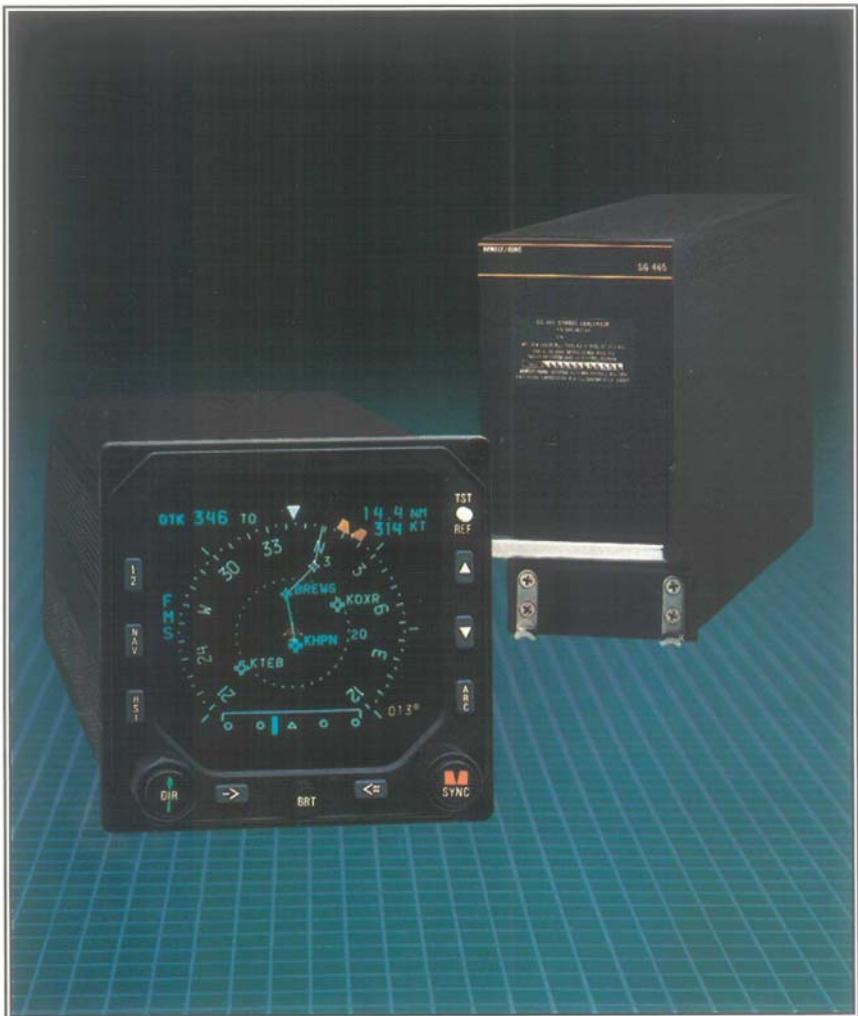


Pilot's Guide

EHI 40/50

4/5-inch  
Electronic Flight  
Instrumentation  
System





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## INTRODUCTION

The EHI 40 is the first 4" X 4" Electronic Horizontal Situation Indicator (EHSI) which features the mode controller built into the EHSI display bezel. The system displays navigation information in a multicolored graphic format. Versions of the system are offered which provide moving map displays and weather radar overlays.

Along with software release 05XX the ED 551A, 5" X 5", display unit was introduced. This marked the introduction of the EHI 50, the first 5" X 5" stand alone EHSI to be offered.

This pilot's guide describes the components, operation, and operational procedures of the BENDIX/KING EHI 40/50 Electronic Horizontal Situation Indicator (EHSI) **for software release 04XX and 05XX**. The EHI 40 system utilizes either a single control display unit, ED 461 (4"X 4"), or a separate mode controller, CP 468, and display unit, ED 462, for control and display of navigation data and sensor selection. A CP 466A or CP 466B is used when an RDS 81/82/84 or 86 weather radar is interfaced with the EHI 40, and the associated radar control/display unit is not installed. The EHI 50 system utilizes a remote mode controller, CP 468, and display unit, ED 551A, for control and display of navigation data and sensor selection. The remote SYMBOL GENERATOR, SG 464 or SG 465, interfaces with the navigation sensors to compute the EHSI display and data required by other systems on board the aircraft.

The data presented in this pilot's guide is general in nature and not tailored toward a specific installation. Each installation may comprise different equipment complements and elect to use different display options. For the unique operating procedure of a particular aircraft, refer to the appropriate approved Flight Manual Supplement for that aircraft if one is provided.

