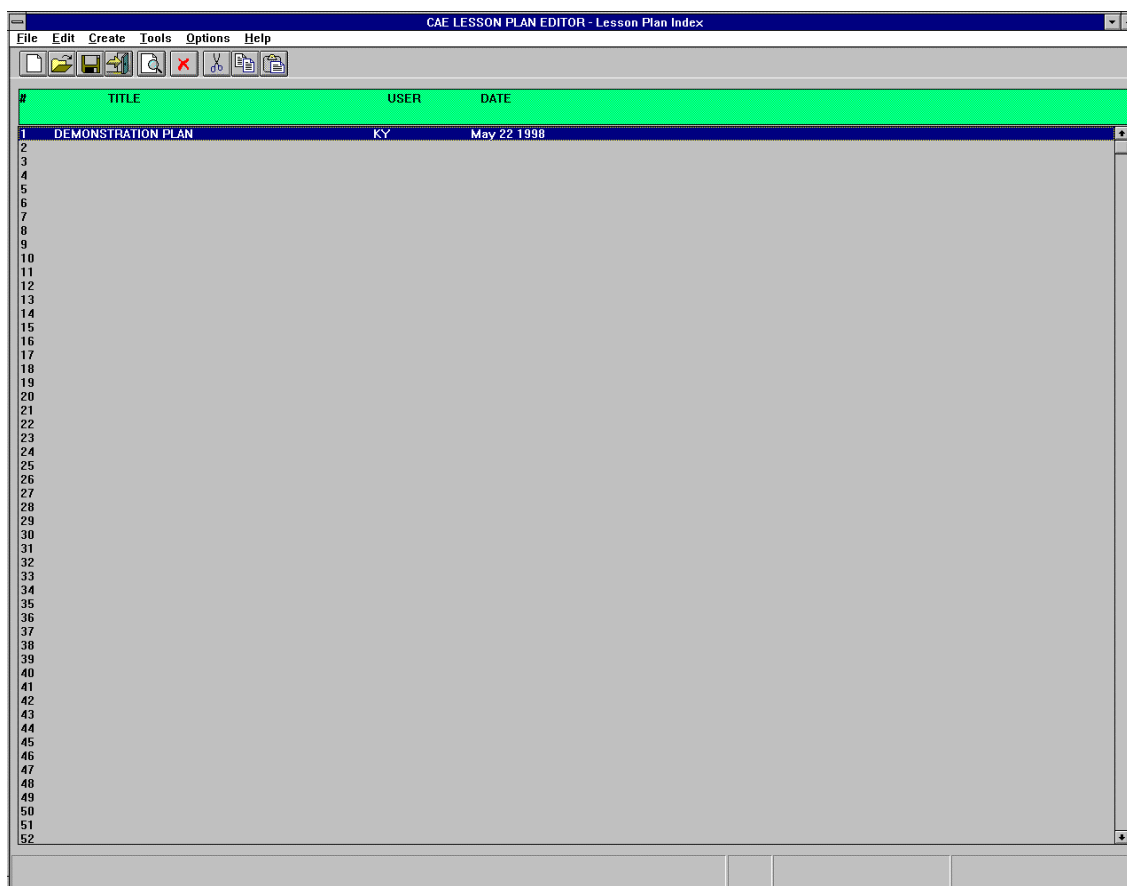


Figure 38 Lesson Plan Index Window

The first row is the **Title Bar**, which shows the Editor's name and window title.

The second row is the **Menu Bar**, which provides the **pull-down** commands and functions available to the user. The unavailable options are dimmed or display reduced contrast.

The **Tool Bar** appears below the **Menu Bar** and provides icons for various frequently used functions.

The **Lesson Plan Index** occupies the main client area of the display. It consists of:

- lesson plan number
- Lesson title
- username of the person who last modified the related plan
- the date (month-day-year) of the last update

If the information displayed in this window exceeds the window size, a vertical **Scroll Bar** is available for the user to scroll the contents of the index into view.

The lower portion of the screen shows the Session Status Window which displays information about the present editing session.

Lesson Plan Index Window Operation

To select an index item, single click the left mouse button on the respective lesson plan, and the selected lesson plan is highlighted.

Most of pull-down commands from the **Menu Bar** and the icon actions from the **Tool Bar** are available at this window level.

To Create a Lesson Plan

To create a lesson plan, the user must perform the following:

- click on the desired lesson plan number from the index window, the blank line is highlighted
- then select **LP...** from the **Create pull-down** of **Menu Bar**
- or
- select **New** icon from the **Tool Bar**

The user is prompted, with the **Create LP** popup (refer to Figure 6), to enter a lesson plan title and select the lesson type (Text or Profile). The Lesson **Plan Sub-Index** or **Page/Profile Edit** window is then displayed.

To Modify an Existing Lesson Plan

To modify an existing lesson plan, the user must perform either of the following:

- double click on an index item where a lesson already exists
- or
- single click on the item and selects **Modify** from the **Edit pull-down** or select **Modify** icon from the **Tool Bar** directly

In either case, the Lesson Plan Sub-Index window is displayed for multiple page lesson plans, or the Page/Profile Edit window is displayed for single page lesson plans.

To Copy a Lesson Plan

To copy a lesson plan, the user must select one of the following:

- select an index item
- the **Copy** command from the **Edit pull-down**
- or
- the **Copy** icon from the **Tool Bar**

A copy of the selected plan is copied into a temporary buffer.

Then select the following:

- the destination of the copied information (blank line/empty plan)
- **Paste** from the **Edit pull-down** of the **Menu Bar**. This pastes the information contained in the temporary buffer (i.e., the lesson to be copied) to the selected destination. The user is requested to enter a new title.

NOTE: If the specified lesson plan has any associated popups, they are treated as **linked** popups, i.e., new copies to these popups are not created.

To Delete a Lesson Plan

To delete a lesson plan, the user click on the item and selects **Delete** from the **Edit pull-down**, or the **Delete** icon from the **Tool Bar**. The quick key-stroke is **<Ctrl >+ <Delete>**. The user is prompted with the confirmation popup.

NOTE: See Section 6 for a detailed description of **Edit Pull-Down** from the **Menu Bar**. Related information on the **Tool Bar**'s icons can be found in Section 7.

Lesson Plan Sub-Index Window [Optional]

If a lesson plan is coded into multiple pages, selecting an item from **the Lesson Plan Index** window will display the **Lesson Plan Sub-Index** window (refer to Figure 39). It consists of the following:

- **Title Bar**
- **Menu Bar**
- **Tool Bar**

The sub-index is displayed in the client area of the display. It shows the page number and the page title.

To select an index item, single click the left mouse button on the respective lesson plan page. Most of the **pull-down** commands from the **Menu Bar** are available at this level.

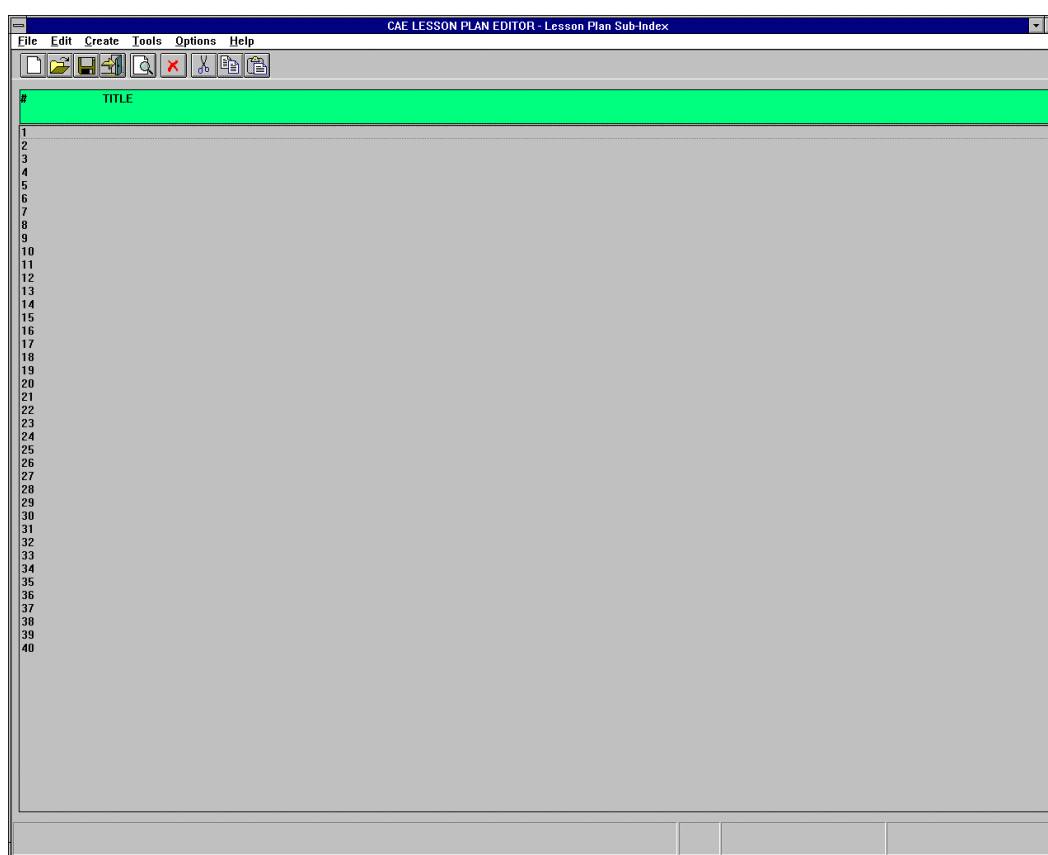


Figure 39 Lesson Plan Sub-Index Window

NOTE: The lesson plan sub-index window is available only if the user specifies **"MULTI_PAGE"** key-word in the lpuinit.dat file (Appendix A). Be aware that this feature and the profile lesson (or **"STD_PROFILE"** keyword for lpuinit.dat file) are mutually exclusive. **In other words, the MULTI_PAGE option only applies to text type of lesson plans.**

To Create a Sub-Lesson Plan Page

To create a Lesson Page under the Sub-Index window, the user selects a line and **LP..** from the **Create pull-down** or the **New** icon from the **Tool Bar**. The user is requested to enter a page title. If a sub-index item is selected, the newly created plan page is inserted above the selected item. The **Page Edit** window is displayed.

To Modify a Lesson Plan Page

To modify an existing Lesson Plan Page, the user either double clicks on a sub-index item (implied action is Modify), or single clicks on the sub-index item and selects **Modify** from the **Edit pull-down** or the **Modify** icon from the **Tool Bar**. In all cases the **Page Edit** window is displayed.

To Copy a Lesson Plan Page

To copy a page, the user selects a sub-index item and **Copy** from the Edit pull-down or the **Copy** icon from the **Tool Bar**. A copy of the selected page is stored in a temporary buffer. Selecting a line and **Paste** from the **Edit pull-down** copies the temporary buffer of the lesson page to the selected item.

NOTE: If the specified lesson plan has any associated popups then they are treated as **linked** popups, i.e., new popup pages are not created.

To Delete a Lesson Plan Page

To delete a page, the user selects the page from the sub-index area and **Delete** from the **Edit pull-down** or the **Delete** icon from the **Tool Bar**. The user is requested to confirm the action in a popup prompt.

NOTE: All the edit command procedures are similar to those in the main Index window except that multiple lesson pages are now created under a single plan; the plan number is the user-selected item from the main Index window before the Sub-Index display.

Page Edit Window

If the lesson type is set to Text, this window is available, to edit or create a **Text** lesson page from the Lesson Plan Index (or for multiple page lessons, the Lesson Plan Sub-Index window) and displays the **Page Edit** window as shown in Figure 40. The Page Edit window allows the user to define the steps in the lesson.

