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SCT SYSTEMS CONTROL TECHNOLOGY, INC.

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CORPS HELICOPTER ATTACK PLANNING SYSTEM
(CHAPS)

INSTRUCTOR/LESSON GUIDES

PREPARED FOR:

DEPARTMENT OF THE ARMY
JOINT TACTICAL FUSION PROGRAM
1500 PLANNING RESEARCH DRIVE
McLEAN, VA 22102-5099

Contract Number:
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19. ABSTRACT (Continue on reverse if necessary and identify by block number) This document was developed as a student instructor/lesson guide manual for the US Army's CORPS Helicopter Attack Planning System (CHAPS). There are five manuals for CHAPS. CHAPS was developed by Systems Control Technology, Inc. Palo Alto, CA for the Joint Tactical Fusion Program Management Office (JTFPMO). CHAPS is a derivative of USAFE's Force Level Automated Planing System (FLAPS) and was extensively modified to incorporate US Army attack helicopters. The CHAPS program consists of two major stand-alone software programs: the SUPR program which defines a 3-D real-world statespace area where the helicopters would operate; and CHAPS which provides survivability estimates for attacking helicopters given a specific battlefield scenario and real-world threat. This manual compliments the CHAPS Student Training Course Guide and Positional Handbook that are used with the JTFPMO's Portable Analyst Workstation (PAWS). This manual provides an instructional outline for providing a first-time CHAPS user with On-The-Job training and covers a majority of the capabilities of the CHAPS program.				
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CHAPS INSTRUCTOR/LESSON GUIDE

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INSTRUCTOR/LESSON GUIDE

Training Activity

COURSE TITLE: CORPS HELICOPTER ATTACK PLANNING SYSTEM

DATE: TBD

INSTRUCTOR/LESSON GUIDE NUMBER: 1

TERMINAL OBJECTIVE: To acquaint the students with the purpose and functions of CHAPS.

CLASSIFICATION: UNCLASSIFIED

TOPIC: INTRODUCTION TO CHAPS

ENABLING OBJECTIVES:

TIME: 3 hrs

CLASSROOM: TBD

LABORATORY: TBD

REFERENCES: CHAPS POSITIONAL HANDBOOK, FLAPS USERS MANUAL, FLAPS DATABASE ADMINISTRATORS MANUAL, CHAPS STUDENT'S TRAINING COURSE GUIDE

INSTRUCTIONAL MATERIALS:

Instructional Reference:

Instructional Aids: Viewgraphs,
Overhead projector
Slides, Slide projector

CRITERION TEST:

HOMEWORK:

<u>Accession For</u>	
NTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
<u>By</u>	
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A-1	

I. INTRODUCTION

A. Lesson Objectives

To acquaint the students with the purpose and capabilities of CHAPS.

B. Lesson Overview

The primary function of CHAPS is to be a CORPS helicopter attack planner. to accomplish this objective CHAPS has the following capabilities:

1. automatically creates minimum risk routes through a threat area known as a statespace. Minimum risk routes take into account terrain masking effects calculated from digitized terrain elevation data and relative threat lethality.
2. displays routes on a digital map background
3. allows the user to "manually" modify routes
4. allows the user to suppress/eliminate individual threats and reroute based on changed threat lethality (statespace)
5. allows the user to see a detailed analysis of the planned routes
6. allows the user to observe multiple route coordination.

II. PRESENTATION

- A. The purpose of CHAPS is to be a mission planning system for Corps helicopter attack planning.
 1. CHAPS is a operational/demonstration system.
 2. Potential targets are predetermined.
 3. Tasking to potential targets is predetermined.
 4. Routing is output from CHAPS.
 5. Fuel constraints are noted when applicable.
- B. CHAPS displays routes on digital maps, and is mouse driven for a more friendly user interface.
 1. Map manipulation functions give the user geographic reference.
- C. CHAPS automatically creates minimum risk routes through a threat area known as a statespace.
 1. Relative threat lethality information is combined with intel on threat locations to create a statespace area through which minimum risk routing is performed.
 2. Terrain masking effects are calculated from Digitized Terrain Elevation Data and taken into account when calculating statespace danger. Terrain masking effects are only calculated for fixed or squatter threat types.
 3. A multiple pass dynamic programming algorithm creates multiple routes through the statespace. Route segments are of variable length, with a minimum length of one grid (currently 1 nm).