### **Equipment covered in this handbook includes:**

ED 461	Control/display unit 4" x 4"
ED 462	Display unit, 4" x 4"
ED 551A	Display unit, 5" x 5"
SG 464	EHSI-only symbol generator
SG 465	EHSI-only EFIS symbol generator
CP 468	EHSI control panel
CP 466A	RDS 81/82/84 radar control panel
CP 466B	RDS 86 radar control panel

## Introduction

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An **Abbreviated Operations** section is included in this manual, which covers the functions of the EHI 40 in minimal detail. Although it is necessary to read the entire Pilot's Guide for a full understanding of the EHI 40/50 system, the **Abbreviated Operations** section gives a brief visual overview of features and push button operations.

Please note, the EHI 40/50 display illustrations used in this pilot's guide are artist reproductions. Extreme care has been taken to ensure the accuracy of symbology placement and relative size. However, it is impossible to exactly duplicate the display of a CRT and compensate for all brightness levels, as line width displayed on the CRT increases with brightness. In many cases, unrealistic displays have been generated to provide the most informative display possible. Therefore, we ask, that you use and treat the graphic illustrations contained in this pilot's guide as they were intended, general in nature, to familiarize the pilot with the type and placement of data to be provided by the EHI 40/50.

Placement of data on the EHI 50 system, using the ED 551A, will be the same as on the EHI 40. The information displayed will be increased in size by approximately 17%.

## SYSTEM CONFIGURATION

### GENERAL

Various configurations of the EHI 40 system are currently available to fulfill the particular needs of the user. These configurations are differentiated by the number of display units, type of mode controller, number of symbol generators and the interfacing equipment.

The basic EHI 40 (four inch Electronic Horizontal Situation Indicator) system consists of one Control/Display Unit (ED 461) or one Control Panel and one Display Unit (CP 468 & ED 462), one Symbol Generator (SG 464 or SG 465), and the associated navigation sensors.

The basic EHI 50 (five inch Electronic Horizontal Situation Indicator) system consists of one Display Unit (ED 551A), one Control Panel (CP 468), one Symbol Generator (SG 464 or SG 465), and the associated navigation sensors. Refer to figure 1.1 for typical Control Display Options.

### CONTROL DISPLAY

The ED 461 Control/Display Unit incorporates the EHSI mode controller in the bezel of the display, reducing the required panel space to 4" X 4". For those installations that are not sensitive to panel space, an independent display unit, ED 462 or ED 551A, and mode controller, CP 468, are offered. Figure 1.1 depicts the EHI 40 and 50 Control Display Options.

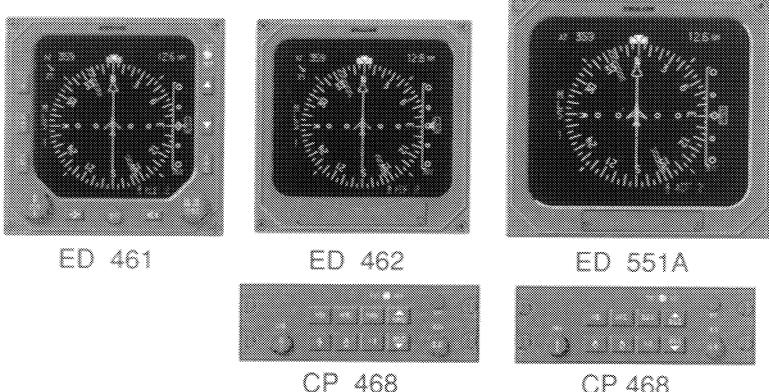


Figure 1.1  
Control Display Options.

## System Configuration

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Regardless of which display unit and method of control is selected, the systems' performance will be identical. Both mode controllers offer a simple means for the pilot to select the desired display format, such as standard compass rose or sectored compass rose, 360-degree map or sectored map and weather radar overlay. Also incorporated on the mode controller is the course and heading select knobs with auto sync. The auto sync feature will slew the heading bug to the lubber line or the course pointer to the DIRECT TO course for the selected NAV sensor providing a centered D-Bar.

## SYMBOL GENERATOR

The SG 464 EHSI-only symbol generator is a remote-mounted processing unit packaged in an ARINC 1/4 ATR short form factor. A version of the SG 465 3/8 ATR short EADI/EHSI symbol generator is offered with EHSI-only provisions.

The SG 464 or SG 465 with **software version 0501** and above will drive either the 4" X 4" or 5" X 5" displays. Figure 1.2 illustrates the available Symbol Generators.