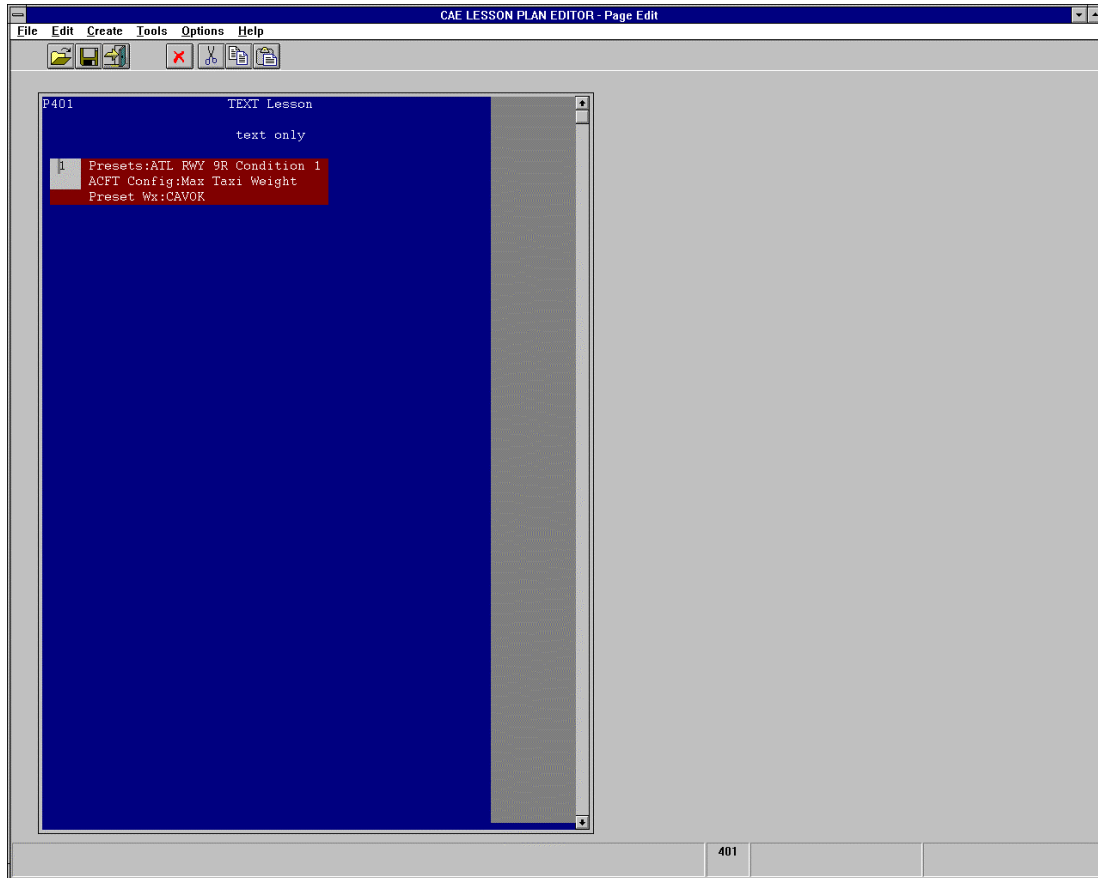


Figure 40 Page Edit Window

The **Title Bar** shows the Editor's name and the title of the window. It is followed by the **Menu Bar** and the **Tool Bar** with its corresponding Icons which are applicable for Text Lesson. The Display window/client area shows the page layout as it will appear at the instructor station. This is the area where the user may edit the displayed information on the page, allowing the user to place the step and its associated text.

If the user selects a step item, the **Step Edit** window will be displayed with the Selections, Criteria, and Auto Sequence list boxes and associated controls. The Selections box lists the parameters available for the selected step. The Criteria box displays the criteria to be satisfied to trigger the step logic, and the Auto Sequence box displays the criteria, if any, to action the step (optional).

The **Status pane** is at the bottom of the screen. It includes the row/column position of the cursor and the page source number of the lesson being edited.

The following sections describe both the Page Edit and Step Edit windows.

Page Edit Window Operation

In the **Page Edit** Window, the user can type **plain text** or create and modify the text associated with the page title, steps, and ATIS messages.

To Modify Page Title

To modify the title, the user simply positions the cursor **on** the title field and **types the** changes. In the editor, the title field is normally of a different color from the rest of the text on the page.

To Enter Static Text

To type in plain informative text, the user positions the cursor at a blank line and types in the information. The text is displayed in the default static text color.

To Create a Step

To insert a step in a Text lesson, the user positions the cursor at the desired location in the **Page Edit** window and selects Step from the **Create pull-down**.

Depending on whether the page is for a non-touch or touch-based instructor station, a step number or a touch box is displayed to the left of the step text. The user may enter text in the touch box.

Double clicking on a step or selecting the step and **Modify** from the **Edit pull-down** causes the Step Edit window to appear and display any **parameter** selections, criteria, and auto sequence information associated with the step.

To Modify/Create Help Text

To modify or create Help text, the user positions the cursor on the desired step in the Page Edit window and actions Help Text from the **Edit** pull-down. The Help Text Window appears, and the user may now enter the text associated with the respective step.

Step Edit Window

The **Step Edit** window contains the selections, criteria, and auto sequence logic associated with a selected step in the **Page Edit** window (refer to Figure 41) and also the **Profile Edit** window. The **Step Edit** window contains a Parameter Selection list box, a Criteria list box, an Auto Sequence list box, and all the related controls.

Figure 41 Step Edit Window

The **Parameter Selections** box lists all the **simulation controls available** i.e., whatever is coded in the INIT_FRAME (e.g., aircraft parameters, malfunctions, environmental parameters...etc.), **required to define** the selected step. The **Criteria** box lists the criteria at which the items in the Selections box will be activated/triggered during simulation run-time. The **Auto Sequence** list box lists the trigger to automatic sequencing to action the step.

Clicking **an item from** the **Parameter Selection**, **Criteria**, or **Auto Sequence** boxes highlights the **item**. Any subsequent actions will then affect the highlighted item (refer to Sections 6 and 7 for the details of editing).

Modifying an item in the **Parameter Selection**, **Criteria**, or **Auto Sequence** boxes (either by double clicking the item, or selecting the item and **executing the Modify option** from the Edit pull-down) allows the user to modify the value of the item via the Input popup panel.

The **Previous Set** and **Next Set** buttons allow the user to change the current set of criteria/selections within the step. The **Set #** field displays the current set number.

The **Parameter Selection..** button allows the user to specify up to 60 selections. Pressing the **Parameter Selection..** button displays **a panel as** shown in Figure 42.

The **Criteria..** button allows the user to specify more than one criteria, the number of criteria is specified in the Ipuinit.dat file (Appendix A). The **AND** and **OR** buttons may be used to select whether the multiple criteria should be **AND**'ed or **OR**'ed. The default is OR. Pressing the **Criteria..** button displays **a popup panel as** shown in Figure 49.

The **Auto Sequence..** button also allows the user to specify multiple auto sequence criteria. The **AND** and **OR** buttons may be used to select whether the multiple criteria should be **AND**'ed or **OR**'ed. The default is OR. Pressing the **Auto Sequence..** button displays the popup **panel as shown** in Figure 51. These panels are described in the following sections.

Main Selection Menu

The **Main Selection Menu** is displayed when the user presses the **Parameter Selection..** button in the **Step Edit** window. The Main Selection Menu allows the user to specify the parameters required to build the selected step. The items in the panel are grouped by function (refer to Figure 42). To remove the Main Selection Menu, the user clicks anywhere **outside the menu**.

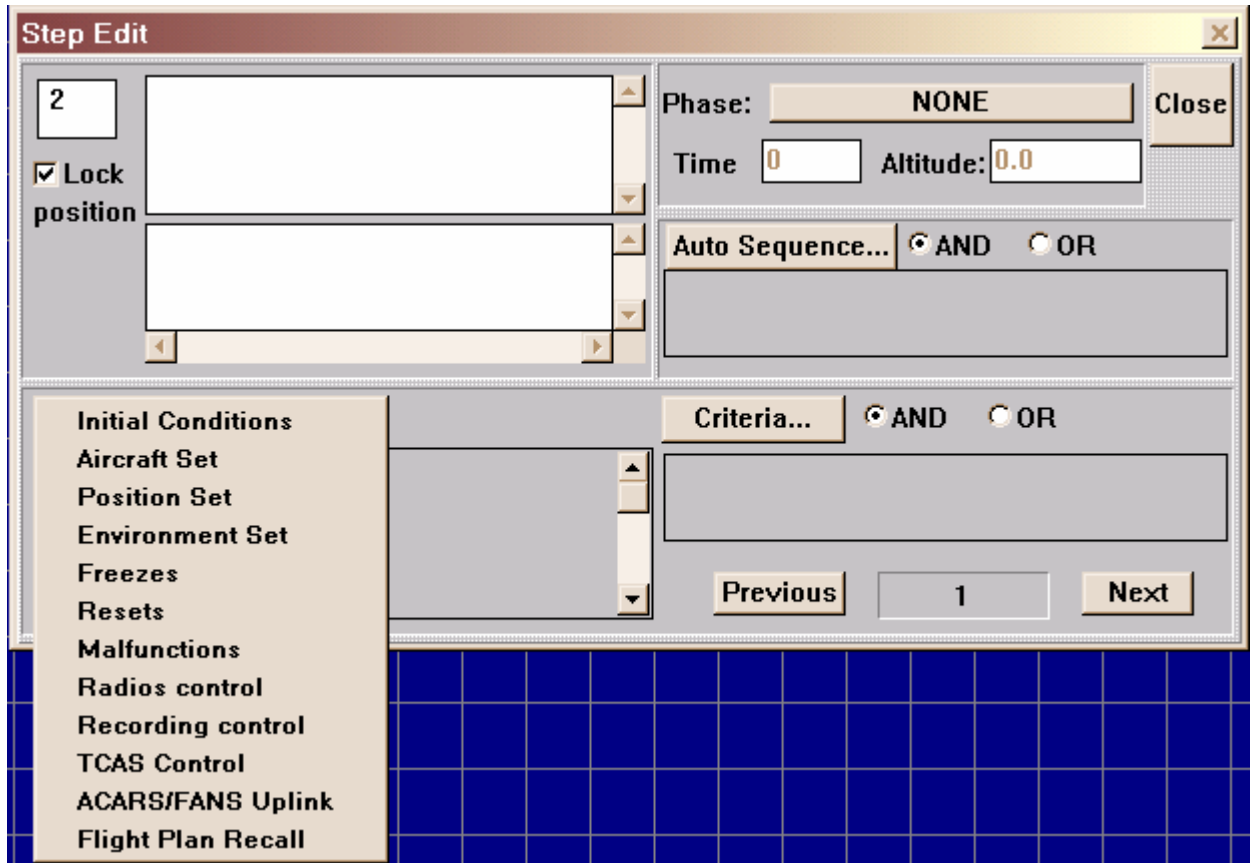


Figure 42 Typical Selections Popup Panel

Parameter Selection Popup Panels

The following describes the typical parameter popup panels available. To enter a value in the parameter selection, the user first selects the parameter of interest.

Initial Conditions Popup Panel

The Initial Conditions (IC) parameter selection popup panel (refer to Figure 43) contains the parameters which are normally used in an initial conditions step. The IC popup can also call another popup, such as Quick set. The user may make use of the **DEFAULT** to update all the predefined default values. Alternatively, the user may individually select parameters and set their values.