D. CHAPS allows the user to modify individual routes.

1. MANUAL allows the user to add or delete waypoints, or to reoptimize routes along different paths.
2. MANUAL shows approximate fuel consumption figures, along with relative danger indicies for the leg just modified and for the entire route.

E. CHAPS allows the user to suppress/eliminate threats, and to reroute for minimum risk routing based on the modified statespace.

1. SUPPORT allows the user to eliminate the danger in the statespace from a specific threat.
2. REROUTE automatically reroutes the helicopters through the modified statespace.

F. CHAPS allows the user to see a detailed analysis of planned routes.

1. REVIEW allows the user to output to file a detailed leg by leg analysis of the route showing danger, distance, heading, total route danger, total route distance, and a list of all threats whose threat envelope the route enters.

G. CHAPS allows the user to see multiple route, in-flight coordination.

1. Shows a time phased display of created and modified routes.
2. Allows user to perform enroute deconfliction.

III. SUMMARY

CHAPS is a helicopter attack planning system which automatically generates minimum risk routes, allows the user to modify the routes, suppress threats, and generate detailed analysis of the routes.

IV. APPLICATION

CHAPS demonstration.

INSTRUCTOR/LESSON GUIDE

COURSE TITLE: CORPS HELICOPTER ATTACK PLANNING SYSTEM
Training Activity

DATE: TBD

INSTRUCTOR/LESSON GUIDE NUMBER: 2

TERMINAL OBJECTIVE: To have the students be able to start the program, and operate the pop-up and text menus.

CLASSIFICATION: UNCLASSIFIED

TOPIC: GETTING STARTED IN CHAPS

ENABLING OBJECTIVES:

TIME: 1 hr

CLASSROOM: TBD

LABORATORY: TBD

REFERENCES: CHAPS POSITIONAL HANDBOOK, CHAPS STUDENT'S TRAINING COURSE GUIDE, FLAPS USERS MANUAL, FLAPS DATABASE ADMINISTRATORS MANUAL

INSTRUCTIONAL MATERIALS:

Instructional References:

CRITERION TEST:

Instructional Aids: Viewgraphs,
Overhead projector

HOMEWORK:

I. INTRODUCTION

A. Lesson Objectives

To enable the students to start up CHAPS, and to operate the pop-up and text menus.

B. Lesson Overview

CHAPS is run on a Microvax II based PAWS (Portable ASAS/ENSCE WorkStation) system (Figure 1). Standard VMS system commands are used to login and move to the appropriate subdirectories in which CHAPS may be run.

Pop-up menus are graphics oriented, and require the user to select options using the PAWS mouse.

Text menus appear in a window on the text screen. They must be responded to via the keyboard. Text menus are used primarily for database functions.

II. PRESENTATION

A. The PAWS system is a Microvax based graphics oriented computer workstation.

1. The PAWS system configuration
 - a. The text screen (Figure 1).
 - b. The graphics (map) screen (Figure 1).
 - c. The PAWS mouse (Figure 2).

B. How to Login and run CHAPS

1. Creating a login window. A login window is created by positioning the mouse at the place you would like to have the window on the text screen and clicking the left mouse button. It is a good idea to position the window in the lower portion of the screen since CHAPS pop-up menus will primarily use

the upper portion. A small pop-up menu will appear - select "CREATE NEW VT220 WINDOW" from the menu by positioning the mouse over the selection and clicking the left button. A login window will be created for you.

2. Login procedure. Enter login account name and password. These will be provided for you.
3. How to run CHAPS. Enter command provided to run CHAPS. You will see "READ IN PREVIOUS FILES (Y/N)?". Type 'Y' and hit <return>. Wait while the files are opened. When they have finished, you will see the Main Menu come up (Figure 3). You are ready to begin issuing CHAPS commands. When you have finished using the program, always exit using the exit command on the Main Menu, DO NOT use ^C (CTRL C) or ^Y (CTRL Y) to exit the program.

C. Pop-up menus

1. Getting the first pop-up menu. Type the command S7 in at the Main Menu and hit <return>. You will see a pop-up Main Menu appear on the upper right of the text screen (Figure 4). All pop-up menus have a black title bar across the top with the name of the menu in it. The menu names can be used to reference menu documentation.
2. Selecting items from a pop-up menu. Select items from the pop-up menu by moving the mouse over the option you want to select and clicking the left button on the mouse.
3. Moving pop-up menus. Pop-up menus can be moved. This can be important if the login window you created is underneath a pop-up window and you need to see it. To move a pop-up window, position the mouse on its title bar. Press and hold down the

left button. While the button is still depressed, move the mouse to the position on the screen you would like to have the pop-up moved to and let go of the button. You will see the outline of the pop-up move across the screen as you do this and the menu will appear again when you release the button.