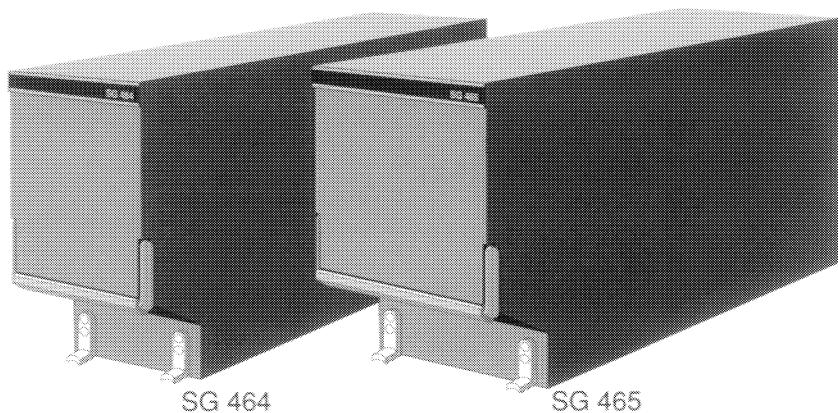


Figure 1.2  
SG 464 and SG 465 Symbol Generators.

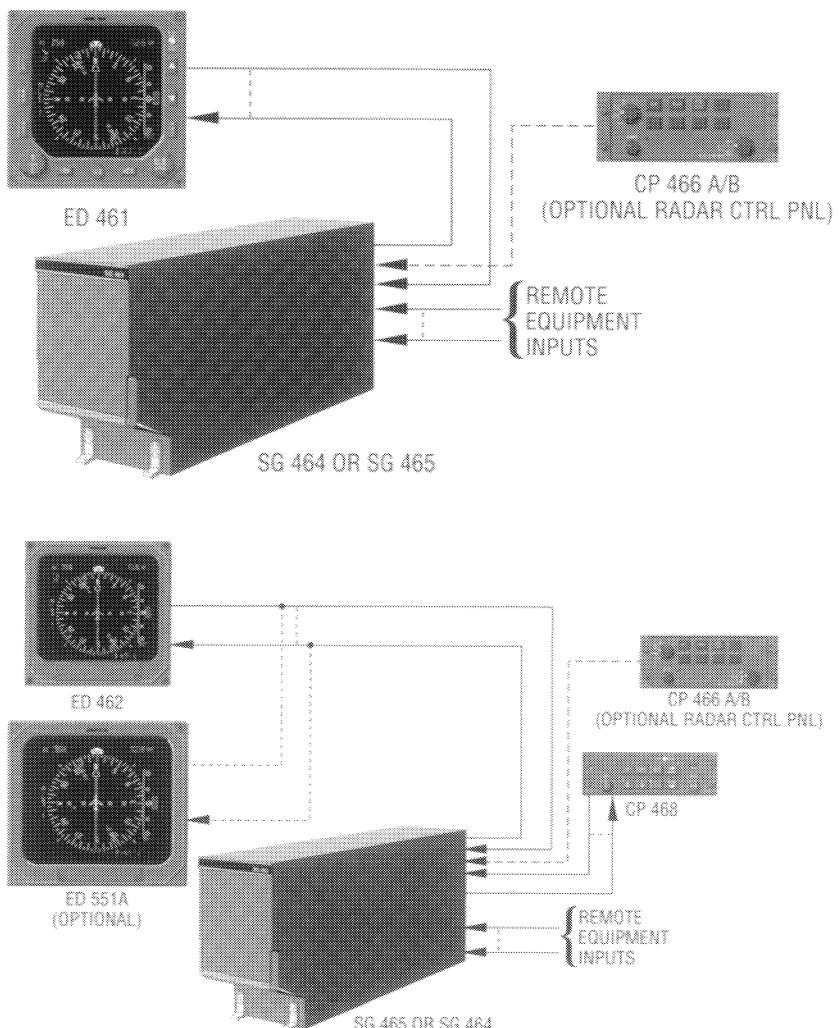


Figure 1.3  
Typical EHI 40 and 50 System Configuration Block Diagram.

## System Configuration

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### EQUIPMENT INTERFACE & OPERATING CONFIGURATION

The EHI 40/50 equipment interface and operating configuration is established at the time of installation and certification. The following pages may be used to document the particular configuration of a specific aircraft.

### SOFTWARE 04XX CONFIGURATION PAGES

1	VIEW/EDIT EQUIPMENT	PG 01		
2	ITEM	SG	RK1	RK2
3	SG NUMBER	—	—	—
4	SINGLE/DUAL	—	—	—
5	DU TYPE	—	—	—
6	ATTITUDE/HDG #1	—	—	—
7	ATTITUDE/HDG #2	—	—	—
8	RATE OF TURN	—	—	—
9	ADF #1	—	—	—
10	ADF #2	—	—	—
11	VOR/ILS #1	—	—	—
12	VOR/ILS #2	—	—	—
13	..MORE..			

1	VIEW/EDIT EQUIPMENT	PG 03		
2	ITEM	SG	RK1	RK2
3	DME #1	—	—	—
4	DME #2	—	—	—
5	MLS #1	—	—	—
6	MLS #2	—	—	—
7	FMS #1	—	—	—
8	FMS #2	—	—	—
9	RNAV #1	—	—	—
10	RNAV #2	—	—	—
11	TACAN #1	—	—	—
12	TACAN #2	—	—	—
13	..MORE..			