NOTE: DEFAULT button is not available unless DEFAULT_SET keyword is specified in the init file, also the **DEFAULT** value(s) for the required selection must be correctly coded in the frame database. Refer to Appendix B for the detail.

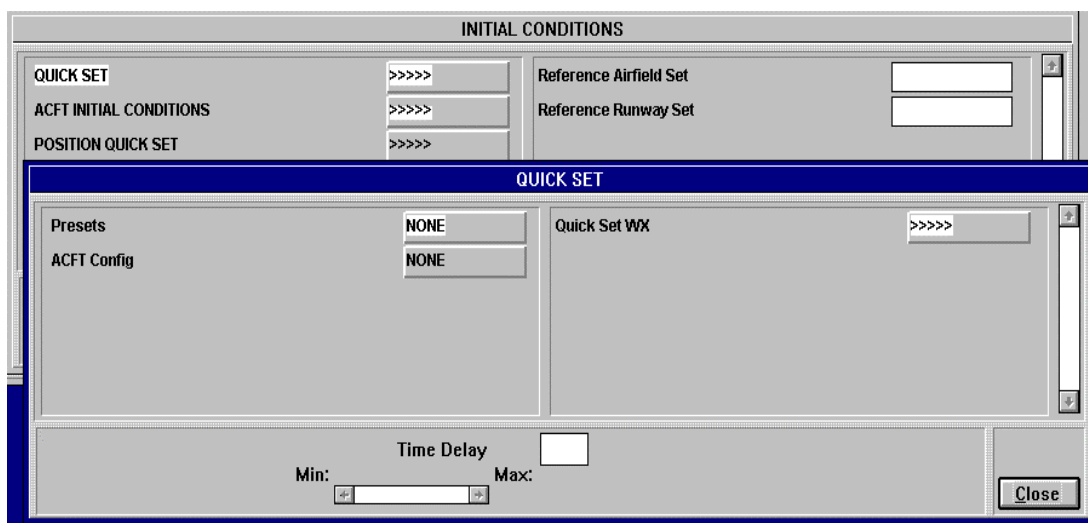


Figure 43 Typical Initial Conditions Popup Panel

Malfunction Systems Popup Panel

The Malfunctions popup panel allows the user to select a system to fail (refer to Figure 44). Selection of a system displays the detailed list of malfunctions for the related system in the lower half of the Malfunction Systems Popup Panel.

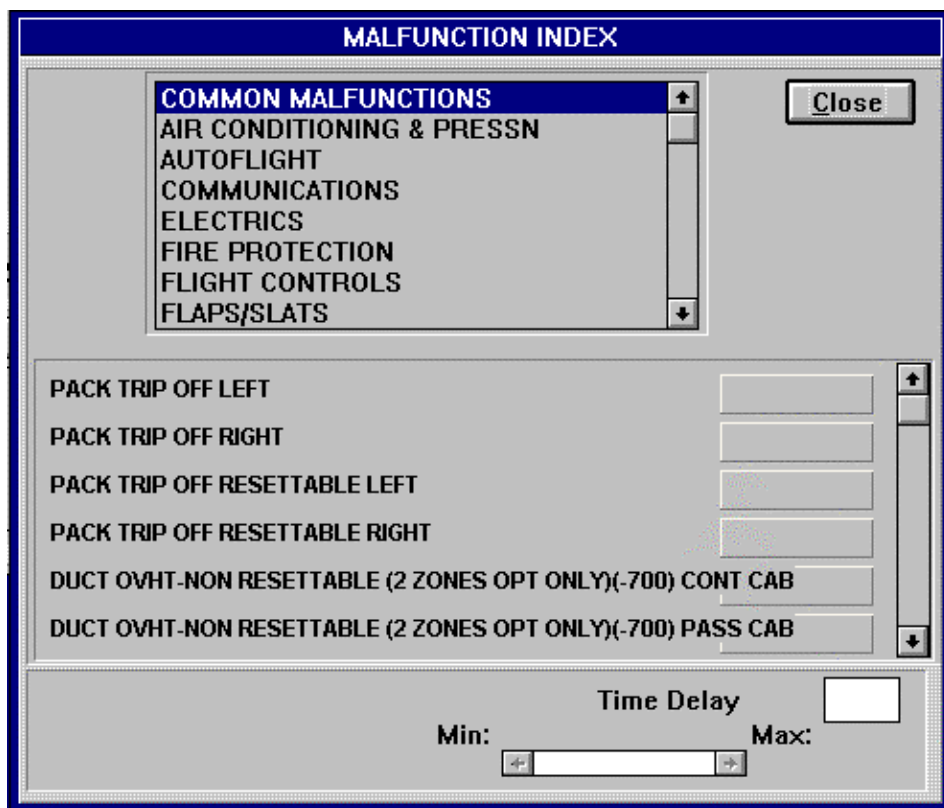


Figure 44 Typical Malfunction Systems Popup Panel

Other System Popup Panels

Some standard system popups **available** for the step selection are:

- Environmental Conditions
- Visual Controls
- Aircraft Conditions
- Repositions
- Freeze/Resets
- Miscellaneous

Figure 45 shows an example of the Environmental Condition Popup. It allows the user to select environmental conditions such as QNH and wind. Users are able to organize their parameter selection popups in any way desired; usually these selections are structured as per the **LCD** page tree (Refer to FRAME.DAT - Appendix B).

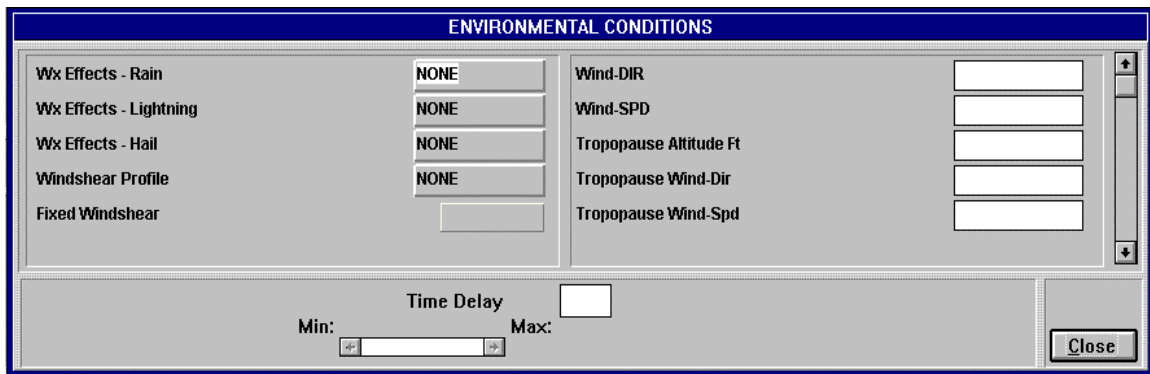


Figure 45 Typical Parameter Selection Panel

Input Popup Panel

When the user wishes to modify **any value** previously **entered**, the **Input** popup panel is **used**. From the Step Edit window **the** user **can select to modify the controls available in** the following **dialogs**:

- Parameter Selections
- Criteria
- Auto Sequence

A left mouse **double click** on a **parameter displays** the **Input** popup with **applicable** controls **available** depending on the datatype of **the selected parameter**.

An example of a discrete datatype is Total Freeze. In this case, only the ON/OFF buttons are **made** available (refer to Figure 46).

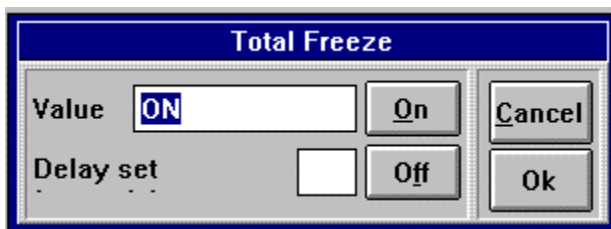


Figure 46 Sample Discrete Input Popup Panel

Environmental parameters, such as Runway Visual Range (RVR) and visibility, are examples of numeric parameters. In this case, the user can input the value in the value box or use the slider (refer to Figure 47). The minimum and maximum values of the parameter are displayed above the slider.

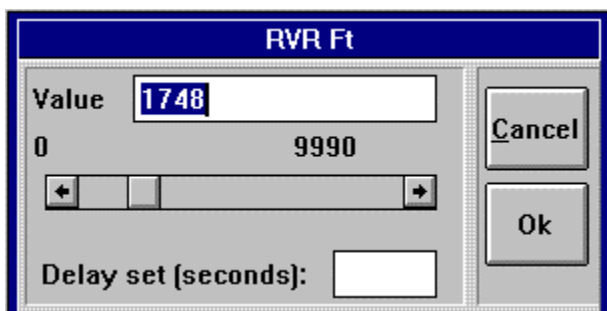


Figure 47 Sample Numeric Input Popup Panel

Windshear selection consists of multiple selections which are mutually exclusive, and the values are specified through a list as shown in Figure 48.

The **Delay set** (optional) input allows the user to delay the activation of other steps after the current one is actioned.

After inputting the value, the user selects the **OK** button to accept the value. The **Cancel** button closes the window without taking the input.



Figure 48 Sample Multiple Input Popup Panel

Criteria Selection Popup Panels

The **Criteria Selection** popup panel is displayed when the user selects the **Criteria..** button in the **Profile/Page Edit** window. The Criteria popup panel allows the user to associate trigger criteria to the selected step (refer to Figure 49).

Figure 49 Sample Criteria Popup Panel

Selecting a criterion in the **Criteria** popup panel highlights that criterion and allows the user to specify a value for it (Figure 50). Depending on the selected criterion type (i.e., discrete or variable), some controls in the Criterion Popup Panel are enabled or disabled.

Figure 50 Criterion Input Popup Panel

For a variable **criterion**, like altitude, the user may either input the value via the slider or type into the value box directly. The minimum and maximum values of the parameter are displayed above the slider. The user must also select one of the criteria direction buttons (Decreasing, Equal To or Increasing).

For discrete criteria, only the ON, OFF, and Criteria direction buttons are enabled. Criteria direction is entered using the following format:

For variable criteria:

Equal To	when the criterion value crosses the value specified from either above or below, the criterion is satisfied.
Increasing	when the criterion value crosses the value specified from below, the criterion is satisfied.
Decreasing	when the criterion value crosses the value specified from above, the criterion is satisfied.

For discrete type criterion:

Equal To	when the criterion value goes ON or OFF
Increasing	when the criterion value goes from OFF to ON
Decreasing	when the criterion value goes from ON to OFF

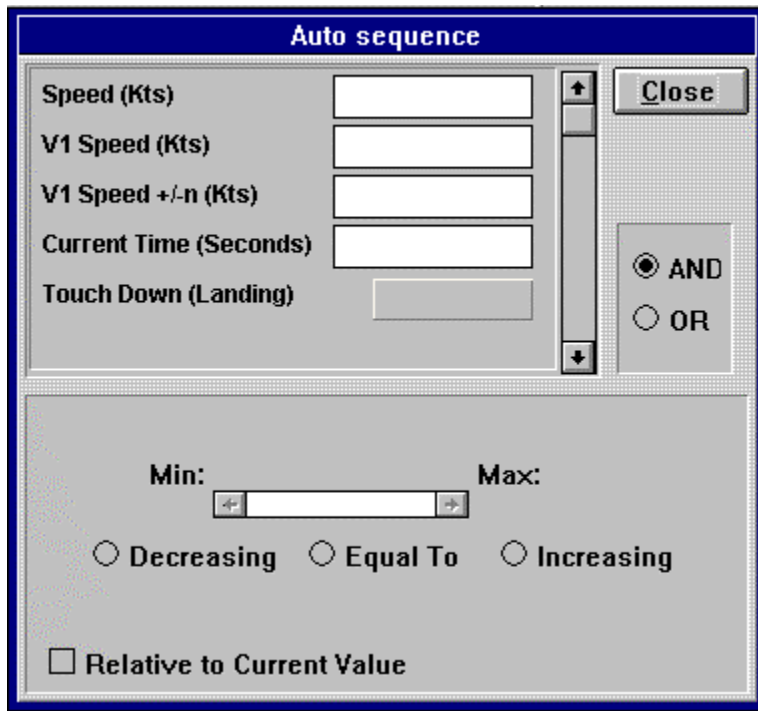
The user can also choose whether the criteria value entered is an absolute value or relative to the current value of the respective parameter. The user can select the choice via the **Relative to current value** checkbox from the criterion popup. (Figure 50) For example, the step could be triggered at an altitude of 1000 ft or at an altitude of (current altitude + 1000 ft).