4. Scroll bars (Figure 5).
5. Getting out of pop-up menus. Most pop-up menus will have the option "Exit" or "Exit this menu". Select this when you want to get out of a menu. Some menus have the option "OOPS". Select this option when you made a mistake getting to this menu.

D. Input Boxes

1. Input boxes require the user to type input from the keyboard.
2. Type in information requested on title bar of input box in the format specified. Be sure that you follow the format specifications exactly.
3. For input boxes with multiple fields, use the tab or arrow keys to move through the fields. A carriage return indicates input has been complete for all fields.

A geographical point can be specified in any of the following four ways:

1. An optional UTM zone and a 6, 8 or 10 character UTM co-ordinate." The UTM zone defaults to 31U, 32U or 33U, depending on the UTM co-ord."
For example: 32U PA19199600.
2. Latitude/longitude in degrees, minutes, optional seconds, " optional tenths of seconds and hemisphere."
For example: 503010.2N 0104050.5E

3. Decimal latitude/longitude with a minus sign used for South" latitude or West longitude.
For example: 50.5028 10.6807.
4. Latitude/longitude in degrees, minutes, hundredths of minutes" and hemisphere."
For example: 5030.17N 01040.84E.

E. Text menus

1. Selecting items from a text menu.
2. Paging through text menus.
3. Toggle menus.
4. Active windows and the black cursor. If you have opened more than one window on the workstation there will only be one active window at a time. The active window will have a solid black cursor in it. You cannot type information into a window that is not active. To change the active window, position the mouse somewhere in the window you want to be active and click the left button.

F. Messages

1. Messages appear in the text menu window.
2. Messages may require a response from the user. Sometimes the user is required to enter a carriage return. The message will explain what you are to do.
3. Messages are documented in the CHAPS positional handbook.

III. SUMMARY

CHAPS operates in a standard VMS, Microvax II based computer environment. It has pop-up menus which are operated through use of the mouse, and text menus which are operated through the keyboard.

IV. APPLICATION

Demonstration and if practical, hands on training.

INSTRUCTOR/LESSON GUIDE

Training Activity

COURSE TITLE: CORPS HELICOPTER ATTACK PLANNING SYSTEM DATE: TBD

INSTRUCTOR/LESSON GUIDE NUMBER: 3

TERMINAL OBJECTIVE: To enable
the students to modify
the CHAPS database using
the database manager.
ENABLING OBJECTIVES:

CLASSIFICATION: UNCLASSIFIED

TOPIC: USING THE DATABASE MANAGER

TIME: 2 hrs

CLASSROOM: TBD

LABORATORY: TBD

REFERENCES: CHAPS POSITIONAL HANDBOOK, CHAPS STUDENT'S TRAINING COURSE GUIDE, FLAPS USERS
MANUAL, FLAPS DATABASE ADMINISTRATORS MANUAL

INSTRUCTIONAL MATERIALS:

Instructional References:

Instructional Aids: Viewgraphs,
Overhead projector

CRITERION TEST:

HOMEWORK:

I. INTRODUCTION

A. Lesson Objective

To enable the user to manipulate the database through the database manager.

B. Lesson Overview

1. The database is accessed solely through the text menus.
2. The database has a distinct structure, which can be compared to tabular information in a book.
3. The database manager has six database manipulation functions, plus a report generator function. The database functions are:

- a. ADD
- b. DELETE
- c. CHANGE
- d. COPY
- e. SHOW
- f. WRITE

II. PRESENTATION

- A. The database manager is accessible solely through use of the text window menus. Using text window menus is described in lesson 2.
- B. The Database structure can be compared to tables in a book, where pages are tables, lines are records, and columns are items.
 1. Tables contain information about one basic thing. Example: TGT table contains information about targets.
 2. Records contain information about a specific thing. Example: record TargetA in the TGT table contains information about Target A.

3. Items contain the actual information. Example: the item X in the record TargetA in the TGT table contains the Latitude Longitude of Target A.
4. Some items are vector items, which means they contain more than one value. Example: the number and type of weapons stored at a particular location.
5. The exact items in each table are specified in the positional handbook, under database specification.