1	VIEW/EDIT EQUIPMENT	PG 04		
2	ITEM	SG	RK1	RK2
3	VNAV	—	—	—
4	RADAR ALT	—	—	—
5	AFCS TYPE	—	—	—
6	AFCS COMMAND BAR	—	—	—
7	AFCS MODE ANN	—	—	—
8	AIR DATA	—	—	—
9	RADAR TYPE	—	—	—
10	RADAR CTL PNL	—	—	—
11	RADAR INDICATOR	—	—	—
12	CHECKLIST	—	—	—
13	..MORE..	—	—	—

1	VIEW/EDIT EQUIPMENT	PG 05		
2	ITEM	SG	RK1	RK2
3	JOYSTICK	—	—	—
4	RADAR GRAPHICS	—	—	—

1	VIEW/EDIT OPERATING CHAR	PG 07		
2	ITEM	SG	RK1	RK2
3	VERT SCALE SIDE	—	—	—
4	DCLTR GS ON BC	—	—	—
5	SPARE	—	—	—
6	DISPLAY WIND VEC	—	—	—
7	DISPLAY DRIFT	—	—	—
8	DG ONLY MODE	—	—	—
9	DME DIST ONLY	—	—	—
10	RADAR ONLY MODE	—	—	—
11	HOVER MODE	—	—	—
12	.. MORE ..	—	—	—

## System Configuration

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	VIEW/EDIT OPERATING	SG	RK1	PG 08
1	ITEM	—	—	—
2	DISPLAY HDG TAPE	—	—	—
3	COMMAND BARS	—	—	—
4	ROLL INDICATOR	—	—	—
5	DCLTR UNUS ATT	—	—	—
6	CAT II AVAILABLE	—	—	—
7	PERSPECTIVE LINES	—	—	—
8	DH SELECT	—	—	—
9	CABLE MODE	—	—	—

## SOFTWARE 05XX CONFIGURATION PAGES

	VIEW/EDIT EQUIPMENT	SG	RK1	PG 01
1	ITEM	—	—	—
2	SG NUMBER	—	—	—
3	SINGLE/DUAL	—	—	—
4	DU TYPE	—	—	—
5	ATTITUDE/HDG #1	—	—	—
6	ATTITUDE/HDG #2	—	—	—
7	RATE OF TURN	—	—	—
8	ADF #1	—	—	—
9	ADF #2	—	—	—
10	VOR/ILS #1	—	—	—
11	VOR/ILS #2	—	—	—
12	..MORE..	—	—	—

	VIEW/EDIT EQUIPMENT	SG	RK1	PG 02
1	ITEM	—	—	—
2	DME #1	—	—	—
3	DME #2	—	—	—
4	MLS #1	—	—	—
5	MLS #2	—	—	—
6	FMS #1	—	—	—
7	FMS #2	—	—	—
8	RNAV #1	—	—	—
9	RNAV #2	—	—	—
10	TACAN #1	—	—	—
11	TACAN #2	—	—	—
12	..MORE..	—	—	—

---

1	VIEW/EDIT EQUIPMENT			PG 03
2	ITEM	SG	RK1	RK2
3	VNAV	—	—	—
4	RADAR ALT	—	—	—
5	AFCS TYPE	—	—	—
6	AFCS COMMAND BAR	—	—	—
7	AFCS MODE ANN	—	—	—
8	AIR DATA	—	—	—
9	RADAR TYPE	—	—	—
10	RADAR CTL PNL	—	—	—
11	RADAR INDICATOR	—	—	—
12	CHECKLIST	—	—	—
13	..MORE..	—	—	—

---

1	VIEW/EDIT EQUIPMENT			PG 04
2	ITEM	SG	RK1	RK2
3	JOYSTICK	—	—	—
4	RADAR GRAPHICS	—	—	—
5	HOMING #1	—	—	—
6	HOMING #2	—	—	—

---

1	VIEW/EDIT OPERATING CHAR			PG 06
2	ITEM	SG	RK1	RK2
3	VERT SCALE SIDE	—	—	—
4	DCLTR GS ON BC	—	—	—
5	FULL TIME FMS MAP	—	—	—
6	DISPLAY WIND VEC	—	—	—
7	DISPLAY DRIFT	—	—	—
8	DG ONLY MODE	—	—	—
9	DME DIST ONLY	—	—	—
10	RADAR ONLY MODE	—	—	—
11	HOVER MODE	—	—	—
12	MFD NAV CONTROL	—	—	—
13	.. MORE ..	—	—	—

## System Configuration

---

	VIEW/EDIT OPERATING	SG	RK1	PG 07 RK2
1	ITEM	—	—	—
2	DISPLAY HDG TAPE	—	—	—
3	COMMAND BARS	—	—	—
4	ROLL INDICATOR	—	—	—
6	DCLTR UNUS ATT	—	—	—
7	CAT II AVAILABLE	—	—	—
8	PERSPECTIVE LINES	—	—	—
9	DH SELECT	—	—	—
10	CABLE MODE	—	—	—
11	SEL HDG SYNC	—	—	—
12	SEL CRS SYNC	—	—	—

## DETAILED OPERATING CONTROLS

All possible Interfacing Equipment is described in this section, all may not be active in a specific installation.