If multiple criteria are specified on the step, the **AND** or **OR** button in the detail window is used to specify whether the criteria should be AND'ed or OR'ed.

Criteria can be modified from the **Step Edit** window by double clicking on the required criterion. This action brings up the **Criterion** Input Popup Panel shown in Figure 50, where the criterion can be edited.

Auto Sequence Selection Popup Panel

The **Auto Sequence** Selection popup panel is displayed when the user selects the **Auto Sequence..** button in the **Step Edit** window. The Auto Sequence popup panel allows the user to specify the criteria used for auto sequencing from the current step to the next step (refer to Figure 51).



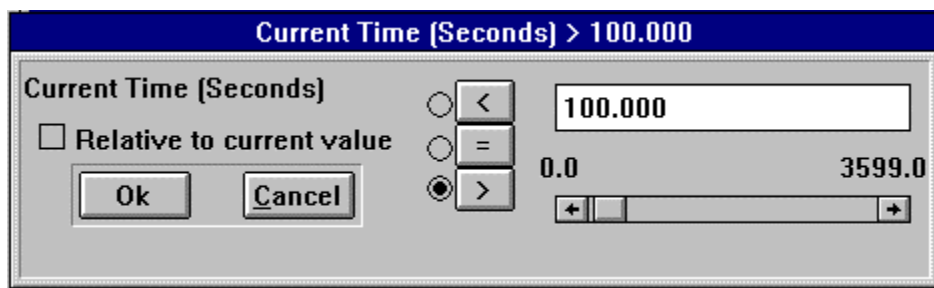
The 'Auto sequence' popup panel has a blue title bar. Inside, there are five input fields on the left: 'Speed (Kts)', 'V1 Speed (Kts)', 'V1 Speed +/-n (Kts)', 'Current Time (Seconds)', and 'Touch Down (Landing)'. To the right of these fields is a vertical scrollbar. Further right are two radio buttons labeled 'AND' (selected) and 'OR', and a 'Close' button at the top right. At the bottom, there is a 'Min:' and 'Max:' section with a double-headed arrow between them, three radio buttons labeled 'Decreasing', 'Equal To', and 'Increasing', and a checkbox labeled 'Relative to Current Value'.

Figure 51 Sample Auto Sequence Popup Panel

Selecting an item in the Auto Sequence popup panel highlights that item and **allow** the user to specify a **value** (refer to Figure 52). Depending on the selected item type (i.e., discrete or variable), some controls in the Auto Sequence popup panel are enabled or disabled.

The coding of Auto Sequencing is exactly like Criterion selection **as** described in the previous section.

The difference between Criterion and Auto Sequence Selection is with the **action it triggers**. The Criterion selection applies the trigger condition to activate the step's logic, whereas the Auto Sequence applies the trigger condition to action **the next** step.



The 'Auto Sequence Input' popup panel has a blue title bar with the text 'Current Time [Seconds] > 100.000'. Inside, there is a 'Current Time [Seconds]' label, a checkbox 'Relative to current value', and 'Ok' and 'Cancel' buttons. To the right, there are three radio buttons labeled '<', '=', and '>' (selected). Next to these is a text input field containing '100.000'. Below the input field, the numbers '0.0' and '3599.0' are displayed. At the bottom right, there is a horizontal scrollbar.

Figure 52 Auto Sequence Input Popup Panel

Profile Edit Window

Editing or creating a profile lesson page from the Lesson Plan Index displays the **Profile Edit** window as shown in Figure 53. A lesson profile provides a graphical overview of the current lesson in terms of an altitude versus **time**.

The Profile Edit window provides the same functionality as the **Page Edit** window, as well as the tools required to draw the lesson profile. Also, in this mode, the Lesson Plan Editor provides the option of Automatic Step Placement (automatic creation and placement of steps in a lesson). A horizontal **Scroll Bar** is available on the edit window since profile lesson pages scroll along the time axis (if required).

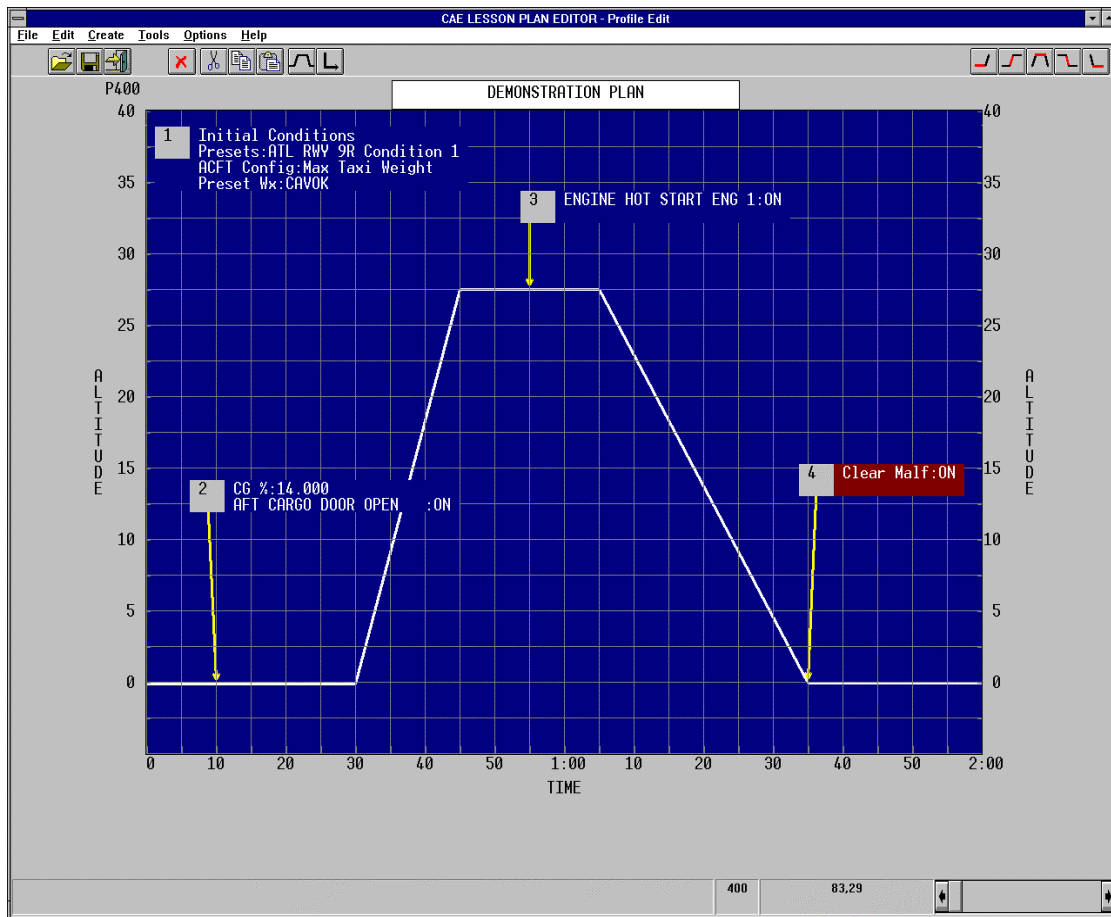


Figure 53 Profile Edit Window

Profile Edit Window Operation

In the **Profile Edit** window, the user can type in plain informative text or create and modify text associated with the page title, steps, popups, and ATIS messages. The user can also draw lines and arrows.

To Draw a Profile Line

To draw a profile line, the user actions the **Line** icon from the **Tool Bar** and then uses the cursor to draw lines by selecting the starting point and then dragging the line to its next point. The line is terminated when the user clicks the right mouse button. The line draw function is terminated when the user deselects the **Line** icon.

The user may also use one of the **Profile Draw** icons in the **Tool Bar**. The user actions one of the icons depending on the phase required (e.g., Pre-flight, Climb, Cruise). The user then enters the parameters (time and altitude) in the Profile Popup (refer to Figure 36) that appears and selects **OK**. The profile is drawn automatically.

Profile phases **can** be modified by double clicking on the profile line.

The **Profile** Popup appears and the user must enter the new time/altitude values and select **OK**. The Profile is then redrawn with the new Profile values. If the phase being modified is connected to other phases, then these phases too will be adjusted accordingly. As an example, if the Cruise phase were raised from an altitude of 10 000 to 15 000, the adjacent Climb and Descent will be raised to meet the Cruise phase at the new altitude.

NOTE: The detail description of the **Profile** Icons **are** provided in Section 7

To Draw an Arrow

To draw an arrow, the user actions the **Arrow** icon from the **Tool Bar** and then uses the cursor to draw the arrow by selecting the starting point and dragging the line to its next point. The arrow is terminated when the user clicks the right mouse button. The arrow draw function is terminated when the user de-selects the **Arrow** icon.

To Create a Popup

To insert or create a popup button, the user positions the cursor at the desired location in the **Profile Edit** window and actions **Popup** from the **Create pull-down**.

The **Popup Control Window** (refer to Figure 54) appears for user inputs.

Double clicking on an existing popup button or selecting it and actioning **Modify** from the **Edit** pull-down menu causes the **Popup Edit Window** (refer to Figure 55) to appear for user input. Then the user may enter the text associated with that popup or create direct input buttons.

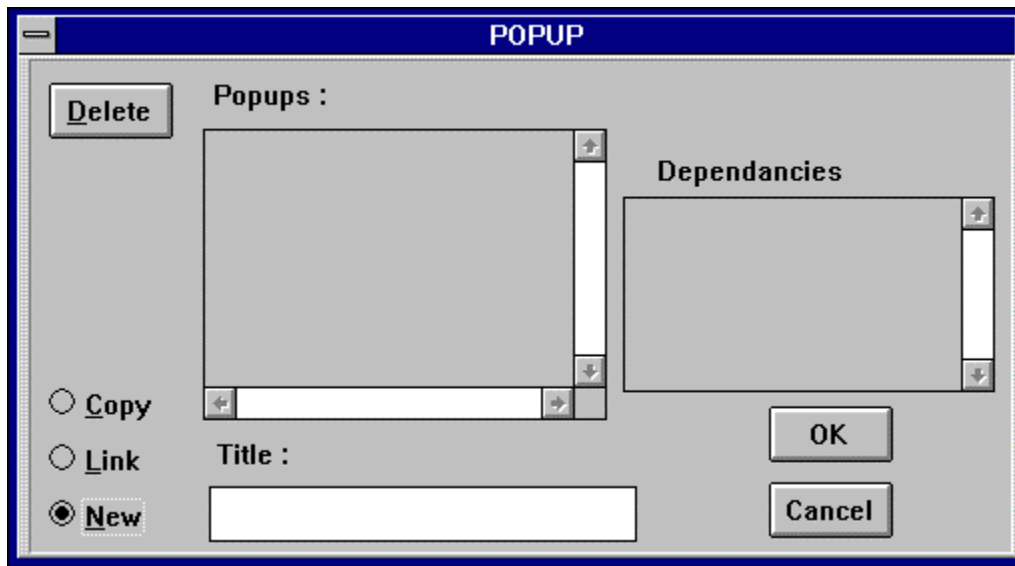


Figure 54 Popup Control Window

Popup Control Window

The Popup Control Window allows the user to create a new popup, copy an existing one, or link the current popup button to an existing popup. The window displays a list of existing popup pages, as well as their dependency to the lesson pages. Existing popups with no dependency can be deleted if no further link is needed.