C. The Database Manager has six database manipulation functions.

1. ADD -- to add a new record of information to a table, specify the Table to add to, the record identifier, and the data items for the record as they are requested by the program.
2. DELETE -- to delete a record or records of information from a table, specify the Table and the record(s) to delete.
3. CHANGE -- to change data in a record or records, specify the table, record(s), item(s), and data to change to.
4. COPY -- to copy a record to another record, specify the table, the record to copy, and the identifier of the new record.
5. SHOW -- to show data from a table, specify the table, record(s) and item(s) to show.
6. WRITE -- to save data in an ascii text file on disk, specify the name of the file to output to, the table and record(s) to output. WRITE does not remove data from the database.

D. The Database Manager contains a report generator which allows the user to output and create his own reports from the database.

1. To show an already created report, select REPORT from the Database Menu, then select SHOW. The report will page down the screen. To continue looking at the report, hit a carriage return. To Quit from the report hit Q.
2. To create or modify a report, type in the report name, then respond to the menus as directed. The report generator allows the user to show items, specify test conditions on records to display based on items, modify headers, and

sort on non-vector items.

III. SUMMARY

The database manager allows the user to manipulate the contents of the database. To use the database manager it is important to understand the database structure which is specified in the positional handbook by table. The database manager also allows the user to create and output tabular format reports.

IV. APPLICATION

Demonstration, if practical, hands on training.

INSTRUCTOR/LESSON GUIDE

COURSE TITLE: CORPS HELICOPTER ATTACK PLANNING SYSTEM
Training Activity

DATE: TBD

INSTRUCTOR/LESSON GUIDE NUMBER: 4

TERMINAL OBJECTIVE: To enable
the students to use the
CHAPS display capability.

CLASSIFICATION: UNCLASSIFIED

TOPIC: THE CHAPS DISPLAY

ENABLING OBJECTIVES:

TIME: 2 hrs

CLASSROOM: TBD

LABORATORY: TBD

REFERENCES: CHAPS POSITIONAL HANDBOOK, CHAPS STUDENT'S TRAINING COURSE GUIDE, FLAPS USERS
MANUAL, FLAPS DATABASE ADMINISTRATORS MANUAL

INSTRUCTIONAL MATERIALS:

Instructional References:

Instructional Aids: Viewgraphs,
Overhead projector

CRITERION TEST:

HOMEWORK:

I. INTRODUCTION

A. Lesson Objectives

To enable the students to use the CHAPS display capability!

B. Lesson Overview

1. Graphics Displays

2. Map Displays

II. PRESENTATION

A. Graphics Displays

These options allow the user to change the color graphics overlaying the map. Changes are made by toggling on or off selections on the menu and then selecting the DISPLAY option to update the graphics display (Figure 1).

1. Select threats -- may select all threats, select by type, or select individual threats. Select threats works in conjunction with CIRCLES, EXPOSURE, and Threat IDS.
2. Circles -- Toggles threat radius circles on or off. This option works in conjunction with the SELECT THRT option.
3. Exposure -- Toggles terrain masked threat exposure contours on or off. This option works in conjunction with the SELECT THRT option.
4. Threat IDS -- Toggles threat IDS on or off. This option works in conjunction with SELECT THRT.

5. Danger -- Toggles threat danger contours on or off. If toggled on, the user must enter the danger contour levels he wishes to see.
6. Plan -- Toggles the routes in the current plan on or off.
7. Legend -- Toggles legend on or off.
8. Terrain -- Toggles terrain contours on or off. If toggled on, the user must enter the terrain elevation levels he wishes to see.
9. Features -- Toggles all features in the FEAT table on or off.
10. FLOT -- Toggles FLOT on or off.
11. Bases -- Toggles base IDs on or off.
12. TGT -- Toggles target IDs on or off.

B. Map Displays

These options affect the map. These options work independently from the graphics options. Selection of any of these options will cause the map to update immediately and any of the graphics options that have been toggled since the last time the DISPLAY option was selected will be forgotten. Always select DISPLAY after toggling graphics options to protect your selections from being lost.

1. Map scales -- map scales available are 1:1M, 1:500k, 1:250k, 1:100k, 1:50k depending on location. Click on desired map scale.
2. Scenario -- displays the defined scenario over minified 1:1M maps.