The Detailed Operating Controls section of the EHI 40/50 Pilot's Guide will describe the operation of both the ED461EHSI and the ED 551A EHSI; the ED 461 combination display/EHSI mode controller, the CP 468 dedicated stand-alone EHSI mode controller and the CP 466A/B radar control panels. For clarification on a particular display or operational feature refer to section IV. EHSI DISPLAYS or section V. OPERATING INSTRUCTIONS. Figure 2.1 shows the ED 461 combined control/display unit and figure 2.2 shows the CP 468 dedicated stand-alone EHSI mode controller and companion ED 462 display unit



Figure 2.1  
ED 461 EHSI.

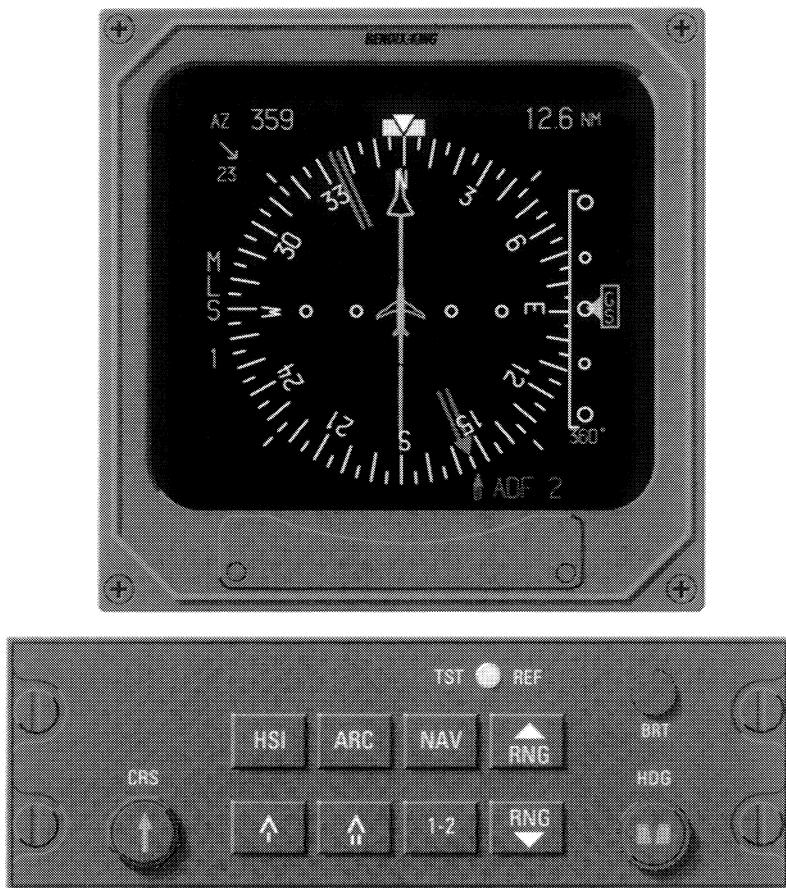


Figure 2.2  
ED 462 Display Unit & Companion  
CP 468 EHI Control Panel.

### EHSI CONTROLS (ED 461 & CP 468)

#### 1-2 NAVIGATION SYSTEM SELECT



The 1-2 button is used to cycle between primary navigation sensor system #1 and #2 for display. The primary NAV system selected is annunciated as sensor 1 or sensor 2 on the EHSI. Example, if VOR 1 is being displayed and the 1-2 button is pressed, VOR 2 will become the

displayed sensor. If only one of a sensor is installed the display will not cycle and the sensor annunciation will not show a system number. For example **ADF** would be displayed (not ADF 1) in installations containing a single ADF.

**NOTE:** *Software release 0402 added "FUNCTION NOT IMPLEMENTED" annunciation when either the 1-2, RMI or NAV sensor select button is pressed and it is not active in the system. A yellow FUNCTION NOT IMPLEMENTED will be displayed in the center of the screen.*

#### NAV NAVIGATION SENSOR SELECT



During installation, the EHI 40/50 symbol generator was programmed with the type and quantity of each piece of interfacing equipment. Not all the equipment interfaced to the EHI 40/50 is usable for primary navigation. The EHI 40/50 creates and maintains in permanent memory a list of the interfacing navigation sensors.