Users have the choice of using an existing popup in one of the following ways:

- Copy – a duplicate popup page is created.
- Link – a new link is created to the same popup page.

Or, select **New** to create new popup page.

Once the inputs are completed and OK is selected, the Popup Edit Window appears. (Figure 55)

Popup Edit Window

Selecting a popup button from the Profile Edit window, displays the **Popup Edit** Window as shown in Figure 55. In the Display window, the user can type in plain informative text or create and modify the text associated with a button or the page title.

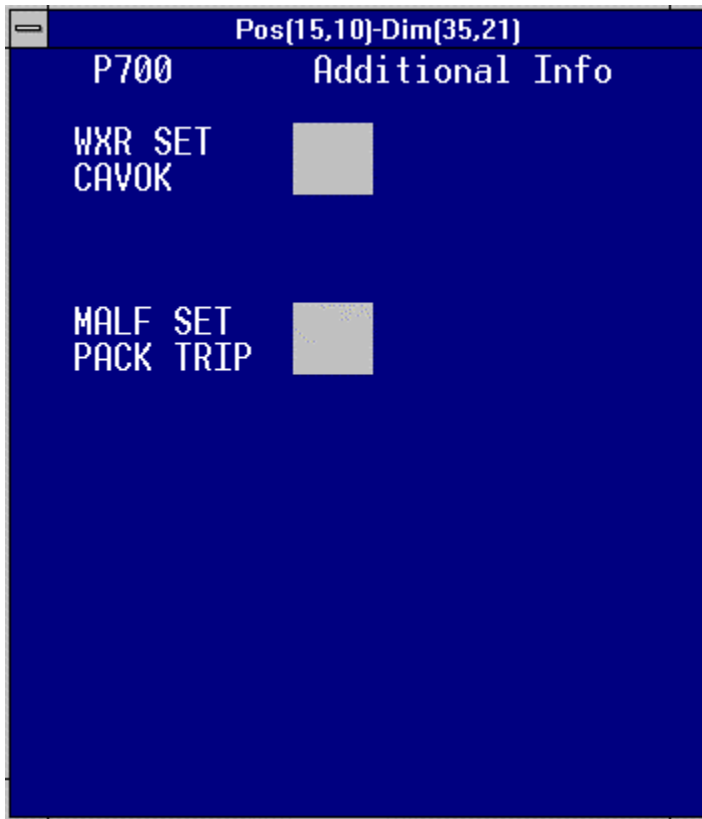


Figure 55 Popup Edit Window

A popup page can be used to provide the instructor with additional information, as well as a choice of input buttons.

The **Popup Edit** window provides the same functions as the **Page Edit** window, except the buttons created are not part of the normal lesson plan sequence. The instructor must always select them manually.

The user has the ability to re-size the popup window to a desired height and width, as well as the ability to move the popup to a specific location relative to the profile lesson page. The **Popup Edit** window **Title Bar** provides a running status of the popup size and location.

Re-sizing The Popup

The popup window can be re-sized by dragging its border in the desired direction with the mouse. It can be re-sized in two directions at once by dragging the corner of the popup window.

Moving the Popup

Dragging the Title Bar with the mouse moves the popup window.

To Modify Page Title

To modify the title, the user **positions** the cursor **on** the title field and types in the changes. In the editor, the title field is normally of a different color from other text on the page.

To Enter Static Text

To type in plain informative text, the user positions the cursor at a blank line and types in the information. The text is displayed in the default static text color.

To Create a Step

To create a step, the user clicks at the desired location on a Profile phase (the profile should turn red) and actions **Step** from the **Create pull-down** (refer to Section 6). This brings up the **Step Edit** Window with the Phase Information filled in. The window also shows the step number of the step created (refer to Figure 56).

Lock Switch

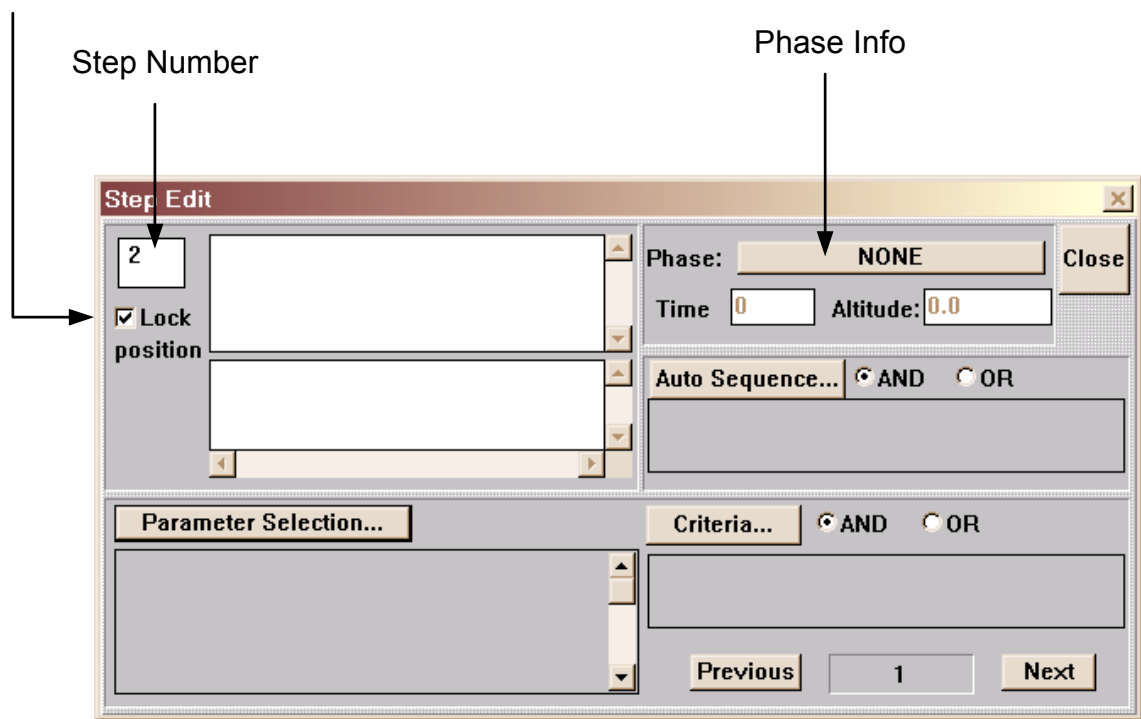


Figure 56 Step Edit detail Window

Double clicking on a step or selecting the step **Modify function** from the **Edit pull-down** causes the **Step Edit** window to appear and display any selections, criteria, and auto sequence information associated with the step.

The Phase Information in the **Step Edit** Window is based on the position within the profile where the user clicked (this includes the phase, time and altitude). The user may alter any of these values as required. Selecting the **Phase** button shows a list of all phases currently in the lesson plan, and allows the user to choose one. The user can also modify the time/altitude of the step by modifying one or the other (the corresponding one is calculated automatically). Note that the time field is based on the number of minutes INTO the selected phase.

The user can then choose the selections for the step in the same manner outlined earlier in Section 8. When the **CLOSE** button is selected, the step is automatically placed near its requested position on the profile (as specified by the time/altitude parameters) and an arrow is drawn connecting it to the profile. Note that the creation of new steps may move some existing **ones** to make room.

Should a user manually move a step, it becomes **LOCKED**, meaning that it will not be moved in the future even if new steps require it to do so. The user may **UNLOCK** a step by double clicking on the step and toggling the **Lock Switch**. The Automatic Placement algorithm only handles and moves steps that are marked **UNLOCKED**.

The user does not need to select a profile when creating a step. By selecting **Step** from the **Create pull-down** brings up the **Step Edit** Window allowing the user to create a step with the required selections. This step is considered **LOCKED** and is, therefore, not moved by the Automatic Placement algorithm. Should the user later decide to have the step handled by the Auto Placement algorithm, the user must draw an arrow connecting the step to the profile at the required position and toggle the Lock Switch in the Detail Window.

An existent (**UNLOCKED**) step can be moved by double clicking on it and changing its time or altitude in the Detail Window. The Auto Placement algorithm will make room for it near the profile and then move it automatically (with its arrow). **Selecting** the Phase button and choosing a new phase from the phase list **changes the step's phase altogether**.

Note that deleting a Profile Line will delete ALL steps associated with that phase.

To Modify/Create Help Text

To modify or create Help text, the user positions the cursor on the desired step in the **Profile Edit** window and actions **Help Text** from the **Edit pull-down**. The **Help Text** Window appears, and the user may now enter the text associated with the respective step.

SECTION 9

ABBREVIATIONS LIST

#, No	: Number
A/C	: Simulated Aircraft
ATIS	: Automatic Terminal Information Service
ATA	: Air Transportation Association
CB	: Circuit Breaker
CDB	: Common Database
CRT	: Cathode Ray Tube
CSC	: Computer Software Component
CSU	: Computer Software Unit
FRDB	: Frame Database
ft	: Foot (Feet)
ftp	: File Transfer Protocol
GUI	: Graphical User Interface
IC	: Initial Condition
in	: Inch(es)
IOS	: Instructor Operator Systems
kg	: Kilogram(s)
kt	: Knot(s)
lb	: Pound(s)
LCD	: Liquid Crystal Display
LPE	: Lesson Plan Editor
LPU	: Lesson Plan Utilities
LRU	: Line Replaceable Unit
lt	: Light
m	: Meter(s)
min	: Minute(s)
N/A	: Not Applicable
nm	: Nautical Mile(s)
PC	: Portable Computer
s, sec	: Second(s)
SDD	: Software Design Document
sw	: Switch
RVR	: Runway Visual Range
UG	: User Guide
TBD	: To Be Determined
TIGERS™	: The Interactive Graphics Environment for Real-Time Systems ^(Trade Mark)
V	: Volt(s)
wrt	: With Respect To
EC	: Degree(s) Celsius

APPENDIX A

***STANDARD LESSON PLAN UTILITY
INITIALIZATION FILE***

The following describes the Lesson Plan Editor initialization file which by default is located in the directory from which the editor is run. The full path to the initialization file may be specified on the command line if the initialization file is not in the default directory. The file is called LPUINIT.DAT.