3. 0.5X, 0.75X, 1X, 2X, 3X zoom options -- zooms to the specified magnification of the current map scale. Zoomed area is centered on current map.
4. Magnify -- magnify creates a cursor area in which the digital map (at the current scale) is magnified. Clicking the left mouse button causes the whole screen to zoom to a 2X of the current map. Clicking the center mouse button causes the map to return to the original 1X zoom. Clicking the right mouse button causes an exit from magnify and returns the zoom scale to 1X. When the map is zoomed in magnify, the classification is shown over the cursor box, and the display and cursor roam over the entire map picture.
5. Intensity -- Allows the user to change the map display intensity. You must select a number between 0.01 and 0.99 for the intensity level. It is a good idea to lower the map intensity to make the overlying graphics more visible.
6. Jump To -- Allows the user to input a new latitude and longitude or UTM for the center of the map.
7. Roam -- Allows the user to move the map slightly in one of eight directions: North, South, East, West, Northeast, Northwest, Southeast, and Southwest.
8. Gray Map -- Toggles the map background between color and gray tones.
9. Slide Map -- Allows the user to graphically move the displayed region.
10. Location -- Allows the user to graphically select a point and returns the location and elevation of the point.

III. SUMMARY

Display is divided into two types of options, graphics displays and map functions. Map functions override graphics options, and graphics functions are updated whenever display is selected. The user may display threats, routes, terrain and scenario features, and may modify the map characteristics.

IV. APPLICATION

Demonstration, and if practical hands on training.

INSTRUCTOR/LESSON GUIDE

COURSE TITLE: CORPS HELICOPTER ATTACK PLANNING SYSTEM Training Activity
DATE: TBD

INSTRUCTOR/LESSON GUIDE NUMBER: 5

CLASSIFICATION: UNCLASSIFIED

TERMINAL OBJECTIVE: To enable
the students to use the
automatic routing function
of CHAPS.

TOPIC: CREATING MINIMUM RISK ROUTES WITH CHAPS

ENABLING OBJECTIVES:

TIME: 1 hr

CLASSROOM: TBD

LABORATORY: TBD

REFERENCES: CHAPS POSITIONAL HANDBOOK, CHAPS STUDENT'S TRAINING COURSE GUIDE, FLAPS USERS
MANUAL, FLAPS DATABASE ADMINISTRATORS MANUAL

INSTRUCTIONAL MATERIALS:

Instructional References:

CRITERION TEST:

Instructional Aids: Viewgraphs,
Overhead projector

HOMEWORK:

I. INTRODUCTION

A. Lesson Objectives

To enable the student to create minimum risk routes using CHAPS.

B. Lesson Overview

1. To create minimum risk routes, the database must contain tasking consistent with its database.
2. The user must select a penetration altitude.
3. Once tasking has been entered, the ROUTE function on the Plan Options Menu creates the minimum risk routes.
4. To output routes, the user may select the REVIEW functions from the Plan Options Menu. The route information goes to an ascii text file on the system. the

II. PRESENTATION

A. Tasking is presented in an input format which is read into the database and must be consistent with it.

1. The tasking form -- modify to input new tasking, to change which targets are being hit, which units are being tasked (Figure 1).
2. The DMPI table must contain the DMPI's (copy from another record if needed), and the TGT table must contain the geographic coordinates of the target.
3. The AIRS table must contain the name of the unit tasked, and a BASE table record must exist for the current location of the unit.
4. How to tell if everything's been put in correctly.

B. To create minimum risk routes select a penetration altitude via the PENETRATE option on the Main Menu, then the ROUTE option off the Plan Options Menu.

1. Penetrate allows the user to select the altitude of the penetrating aircraft.
2. Route generation is automatic.
3. Routes can be displayed through selecting PLAN in the DISPLAY Menu.

C. Always save routes after creating or modifying them by selecting the SAVE option from the Plan Options Menu.

. D. To output routes use REVIEW.

1. REVIEW is located in the Plan Options Menu and outputs an ascii text file.
2. To get a detailed analysis of a route use REVIEW.
(figure 1)

III. SUMMARY

Minimum risk routes are created automatically when the user selects the ROUTE option. Tasking must be input to the system before routes can be produced, and the tasking must be consistent with the database.

IV. APPLICATION

Demonstration, if practical, hands on training.