The **NAV** push button is used to select which NAV sensor provides primary navigation data. A press of the **NAV** sensor select button sequentially selects the next available sensor from the list of those installed. Primary Navigation Data is defined as the distance in the upper right corner, selected course, course pointer and deviation.

The Primary Navigation Sensor is annunciated at the side of the display unit opposite the vertical scale. Only those sensors interfaced to the EHI 40/50 in a specific installation will be selectable for use and display.

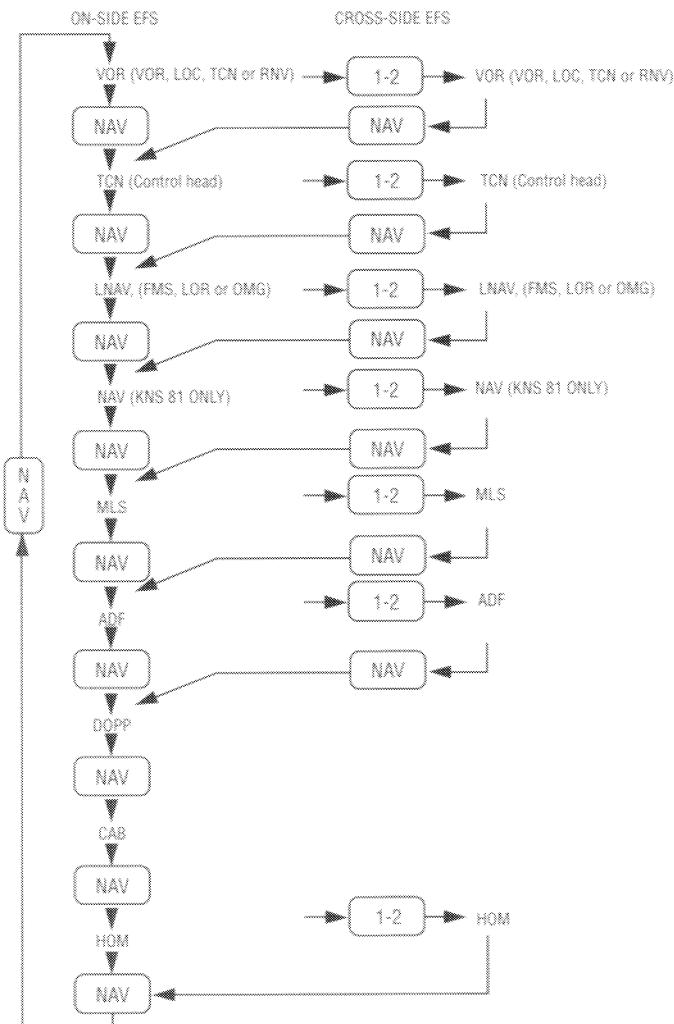
For installations with dual VOR/ILS receivers and a KNS 81, the KNS 81 will be programmed as an RNAV. The annunciation displayed on the EHSI for this configuration will be "NAV" and will not change as modes on the KNS 81 are changed. The sensor annunciation and associated navigation data colors will change to match the normal enroute or approach color scheme, green for on-side approach navigation data, cyan for on-side non-approach navigation data and yellow for off-side navigation data.

Software 0401 added two new navigation sensor options, Doppler (DOPP) and Cable (CAB). These sensors require unique display

## Operation

formats, therefore when they are selected for display their unique format will be presented and are not changeable by the HSI or ARC button.

The following is an all-inclusive list, in order, of primary navigation sensors that may be interfaced with the EHI 40/50:



See Section 4 for display details on Doppler, Cable and Homing.

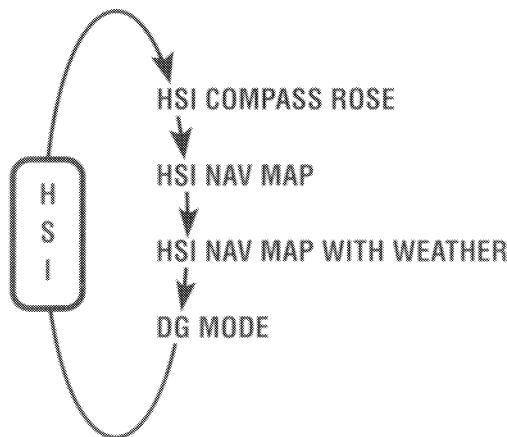
**NOTE:** If a number 2 NAV sensor has been selected for display on the number 1 EHSI by pressing the 1-2 button and the number 1 EHSI NAV push button is pressed, the next available number 1 NAV sensor will be selected.  
ADF D-Bar presentation may not be available if the ADF does not provide a suitable flag output.