A sample LPUINIT.DAT file is shown below.

```
!--- Sample LPU Init file
!
! --- Source file path
!
SRCPATH 'c:\lpe\src\'; ! source page path
FRDBPATH 'c:\lpe\src\'; ! FRAME.DAT file path (Frame Database)
LPDBPATH 'c:\lpe\src\'; ! LPDB.DAT file path (Lesson Plan Database)
!
!
! --- Valid lesson page numbers
!
VALIDPAGE RANGE=401:899;
!
! --- Page Attributes
!
PAGE_ATTRIB
  ROW=150,      ! row dimension
  COLUMN=65,    ! column dimension
  TITLE_COLOR=WHITE, ! page title color (optional)
  STATIC_COLOR=GREEN, ! static page color (optional)
  MAX_LESSON=100, ! Maximum Number of Lesson Plans
  MAX_PAGE=40,  ! Max No. of Pages in Lesson Plan
  SIZE=2,       ! Character size for volatile info
  CHARSIZE=10,  ! Character size for static info
  CHARWIDTH=20, ! Character width for static info in pixels
  CHARHEIGHT=27, ! Character height for static info in pixels
  NO_CONDITION, ! To specify no color condition
                ! on lesson step (optional)
  DEFAULT_SET,  ! Default step type SET not TOGGLE (optional)
  MAXCRITEMS=10, ! max # SV items allowed with criteria
  HEADER=21,    ! use header page 21 (optional)
  SIM_TOUCH,    ! create page using touch blocks
  DISPLAY_SET,  ! display 'SET' when active
  SRC_NUMBER,   ! include source file number
  SERIAL_PORT='COM1', ! Serial line to host port
  MULTI_PAGE,   ! Multiple page lesson plan
```

```

!
! --- Touch Box Attribute Setup
!
TOUCH_BOX      ! For Touch simulators
WIDTH=5,        ! Number of columns in touch box
HEIGHT=3,       ! Number of rows in touch box
STCOL=5,        ! Start col number for touch box
TYPE=2000;      ! Touch Type number to specify box shape
!
! --- Atis message attribute setup
!
ATIS_ATTRIB
  COLOR=WHITE, ! ATIS message color (optional)
  LABEL=TLDUMGEN; ! dummy label to color ATIS
! messages
!
! --- Step attribute setup
!
STEP_ATTRIB
  ACTIVE=GREEN, ! Actioned step color
  INACTIVE=WHITE, ! Non-actioned step color (optional)
  CONDITION=TLSELECT, ! Color condition CDB label
  ACT_LABEL=TLACTN, ! auto sequencing CDB label
  CURRENT=YELLOW; ! Current step color (optional)
!
! --- New lesson.step label
!
NEWSTEP LABEL=TLNST;

```

Source File Path

The SRCPATH command specifies the page source file directory.

Format: SRCPATH 'directory'

Lesson Plan Database File Path

The LPDBPATH command specifies the lesson plan database directory. The lesson plan database contains information about the lesson plans, such as their titles, who last updated them, etc. for use by the utility.

Format: LPDBPATH 'directory'

Frame Database File Path

The FRDBPATH command specifies the frame database file directory. The frame database file contains information about the Lesson Plan Editor frames.

Format: FRDBPATH 'directory'

Valid Lesson Page Numbers

The VALIDPAGE command assigns the **LCD** page numbers available to be used for lesson plan pages.

Format: VALIDPAGE RANGE=nnn:mmm;

where nnn:mmm is a range of CRT page numbers.

Valid Popup Page Numbers

The POPUP_PAGE command assigns the **LCD** page numbers available to be used for popup pages.

Format: POPUP_PAGE RANGE=nnn:mmm;

where nnn:mmm is a range of CRT page numbers.

Valid Profile Popup Page Range [optional]

The PROF_POPUP_PAGE command assigns the **LCD** page numbers available to be used for profile popup pages under text lesson. **This keyword is used in conjunction with PROFILE_POPUP.**

Format: PROF_POPUP_PAGE RANGE=nnn:mmm.

Where nnn:mmm is a range of CRT page numbers.

Valid Profile Page Range Number [optional]

The PROFILE_PAGE RANGE command assigns the **LCD** page numbers to be used for profile lesson when SPLIT_RANGES feature is enabled and user wishes to have both types of lesson plan pages clearly defined into two different ranges. When this command is used, the TEXT_PAGE RANGE definition is mandatory.

Format: PROFILE_PAGE RANGE = nnn: mmm;

where nnn:mmm is the range assigned to the profile lesson, and it has to be valid within the VALIDPAGE RANGE.

Valid Text Lesson Range Number [optional]

The TEXT_PAGE RANGE command assigns the **LCD** page numbers to be used for text lesson when SPLIT_RANGES feature is enable when users wish to have both type of lesson plan pages clearly defined into two different ranges. When the command is used, the PROFILE_PAGE RANGE definition is mandatory.

Format: TEXT_PAGE RANGE = nnn:mmm;

where nnn:mmm is the range assigned to the text lesson, and it has to be valid within the VALIDPAGE RANGE.

NO_USE_FREE_PAGE

Generates the lesson plan page number based on the lesson plan index number and the lesson start page range.

Page Attributes

The P/PAGE_ATTRIB command allows the user to set up the attributes of the lesson plan pages.

Format:

```
PAGE_ATTRIB
  ROW = row no.,
  COLUMN = column no.,
  [TITLE_COLOR = color,]
  [STATIC_COLOR = color,]
  [TEXT_COLOR = color,]
  [DEFAULT_ACT = color,]
  [DEFAULT_INA = color,]
  MAX_LESSON = n,
  MAX_PAGE = n,
  SIZE = n,
  CHARSIZE = n,
  CHARWIDTH = n,
  CHARHEIGHT = n,
  [NO_CONDITION,]
  [NO_AUTO_SEQ,]
  NO_VARMALF,
  DEFAULT_SET,
  MAXCRITEMS = n,
  [HEADER = n,]
  SIM_TOUCH,
  STD_PROFILE,
  [PROFILE_POPUP,]
  DISPLAY_SET,
  SRC_NUMBER,
  ALLOW_RELATIVE,
  USER_DELAYSET,
  [SERIAL_PORT = serial_port,]
  [MULTI_PAGE,]
  [VG45_PAGES,]
  [USE_DEF_COLOR,]
  [GEN_AUTO_TEST,]
  [AUTOSAVE = n,]
  [CRIT_NOTEQUAL,]
  [MAX_AUTO_TEXT = n,]
  [AUTO_PROFILE_OFF,]
  [MAX_CRITERIA=n,]
  [DISPLAY_DATE,]
  [LATLON_FORMAT,]
  [SLASH_DISABLE,]
  [PAGE_LEVEL,]
  [SINGLE_COLUMN,]
  [SPLIT_RANGES;]
```

where:

ROW = row no. is the dimension of the lesson pages by row.

COL = column no. is the dimension of the lesson pages by column, maximum is 80 for text lesson plan.

TITLE_COLOR = color is the page title color. The colors available are defined in the Page Compiler Utility Initialization File (PGCINIT.DAT).

STATIC_COLOR = color is the static page color. The colors available are defined in the Page Compiler Utility Initialization File (PGCINIT.DAT).

TEXT_COLOR = color is the message text page color. The colors available are defined in the Page Compiler Utility Initialization File (PGCINIT.DAT).

DEFAULT_ACT = color is the default page active color. The colors available are defined in the Page Compiler Utility Initialization File (PGCINIT.DAT).

DEFAULT_INA = color is the default page inactive color. The colors available are defined in the Page Compiler Utility Initialization File (PGCINIT.DAT).

MAX_LESSON = n is the maximum number of lesson plans allowed on the system.

MAX_PAGE = n is the maximum number of pages allowed in each lesson plan.

SIZE = n is an index number corresponding to a number in the PPCINIT.DAT file which defines the size, height increment, and width increment of the characters used to display volatile information on the lesson plan pages.

CHARSIZE = n is an index number of the character size to use for static information on the lesson plan pages.

CHARWIDTH = n specifies the inter-character spacing in pixels for static information on the lesson plan pages.

CHARHEIGHT = n specifies the inter-line spacing in pixels for static information on the lesson plan pages.

NO_CONDITION specifies that color conditions are not required on the lesson plan steps.

NO_AUTO_SEQ specifies that auto sequence criteria are not required.

NO_VARMALF specifies that ramp type variable malfunctions are not required.

DEFAULT_SET specifies the default step type is SET.

MAXCRITEMS = n is the maximum number of items allowed on a lesson step which has CRITERIA coded.

HEADER = n is the header page number which will appear with the lesson plan pages.

STD_PROFILE specifies that the Instructor Station supports profile lesson plans.

PROFILE_POPUP specifies that the Instructor Station supports profile popup pages. The std_profile option must be enabled for this feature to work.

DISPLAY_SET specifies that the string SET should be displayed when the lesson step is active.

SRC_NUMBER specifies that the CRT page number (source file number) should be displayed on the lesson plan pages. If specified, the number appears in the upper left corner of the page.

ALLOW_RELATIVE specifies that the Instructor Station support relative criteria.

USER_DELAYSET allows the user to add/modify delay set values for each item within a step.

MULTI_PAGE specifies whether the lesson is divided into multiple pages or consists of one scrollable page. **Note that "STD_PROFILE" option must be disabled.**

USE_DEF_COLOR forces the Lesson Plan editor to use the Windows color scheme.

GEN_AUTO_TEXT creates auto-generated text when a selection is made.

AUTOSAVE = n specifies the frequency at which an automatic save will occur. The editor will automatically save the current page every n seconds.

CRIT_NOTEQUAL adds the "Not Equal" option to the criteria.

MAX_AUTO_TEXT = n specifies the maximum number of auto generated selections displayed.

AUTO_PROFILE_OFF inhibits the Auto Placement feature. **Enabling this feature removes the Phase of flight feature, as well as, the Next/Previous Set entry dialog.**

MAX_CRITERIA=n, specifies the maximum number of criteria that can be used simultaneously.

DISPLAY_DATE saves the date and time information to the source page in Profile Lesson Plans. This information will be displayed on the IOS station and positioned to the right of the title.

SLASH_DISABLE inhibits the use of the "/" character for text input in the Lesson Plan Editor.

SPLIT_RANGES allocates the two types of lesson plan pages into two separate ranges as long as the ranges are defined within the global VALIDPAGE range.

Touch Box Attribute Setup

The TOUCH_BOX command defines the attributes for the touch block size, position, and type, if the simulator is a touch type simulator.

Format:

```
TOUCH_BOX
  WIDTH = no. of columns,
  HEIGHT = no. of rows,
  STCOL = touch box start column number,
  TYPE = nnnn;
```

where:

WIDTH = no. of columns is the number of columns for the touch box width.

HEIGHT = no. of rows is the number of rows in touch box

STCOL = touch box start column number is the start column number for touch box

TYPE = nnnn is the touch type number to specify box shape as outlined in the post page compiler file PPCINIT.DAT.

ATIS Message Attribute Setup

The ATIS_ATTRIB command defines the attributes for ATIS messages.

Format:

```
ATIS_ATTRIB
  [COLOR = color,]
  LABEL = cdlabel;
```

where:


COLOR = color is the static color of all ATIS messages. The colors available are specified in the Page Compiler Utility initialization file (PGCINIT.DAT).

LABEL = cdlabel is a common database dummy label used to color ATIS messages.

Step Attribute Setup

The STEP_ATTRIB command allows the user to define the active and inactive colors of the lesson plan steps.

Format:

```
STEP_ATTRIB
  [ACTIVE = color,]
  [INACTIVE = color,]
  
  CONDITION = cdlabel,
  ACT_LABEL = cdlabel,
  [CURRENT = color;]
```


where:

ACTIVE = color is the color which lesson plan steps will color when actioned. The colors available are specified in the Page Compiler Utility initialization file (PGCINIT.DAT).

INACTIVE = color is the color which lesson plan steps will color when not yet actioned. The colors available are specified in the Page Compiler Utility initialization file (PGCINIT.DAT).

CONDITION = cdblabel defines the CDB label to be coded to handle the color condition for the lesson plan steps.

ACT_LABEL = cdblabel defines the CDB label to be coded to handle auto sequencing steps.

CURRENT = color is the color which lesson plan steps will color when they are the current step of interest. The colors available are specified in the Page Compiler Utility initialization file (PGCINIT.DAT).