INSTRUCTOR/LESSON GUIDE

Training Activity

COURSE TITLE: CORPS HELICOPTER ATTACK PLANNING SYSTEM

DATE: TBD

INSTRUCTOR/LESSON GUIDE NUMBER: 6

TERMINAL OBJECTIVE: To enable the students to modify routes using the MANUAL function of CHAPS.

CLASSIFICATION: UNCLASSIFIED

TOPIC: MODIFYING ROUTES WITH CHAPS

ENABLING OBJECTIVES:

TIME: 2 hrs

CLASSROOM: TBD

LABORATORY: TBD

REFERENCES: CHAPS POSITIONAL HANDBOOK, CHAPS STUDENT'S TRAINING COUSE GUIDE, FLAPS USERS MANUAL, FLAPS DATABASE ADMINISTRATORS MANUAL

INSTRUCTIONAL MATERIALS:

Instructional References:

CRITERION TEST:

Instructional Aids: Viewgraphs,
Overhead projector

HOMEWORK:

I. INTRODUCTION

A. Lesson Objectives

To enable the students to modify routes through use of the MANUAL function in CHAPS.

B. Lesson Overview

1. MANUAL allows the user to modify existing routes. The user must select the route to modify from a pop-up window.
2. MANUAL displays a route/leg summary in the CHAPS text window.
3. The user may select, delete or insert waypoints in the route.
4. The user may re-optimize routes.

II. PRESENTATION

A. Getting in to MANUAL

1. The MANUAL option is located in the Plan Options Menu which is reached by selecting PLAN off the Main Menu (Figure 1).
2. Since MANUAL allows the user to modify routes, the user must select a route to modify from the SELECT MISSION pop-up box. The user may also exit MANUAL from this menu.
3. MANUAL options are selected by clicking on a command box on the graphics (map) screen. A textual route summary appears in the CHAPS text window as changes are made.
4. It is important to remember to not zoom (2X or 3X option in display) before entering MANUAL. Display the best map scale for the current routes in display, then enter MANUAL.

B. The textual summary (Figure 2)

1. Mission number, helicopter type, route section, and mode are displayed on the first line.
2. The second line of text is summary of leg previous to selected

- point (on ingress the line to the friendly side of the route, on egress the line to the hostile side of the route). The leg summary gives approximate fuel consumed, distance, danger and heading for the previous leg.
3. The third line of the text summary provides total route figures for approximate fuel consumed, distance and danger.
 4. Instructions for the user are provided on the text screen for the operation selected.

C. The map display (Figure 3).

1. The operations of MANUAL revolve around the selected point which is indicated to the user by a yellow ring drawn around the current selected point on the map display.
2. Only half of the users route (ingress or egress) is displayed at a time. The text display indicates which route half is currently displayed.

D. The command boxes

1. SELECT -- changes the current selected point. Click on the select command box, then on the point which is to become the new selected point.
2. INSERT -- inserts a waypoint after the selected point. Click on the INSERT command box, then click on the map location where the new point is to be. (Figure 3a).
3. DELETE -- deletes the current selected point. Click on the DELETE command box to delete the selected point. The new selected point will be the next point in the route after the deleted point (Figure 3b).
4. OPT -- optimizes from the end of fixed paths through the FEBA area. Click on the OPT command box, then in the general area to cross the FEBA. The program will select the closest fixed path to the cursor position, then optimize (for minimum risk routes) from the path to the target area.
5. INGRESS -- changes the portion of the route being worked on to ingress. Click on the INGRESS box.
6. EGRESS -- changes the portion of the route being worked on to egress. Click on the EGRESS box.

7. FINISH -- exit MANUAL and save the route changes. Click on the FINISH box.
 8. ABORT -- exit MANUAL without saving the changes made to the route. Click on the ABORT box.
 9. HELP -- receive help on the command boxes. HELP appears on the text screen. Click on the HELP box.
- E. Always save modified routes by selecting the SAVE option from the Plan Options Menu.

III. SUMMARY

Through the manual option the user may change his route by adding deleting or re-optimizing portions of the selected route.

IV. APPLICATION

Demonstration, if practical hands-on training.