#### HSI 360-DEGREE MODE SELECTION



The EHI 40/50 has four possible 360-degree display formats: standard HSI compass rose, NAV map, NAV map with weather, and DG mode. Each press of the HSI button sequentially selects the next display format. A press of the HSI button while in the ARC mode will change the display to the standard HSI compass rose.

The display selection list may include the following:



DG and WEATHER are options selected at the time of installation and are included in the system certification.

If a compatible weather radar is not installed, the weather option will not be in the sequence.

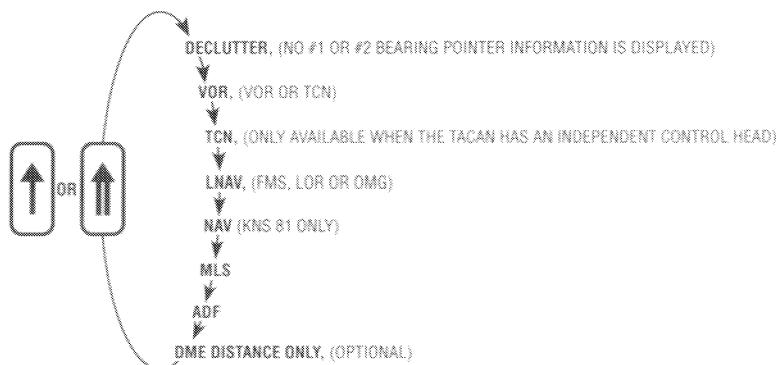
## Operation

Software release 0501 added a Heading Bug to the DG mode. Primary use of this display format is for training or as an option to provide an uncluttered display for an NDB approach (using the EHSI as an ADF RMI).

### BEARING POINTER SELECT

The bearing pointer select buttons work in a similar manner as the NAV sensor select button. A press of the bearing pointer button sequentially selects the next available sensor for display. The bearing pointer sensor list contains only those sensors which have bearing information capabilities. If the selected sensor has distance information paired with it, that distance will also be displayed below the sensor annunciation. An optional push button sequence allows independent selection and display of the respective DME distance without the presence of the bearing pointer.

The following is an all-inclusive list, in order, of the bearing pointer sensors that may be interfaced with the EHI 40/50:



Only those sensors interfaced to the EHI 40/50 will be included in the sequence.

Software release 0501 allows single bearing sensors to be displayed on either bearing pointer.

**Example:** For a single ADF installation, the ADF bearing pointer may be displayed on either the single or double bar pointer. The annunciation associated with either bearing pointer will be ADF, not ADF 1 or ADF 2.

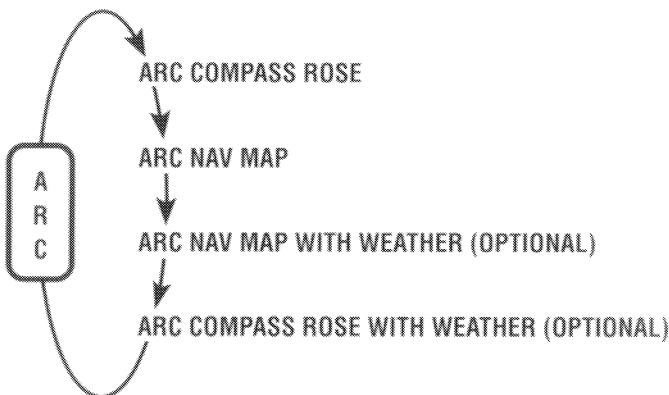
**ARC SECTORED MODE SELECTION**

The ARC mode provides the pilot a large scale view of the CDI by presenting an approximate 85-degree sector display of the compass.

The EHI 40/50 has five possible ARC sectored display formats: standard HSI compass rose, NAV CDI map, NAV CDI map with weather and standard HSI compass rose with weather. Software release 0501 provides a configuration option, selectable at the time of installation and certification, that allows a weather only mode to be selected on the MFD. A press of the ARC button will sequentially select the possible display formats.

A press of the ARC button while in the 360-degree mode will result in an ARC presentation of the same format. For example, if the 360 NAV MAP WITH WEATHER mode is being displayed and the ARC button is pressed the resulting display format will be ARC NAV MAP WITH WEATHER.

The ARC display selection list may include the following:



WEATHER is an option selected at the time of installation and is included in the system certification. If a compatible weather radar is not installed, the weather option will not be in the sequence.

Software release 0501 provides MFD, multi function display, capabilities. If an MFD is installed, an additional ARC format option is offered,

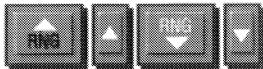
## Operation

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selectable at the time of installation and certification, which provides an uncluttered weather radar presentation. The MFD ARC weather only format provides a typical weather radar presentation, no navigation data is presented when this mode is selected.

Refer to RADAR CONTROLS in this section for details on weather radar operation.