Profile Attributes

The PROF_ATTRIB command allows the user to set up the attributes of the profile lesson plan pages.

Format:

```
PROF_ATTRIB
  BCKGRD_COLOR = color,
  LINE_COLOR = color,
  ARROW_COLOR = color,
  BORDER_COLOR = color,
  GRID_COLOR = color,
  TIME_BAR,
  TIME_BAR_LABEL = label,
  TIME_BAR_COLOR = color,
  LINE_WIDTH = n,
  [ARROW_WIDTH = n,]
  [TIME_ALT_REMIND,]
  [USE_FLVL,]
  AREA =(STROW = n, ENDROW = n, STCOL = n, ENDCOL = n);
```

where:

BCKGRD_COLOR = color is the background color of the graph area. The colors available are specified in the Page Compiler Utility initialization file (PGCINIT.DAT).

LINE_COLOR = color is the color of the profile lines. The colors available are specified in the Page Compiler Utility initialization file (PGCINIT.DAT).

ARROW_COLOR = color is the color of the arrow lines. The colors available are specified in the Page Compiler Utility initialization file (PGCINIT.DAT).

BORDER_COLOR = color is the color of the graph border. The colors available are specified in the Page Compiler Utility initialization file (PGCINIT.DAT).

GRID_COLOR = color is the color of the grid. The colors available are specified in the Page Compiler Utility initialization file (PGCINIT.DAT).

TIME_BAR specifies that an elapsed time bar should be displayed below the profile graph.

TIME_BAR_LABEL = label defines the CDB label to be coded to drive the elapsed time bar.

TIME_BAR_COLOR = color is the color of the elapsed time bar. The colors available are specified in the Page Compiler Utility initialization file (PGCINIT.DAT).

TIME_BAR_WIDTH = n specifies the width, in pixels, of the elapsed time bar when it is displayed at the instructor station.

LINE_WIDTH = n specifies the width, in pixels, of the profile line when it is displayed at the instructor station.

ARROW_WIDTH = n specifies the width, in pixels, of the arrow lines when they are displayed at the instructor station.

TIME_ALT_REMIND causes a reminder popup to appear if the user does not provide Time/Altitude information when creating a step.

USE_FLVL allows the user to specify if the grid in the Profile Lesson Plan will be displayed in 100 Ft or 1000 Ft increments. If this keyword is not specified then the grid will be displayed in 1000 Ft increments.

AREA = .. specifies the area of the profile graph. The width of this area MUST be a multiple of 12.

Popup Attributes

The POPUP_ATTRIB command allows the user to set up the attributes of the popup pages.

Format:

```
POPUP_ATTRIB
  [ACTIVE = color,]
  [INACTIVE = color,]
  WIDTH = no. of columns,
  HEIGHT = no. of rows,
  [STCOL = touch box start column number,]
  TYPE = nnnn;
```

where:

ACTIVE = color is the default active color for the popup page. The colors available are specified in the Page Compiler Utility initialization file (PGCINIT.DAT).

INACTIVE = color is the default active color for the popup page. The colors available are specified in the Page Compiler Utility initialization file (PGCINIT.DAT).

WIDTH = no. of columns is the default number of columns for the popup window.

HEIGHT = no. of rows is the default number of rows for the popup window.

TYPE = nnnn is the touch type number to specify box shape as outlined in the post page compiler file (PPCINIT.DAT).

Help Attributes

The HELP_ATTRIB command allows the user to set up the attributes of the help information.

Format:

```
HELP_ATTRIB
  WIDTH = no. of columns,
  HEIGHT = no. of rows,
  NO_CONDITION;
```

where:

WIDTH = no. of columns is the default width of the help information popup window.

HEIGHT = no. of rows is the default height of the help information popup window.



APPENDIX B

FRAME DATABASE USER GUIDE

The Frame Database contains the information needed by the Lesson Plan Editor to process the selection of lesson step functions, and to subsequently create page source files using the function selection made.

Volatile Selection Commands

The Lesson Plan Editor has four types of volatile selections for a lesson plan function: **Value**, **Input**, **Predetermined Set**, and **Malfunction**.

Value Input selections are those which require the user to specify a value which is to be set when the function is selected. An example of a value input selection is the selection of Wind Speed. The user must specify the wind speed value.

Predetermined Set selections are those which do not require the user to enter any values - the value(s) to set have been previously determined. The user needs only to choose the selection and it will be set to the predetermined value when the lesson step is executed. An example of a predetermined set selection is TOTAL RESET. The user needs only to indicate that a total reset is to be actioned.

Malfunction selections are generated automatically from an ASCII file source.

The instructions to specify the volatile characteristics of a function are described in the following sections. The instructions contain all the information required for the Lesson Plan Editor to process the selection when editing is being done, and to subsequently create the corresponding SET VALUE item(s) when the lesson page is coded.

ITEMS enclosed in square brackets in the following descriptions are optional.

Note that the selections should have a unique NAME since the Lesson Plan Editor refers to them by their NAME.

NOTE: Malfunction selections are typically generated from an ASCII data file that lists all failures available from all aircraft systems.

SETVALUE (Predetermined Set) Instruction

The SETVALUE instruction defines a selection which will cause one or more predetermined values to be set into the common database when the function is selected.

Format:

```

/SETVALUE
  NAME = node_id
  TEXT = title description,
  ITEM = (LABEL = cdblabel, VALUE = value[,DELAYSET =
          delayset][,DELAYRESET])
  [,HELP = "help text"]
/

```

Where:

NAME = node_id - specifies the selection's unique name, entered as a string in single quotes. The maximum length is 15 characters.

TEXT = title description - specifies the selection title, entered as a text string in single quotes.

ITEM = (LABEL = cdblabel, VALUE = value[,DELAYSET = delayset][, DELAYRESET])

LABEL = cdblabel - specifies the CDB label name to be set. Care should be taken to ensure that the CDB label is valid.

VALUE = value - specifies the value to which the CDB label should be set when the function is actioned.

DELAYSET = delayset - specifies the time in seconds after which the ITEMS' label is set to the value specified.

DELAYRESET - indicates that the ITEM'S value should be reset after a two second delay.

Up to 60 ITEMS may be specified in a single SETVALUE instruction.

DECIMAL (Value Input) Instruction

The DECIMAL instruction defines a selection that requires the user to enter a value, which will be used to set a specific label in the common database when the function is selected.

Format:

```

/DECIMAL
  NAME = node_id
  TEXT = title description,
  FORMAT = format,
  LABEL = cdblabel,
  [,MAXIMUM = maxval]
  [,MINIMUM = minval]
  [,SCALE = scale_fact]
  [,TRANSLATE = trans_fact]
  [,DEFAULT = deflt_val]
  [,MISC = misc_code]
  [,NO_DECIMAL]
  [,DELAYSET = delayset]
  [,DELAYRESET]
  [,STORE_RADIAN]
  [,HELP = "help text"]
/

```

Where:

NAME = node_id - specifies the selection's unique name, entered as a string in single quotes. The maximum length is 15 characters.

TEXT = title description - specifies the selection title entered as a text string in single quotes.

FORMAT = format - specifies the value type expected. These include the following:

ALPHANUMERIC	A
ANGLE	D
INTEGER	X
LATITUDE	SXX:XX:XX / SXX:XX:XX.X
LONGITUDE	SXXX:XX:XX / SXXX:XX:XX.X
REAL	X.X
TIME	HH:MM:SS

Even if the CDB label is declared as a real, the data type of the frame may be defined as integer, if an integer value is wanted. To determine the data type, refer to the CRT page source file containing the label and look at the display format or refer to the CDB.

LABEL = cdblabel - specifies the CDB label which will be set when the function is selected. Care should be taken to ensure that the CDB label is valid.

DEFAULT = deflt_val - specifies the default value for this selection. This value must be in the same data format as the value type (specified by TYPE).

MINIMUM = minval - specifies the minimum input value of the volatile before scaling, when the value type is numeric (real, integer, or time). The minval must be the same format as the value type specified. When the value type is alphanumeric, the minimum specifies the minimum number of characters the user may enter.

MAXIMUM = maxval - specifies the maximum input value of the volatile before scaling, when the value type is numeric (real, integer, or time). The maxval must be the same format as the value type specified. When the value type is alphanumeric, the maximum specifies the maximum number of characters the user may enter.

Minimum and maximum values can also be specified for the type TIME. The valid format is HH:MM:SS.

Note that if one MINIMUM or MAXIMUM is specified, the other must also be specified.

SCALE = scale_fact - specifies the scale factor by which the volatile's value is multiplied before it is displayed to the user. For example, to code a fuel weight (kg) entry on the editor frame, a scale factor for Pounds to kg (0.454) is required, since the CDB units are pounds. The scale factor is always specified as a real number.

TRANSLATE = trans_fact - specifies the translation factor by which the volatile's value is translated before it is displayed to the user. For example, to translate an input value from Fahrenheit to Celsius, both a SCALE factor and a TRANSLATE factor must be used. The translation factor is always specified as a real number.

NOTE: The scale factor is always applied to the value before the translation factor.

Scale/translation factor is used when the user inputs values in different units from those specified in the CDB for the label.

MISC = misc_code - specifies a miscellaneous page coding string of keywords for the selection. This string is used directly as part of the set value instruction. It is not processed, but the page compiler will use it. This is useful for adding a delay before a label is updated in the CDB, like a delay reset; or to update another associated Boolean label that must be changed at the same time as the present value input. The string must be surrounded by single quotes, and can be a maximum of 100 characters long.

For example, to specify an associated Boolean to set with a value input such as Gross Weight, the user would specify:

MISC = 'ITEM = (LABEL = TCMGWAW, VALUE = ON, DELAYRESET)'

DELAYSET = delayset - specifies the time in seconds after which the label is set to the value entered.

DELAYRESET - indicates that the label value should be reset to zero after a two-second delay.

STORE_RADIAN - implies as a similar option for STORE_RADIAN for page editing in **VIEWS**. It indicates that this decimal value will be stored in radian i.s.o. of degree. It applies only for bearing and lat-lon format where radian is needed instead of degree. This transformation is transparent to users, where the details of selection still being represented as lat-lon or Degree format in the editor's user interface.

BOOLEAN (Value Input) Instruction

The BOOLEAN instruction defines a selection that requires the user to enter a value, which will be used to set a specific label in the common database when the function is selected. The BOOLEAN instruction is identical to the DECIMAL instruction, except that the FORMAT, MAXIMUM and MINIMUM fields are neglected since the instruction is of a BOOLEAN type.

Format:

```

/BOOLEAN
  NAME = node_id,
  TEXT = title_description,
  LABEL = cdblabel,
  [,DEFAULT = deflt_val]
  [,MISC = misc_code]
  [,DELAYSET = delayset]
  [,DELAYRESET]
  [,HELP = "help text"]
/

```

Where:

NAME = node_id - specifies the selection's unique name, entered as a string in single quotes. The maximum length is 15 characters.

TEXT = title_description - specifies the selection title entered as a text string in single quotes.

LABEL = cdblabel - specifies the CDB label which will be set when the function is selected. Care should be taken to ensure that the CDB label is valid.

DEFAULT = deflt_val - specifies the default value for this selection. This value must be in the same data format as the value type (specified by TYPE).

MISC = misc_code - specifies a miscellaneous page coding string of keywords for the selection. This string is used directly as part of the set value instruction. It is not processed, but the page compiler will use it. This is useful for adding a delay before a label is updated in the CDB, like a delay reset; or to update another associated Boolean label that must be changed at the same time as the present value input. The string must be surrounded by single quotes, and can be a maximum of 100 characters long.