INSTRUCTOR/LESSON GUIDE

COURSE TITLE: CORPS HELICOPTER ATTACK PLANNING SYSTEM
Training Activity

DATE: TBD

INSTRUCTOR/LESSON GUIDE NUMBER: 7

TERMINAL OBJECTIVE: To enable
the students to use the
TIME PHASE display
capability of CHAPS.
ENABLING OBJECTIVES:

CLASSIFICATION: UNCLASSIFIED

TOPIC: OBSERVING MULTIPLE ROUTE COORDINATION

TIME: 30 min

CLASSROOM: TBD

LABORATORY: TBD

REFERENCES: CHAPS POSITIONAL HANDBOOK, FLAPS USERS MANUAL, CHAPS STUDENT'S TRAINING COURSE
GUIDE, FLAPS DATABASE ADMINISTRATORS MANUAL

INSTRUCTIONAL MATERIALS:

Instructional References:

CRITERION TEST:

Instructional Aids: Viewgraphs,
Overhead projector

HOMEWORK:

I. INTRODUCTION

A. Lesson Objective

To enable the students to use the TIME PHASE display option to view multiple route coordination with CHAPS.

B. Lesson Overview

1. Time Phase allows the user to observe the relative positions of the helicopters at various points in time.
2. Time Phase is located off the Plan Options Menu, and is operated through use of command boxes located on the graphics (map) display.
3. A text display explaining the mission codes is provided in the text window.

II. PRESENTATION

A. Getting in to TIME PHASE

1. TIME PHASE is located off the Plan Options Menu. To get there select PLAN off the Main Menu.
2. TIME PHASE requires that the user provide a starting time and time increment which are a pop-up box on the text display.
3. To start the display, type a carriage return in the text window.
4. Always use the left mouse button to make selections from the command boxes.

B. TIME PHASE Command Boxes

1. ADVANCE -- moves the display forward in time from the current time by the current time increment. Click on the ADVANCE command box.
2. REVERSE -- moves the display backward in time from the current time by the current time increment. Click on the REVERSE command box.
3. START -- allows the user to change the start time and time increment for the time phased display. Click on the START command box.
4. INCREM -- allows the user to change the start time and time increment for the time phased display. Click on the INCREM command box.
5. Help -- provides on line help on TIME PHASE options. Click on HELP command box. Help will be displayed on the text display.
6. ABORT -- exit from Time Phase. Click on ABORT command box.

C. The Text Explanation

1. A text screen display of information about the current picture is provided in the text window.
2. The first line specifies start time, time increment, and current time (time display is of).
3. Additional lines coordinate mission codes (on helicopter position symbols) to mission numbers.

III. SUMMARY

Time Phased display allows the user to observe helicopter spatial positions and to show multiple route coordination.

IV. APPLICATION

Demonstration, if practical hands on training.

INSTRUCTOR/LESSON GUIDE

COURSE TITLE: CORPS HELICOPTER ATTACK PLANNING SYSTEM
Training Activity

DATE: TBD

INSTRUCTOR/LESSON GUIDE NUMBER: 8

TERMINAL OBJECTIVE: To enable the students to suppress individual threats and reroute for minimum risk based on suppression.

CLASSIFICATION: UNCLASSIFIED

TOPIC: SUPPRESSING THREATS AND MODIFYING ROUTES

ENABLING OBJECTIVES:

TIME: 2 hrs

CLASSROOM: TBD

LABORATORY: TBD

REFERENCES: CHAPS POSITIONAL HANDBOOK, CHAPS STUDENT'S TRAINING COURSE GUIDE, FLAPS USERS MANUAL, FLAPS DATABASE ADMINISTRATORS MANUAL

INSTRUCTIONAL MATERIALS:

Instructional References:

Instructional Aids: Viewgraphs,
Overhead projector

CRITERION TEST:

HOMEWORK:

I. INTRODUCTION

A. Lesson Objective

To enable the student to use CHAPS to suppress threats and to display those effects on the minimum risk routes.

B. Lesson Overview

1. Threats may be suppressed individually, which removes the danger associated with them from the statespace.
2. The REROUTE option then recomputes the minimum risk routes through the suppressed statespace.

II. PRESENTATION

- A. It is possible to eliminate the effects of a single threat through use of the SUPPORT option on the Plan Options Menu.
 1. It is recommended that the user know in advance which threat(s) he wants to suppress. To do this, the use of the display of threat circles and id's be used from the DISPLAY Menu.
 2. To suppress a threat, select SUPPORT, then SELECT and enter the identifier of the threat to suppress. The menu will return to allow the user to the Plan Support Menu.
 3. Multiple threats may be suppressed. Each must be selected individually, however. SHOW shows the currently selected threats in the text window, CLEAR deselects all the threats selected to the point at which it was selected.
 4. When all threats, which are to be suppressed, have been selected, select the CALCULATE option which removes the danger associated with the selected threats from the statespace. When calculations are completed, the Plan Support Menu reappears, and the user may select EXIT THIS MENU.

B. It is possible to show the effects of suppressing a threat on minimum risk routes.

1. The user may not want to reroute based on threat suppression, so rerouting is performed only on command, not automatically.
2. The user can show the reduction in danger on the current routes by selecting SHOW off the Plan Options Menu, or reviewing a route.
3. To reroute, select the REROUTE option off the Plan Options Menu. The program will recalculate the routes, and will issue a series of messages which will appear in the text window. The PLAN OPTIONS menu will reappear when calculations are completed.
4. Always remember to save modified routes by selecting the SAVE option off the Plan Options Menu before exiting the menu.
5. To display the effects of suppression and rerouting, the user should enter DISPLAY from the Main Menu and toggle the danger contours and plan off and on again. The new contours and routes will be displayed.

III. SUMMARY

Threats may be suppressed, and their danger removed from the statespace area through use of the SUPPORT option. In addition, CHAPS will reroute based on the suppressed statespace on command.

IV. APPLICATION

Demonstration, if practical, hands on training.

INSTRUCTOR/LESSON GUIDE

COURSE TITLE: CORPS HELICOPTER ATTACK PLANNING SYSTEM
Training Activity

DATE: TBD

INSTRUCTOR/LESSON GUIDE NUMBER: 9

TERMINAL OBJECTIVE: To have
the students be able to
create and modify the
statespace using SUPR.

CLASSIFICATION: UNCLASSIFIED

TOPIC: CREATING AND UPDATING A STATESPACE

ENABLING OBJECTIVES:

TIME: 1 hr

CLASSROOM: TBD

LABORATORY: TBD

REFERENCES: CHAPS POSITIONAL HANDBOOK, FLAPS USERS MANUAL, CHAPS STUDENT'S TRAINING COURSE
GUIDE, FLAPS DATABASE ADMINISTRATORS MANUAL

INSTRUCTIONAL MATERIALS:

Instructional References:

CRITERION TEST:

Instructional Aids: Viewgraphs,
Overhead projector

HOMEWORK:

I. INTRODUCTION

A. Lesson Objective

To enable the student to create and modify a statespace using SUPR.

B. Lesson Overview

1. SUPR (Statespace Update Program) uses location information for threats which is pulled from a formatted ascii text file resident on the system.
2. SUPR culls old threat information out of the statespace based on the characteristics of the type of threat, and the time of last reporting.
3. SUPR allows the user to cull data from the statespace based on time and/or type of threat.

II. PRESENTATION

- ### A. SUPR uses location information from a formatted ascii text file to update the statespace.
1. The SIP (Statespace Interface Program) reformat files from a variety of automated threat reporting systems into the correct format.
 2. If no source of automated data is available, threat information may be put into a file through use of an editor. The format of this file is in the CHAPS Positional Handbook.
 3. Threat information is read in by selecting the LOCE option off the SUPR Main Menu and providing the file name of the threat position file.
 4. Threat information is stored, but the statespace is only updated on command.
 5. SUPR operates entirely through text menus.

B. SUPR culls the statespace based on the location and time of last report of a threat.

1. Threat characteristics are used in combination with last report time and location to determine if reprocessing a particular threat is required.
2. Threats which have had no report since 2 times their threat types' dwell time are deleted from the statespace.
3. Threats which have been reported, but which have moved outside the associated uncertainty ellipse of the threat are deleted from their current position, and added at their new location.
4. Threats which have not moved outside their uncertainty ellipses have the time of last siting updated, and are not moved.
5. Actual statespace updating is performed when the UPDATE option on the SUPR Main Menu is selected.

C. The PURGE option allows the user to remove certain threat information from the statespace .

1. Purge by threat type by selecting the type of threat to purge, and the WHENEVER time option.
2. Purge by time of last reporting by selecting the ALL threat types option and then specifying the time to purge from.
3. Purge by threat and time by specifying the type and time to purge on.

III. SUMMARY

SUPR allows the user to read in an ascii text file of threat locations, and create or modify the statespace based on that input data.

IV. APPLICATION

Demonstration, if practical, hands on training.