For example, to specify an associated Boolean to set with a value input such as Gross Weight, the user would specify the following:

```
MISC = 'ITEM = (LABEL = TCMGWAW, VALUE = ON, DELAYRESET)'
```

DELAYSET = delayset - specifies the time in seconds after which the label is set to the value entered.

DELAYRESET - indicates that the label value should be reset to zero after a two-second delay.

MALF (Malfunction) Instruction

The MALF instruction defines a selection containing one or more Value Inputs (BOOLEAN and/or DECIMAL) grouped together for convenience. These selections must be actioned separately.

Format:

```

/MALF
  NAME = name,
  TEXT = title,
  SYSTEM = (LABEL = cdblabel, NAME = name [, FORMAT = format] [, MINIMUM
            = minval] [, MAXIMUM = maxval] [, SCALE = scale_fact]
            [,TRANSLATION=0, BOOLEAN=TBXXXXXX]

```




Where:

NAME = name - specifies the selection's unique name, entered as a string in single quotes. The maximum length is 6 characters.

TEXT = title - specifies the selection title entered as a text string in single quotes.

SYSTEM = (LABEL = cdblabel, NAME = name[, FORMAT = format][, MINIMUM = minval][, MAXIMUM = maxval][, SCALE = scale_fact])

LABEL = cdblabel - specifies the CDB label which will be set when the function is selected. Care should be taken to ensure that the CDB label is valid.

NAME = name - specifies the sub-system's name, entered as a string in single quotes. The maximum length is 9 characters.

FORMAT = format - specifies the value type expected (same as per DECIMAL instruction).

MINIMUM = minval - specifies the minimum input value of the volatile before scaling, when the value type is numeric (real, integer, or time). The minval must be the same format as the value type specified. When the value type is alphanumeric, the minimum specifies the minimum number of characters the user may enter.

MAXIMUM = maxval - specifies the maximum input value of the volatile before scaling, when the value type is numeric (real, integer, or time). The maxval must be the same format as the value type specified. When the value type is alphanumeric, the maximum specifies the maximum number of characters the user may enter.

Minimum and maximum values can also be specified for the type TIME. The valid format is HH:MM:SS.

Note that if one of MINIMUM or MAXIMUM is specified, the other must also be specified.

SCALE = scale_fact - specifies the scale factor by which the volatile's value is multiplied before it is displayed to the user. For example, to code a fuel weight (kg) entry on the editor frame, a scale factor for Pounds to kg (0.454) is required, since the CDB units are pounds. The scale factor is always specified as a real number.

TRANSLATION=0, This keyword is required only as a standard keyword for VIEWS editor, it is not applicable to malfunction in lesson plan system and the parser will bypass the value.

BOOLEAN = TBXXXXXX – is only applied to variable malfunction systems when the actual engineering unit is applied, then the TB label exist.

NOTE: In the previous version, lpu supports the TB label under MISC keyword, and this is no longer applicable. Where currently the LPU's parser recognizes this syntax format of TB label under malfunction input file, the user does not have to modify the malf.lib manually when TB label is required.

Each malfunction frame can have up to 150 selections.

Frame and Category Definitions

Lesson Plan Editor selection instructions can be grouped together into logically related sets.

A Frame Database FRAME groups together a set of selections of a specific type, or for a specific system. These selections will be displayed together as a Lesson Plan Editor Selection Frame. For example, ENVIRONMENT, AIRCRAFT, ELECTRIC MALF..

A Frame Database CATEGORY groups together a set of mutually exclusive selections. For example, DAY/DUSK/NIGHT can be a group.

START_FRAME Instruction

The START_FRAME instruction is used to group a set of selections into a single Frame Database FRAME. All selections following the START_FRAME instruction will be displayed when the Lesson Plan Editor accesses this frame. A frame grouping is terminated by the END_FRAME instruction.

Format:

```
/START_FRAME
  NAME = name,
  TEXT = title
  [,INIT_FRAME]
  [,IC_FRAME]
  [,CRIT_FRAME]
  [,MALF_FRAME]
/
```

Where:

NAME = node_id - specifies the selection's unique name, entered as a string in single quotes. The maximum length is 15 characters.

TEXT = title description - specifies the frame title, entered as a text string in single quotes.

INIT_FRAME - indicates that this frame is the Initialization Frame that is to be used by the Lesson Plan Editor. This frame will contain the links to all the other frames.

IC_FRAME - indicates that this is the Initial Condition frame, and therefore is displayed with the controls only applicable to IC.

CRIT_FRAME - indicates that this is the Criteria frame, and is to be accessed via a special button control.

MALF_FRAME - indicates that the frame is a MALFUNCTION frame, it can be arranged either displayed by ATA chapter which is default or flight phase.

Note that a maximum of 100 frames may be created, and a maximum of 150 selections may be defined for each frame (for a maximum of 15 000 entries).

END_FRAME Instruction

The END_FRAME instruction is used to signal the end of a Frame grouping. The END_FRAME instruction is only allowed if a previous START_FRAME instruction was encountered.

Format:

```
/END_FRAME/
```

START_MENU (Start Category) Instruction

The START_MENU instruction is used to group a set of selections into a single Frame Database CATEGORY. All selection instructions following the START_MENU instruction will be considered elements of a category grouping. Only SETVALUE selections are allowed in a category grouping. A category grouping is terminated by the END_MENU instruction.

The category group is meant for selections which have predefined value, and are mutually exclusive.

No two elements of a category may be selected at the same time. If one category element has already been selected, the selection of another element will cancel the first.

Format:

```
/START_MENU
    NAME = name,
    TEXT = title
/
```

Where:

NAME = node_id - specifies the selection's unique name, entered as a string in single quotes. The maximum length is 15 characters.

TEXT = title description - specifies the category title entered as a text string in single quotes. The maximum title length is 40 characters.

END_MENU (End Category) Instruction

The END_MENU instruction is used to signal the end of a category grouping. The END_MENU instruction is only allowed if a previous START_MENU instruction was encountered.

Format:

```
/END_MENU/
```

There can be more than one category per file.

NOTE: The MENU (Category) instruction is only allowed to be coded in the 'catsel.lib', and is prohibited in 'frame.dat'.

Object Instruction

The OBJECT instruction allows the user to reference a selection that has been previously defined in the database.

Format:

```
/OBJECT
    NAME = name
/
```

Where:

NAME = name - specifies the selection's unique name, entered as a string in single quotes. The maximum length is 15 characters.

The OBJECT being referenced can be a FRAME, SETVALUE, DECIMAL, BOOLEAN or MENU. The use of the OBJECT instruction means that the same selection does not need to be coded twice. As well, when OBJECT is used, and the selection is made from one editor frame, it will show up as selected on any other frame where it is also used. When OBJECT is not used, the editor cannot recognize that the same selection has already been made.

Using the **Frame** Database

The Frame Database information is the collections of node(s), menu(s), and frame(s) in the structure briefly described in the following paragraph. Figure 57 shows the graphical representation of all the components involved in frame database.

The main file FRAME.DAT is a sequential access file. It contains the nodes instructions, frames definition and also object references. Both the CRIT_FRAME and INIT_FRAME should be coded in this file. The init_frame or the INDEX FRAME contains the links to other frames at highest level, similar to a main menu. All the frame selections within this init_frame are object referenced to the regular frames or malfunction frames.

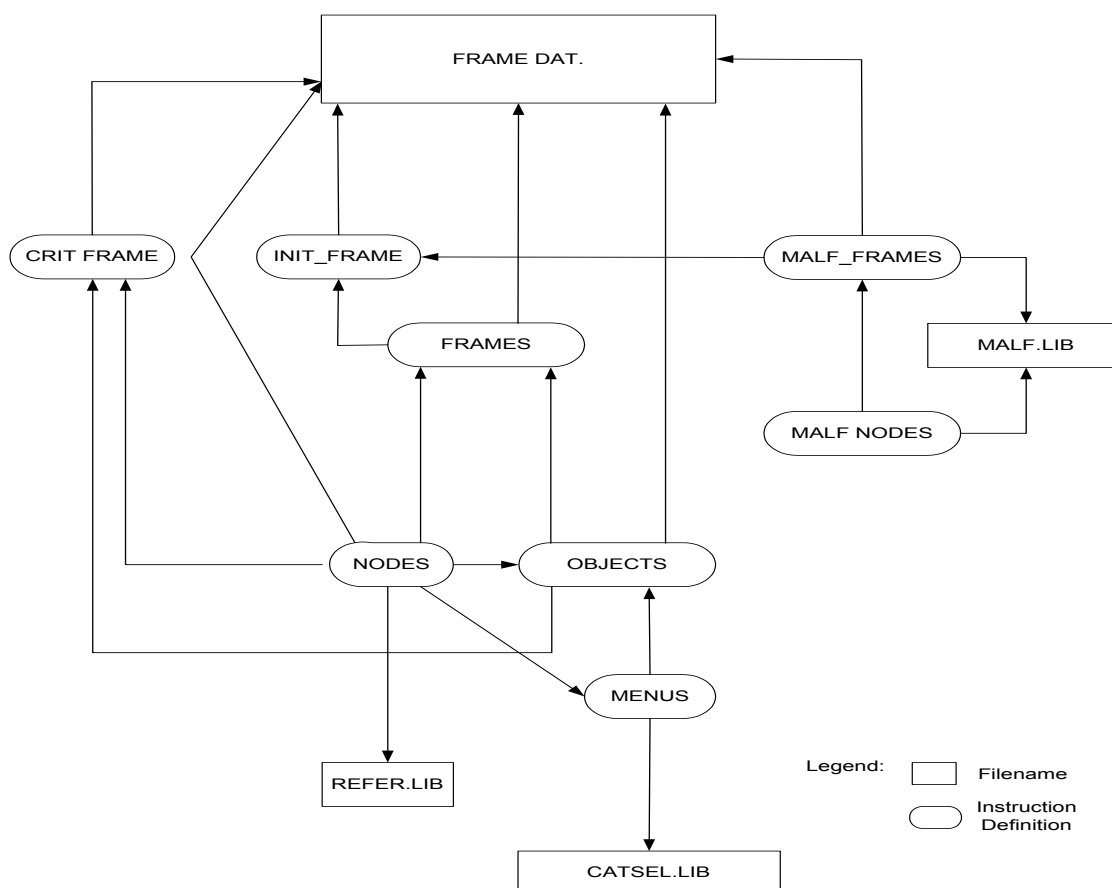


Figure 57 Frame Database

Any object can be referenced within the same file or from other libraries. If it is within the same file, the user should ensure that the frames are coded properly and exist before the references. This rule also applies to any kind of selection.

User can easily find any missing object reference from the error listing file "frame.err" after running lpu.

The following three libraries are part of the standard in frame database which complements the frame.dat:

- 1) The REF.LIB file – contains selections that are frequently used, therefore may be referenced by more than one frame.
- 2) The CATSEL.LIB – is a library of all the Category Selections (MENUs) used in the Database. This category must not be coded anywhere else other than in this library.
- 3) The MALF.LIB library – contains all the MALFUNCTIONS used in the Database. This file comes directly from the malfunction group, and is similar to Addendum 1. Malfunctions are usually grouped by ATA.

Modifying the Frame Database

When changes are made to any of the frame database files: FRAME.DAT, REFER.LIB, CATESEL.LIB or MALF.LIB, the pages must be updated if the changes affects the page selection.

The user can run the **Update All** option from the **Tool** pull-down menu. This action will automatically update all the selections on all the existing pages. The user may also re-open only the page(s), which were affected by the changes and save them manually, since re-invoking the editor after a frame database update uses the latest database information. Re-saving the page enforces the selections update. The items to be affected by the update process are the CDB labels and assigned value changes.