### RANGE SELECTION



A press of the **RANGE DOWN** button selects the next lower range to be displayed while in the NAV MAP or WEATHER modes of operation. Once the lowest selectable range is reached, the **RANGE UP** button must be used for a range change.

The operation of the **RANGE UP** button is similar to the **RANGE DOWN** except it selects the next higher range to be displayed while in the NAV MAP or WEATHER modes of operation.

### TST/REF



The TST/REF button performs three functions: SELF TEST display, Ground speed or Time-to-Station selection and LNAV MAP formatting.

**TST**— To display the EHSI system SELF TEST, press and hold the TST/REF button for 3 seconds. Upon entering Self Test, a test pattern will be displayed. In the center of the test pattern, either a **SELF TEST PASS** or **SELF TEST FAIL** will be annunciated. The SELF TEST display will remain until the TST/REF button is pressed again.

**NOTE:** *If the SELF TEST FAIL message is annunciated, the system should be serviced.*

### REF GROUND SPEED or TIME-TO-STATION selection

The TST/REF button allows alternate selection of Ground speed or Time-to-station as calculated by the selected primary NAV system. When Ground speed or Time-to-station information is available it will be displayed below the distance information in the upper right corner of the display. If the information is not provided, the associated annunciator will be removed. The alternate selection of Ground speed and Time-

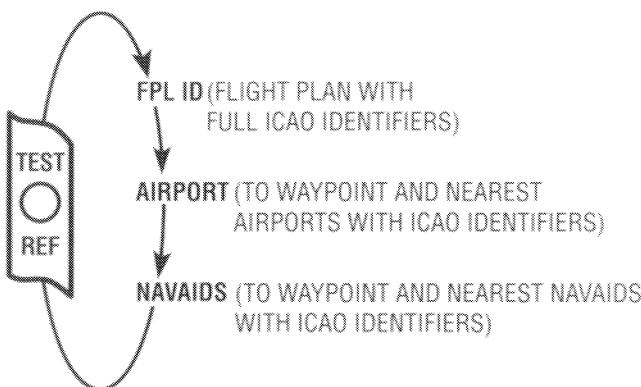
To-Station will not be allowed in the MAP mode with an LNAV selected as the primary navigation source.

The EHI 40/50 will calculate ground speed and time-to-station in installations which use an ARINC 568 type DME. If a conventional DME indicator is also used, differences in ground speed and time-to-station display may be noticed.

### REF MAP FORMAT

When the selected EHI 40/50 display is LNAV MAP, the TST/REF button allows selection of the desired NAV MAP format. To determine the present MAP format momentarily press the TST/REF button. The momentary button press will activate the present MAP format annunciation. If the displayed format is desired, no additional action is required; the format message will be removed within 10 seconds. If a different format is desired, sequence through the list by momentarily pressing the TST/REF button until the desired format is displayed. Approximately 10 seconds after the last button press, the map format annunciation will be removed.

The following is an all-inclusive list, in order, of the possible NAV MAP formats:



**NOTE:** *Depending upon the Flight Management System installed, the above format options may not be fully supported. Systems such as the BENDIX/KING KNS 660 and KLN 88, that support the GAMA 429 LNAV databus will provide the above format options.*



### COURSE SELECT KNOB

Rotation of the COURSE SELECT knob allows the course pointer and digital course to be set at the desired course.

Both the ED 461 and CP 468 provide a "DIRECT TO" feature. Pushing the center of the ED 461 Course Select knob or pulling the CP 468 COURSE SELECT knob will cause the course pointer and digital course read out on the EHSI to slew to the direct course to the selected NAV AID or active waypoint.

If the selected NAV sensor is an LNAV system, it may have modes of operation that control the selected course. During these LNAV modes of operation the EHI 40/50 COURSE SELECT knob will be inactive.



### HEADING SELECT KNOB

Rotation of the HEADING SELECT knob allows the heading bug on the EHSI to be rotated to the desired heading.

Both the ED 461 and CP 468 provide a "HEADING SYNC" feature. Pushing the center of the ED 461 heading select knob or pulling the CP 468 HEADING SELECT knob will cause the heading bug on the EHSI to slew to the present aircraft heading (lubber line).



### DISPLAY BRIGHTNESS CONTROL

The BRT knob controls the display brightness.

**NOTE:** *The display brightness control provides full range dimming to allow night operation in no- or low-light situations. The lower limit of the display brightness may appear as an inoperative tube during normal daylight operation. It is therefore advisable to check the BRT knob setting during preflight test.*

*To ensure maximum display tube life, it is highly recommended that the display be operated at the lowest acceptable brightness level.*

## RADAR CONTROLS, (CP 466A & CP 466B)

The following section provides general operating information on EFS 40/50 radar control panels, CP 466A & CP 466B. The CP 466A is used when an RDS 81, RDS 82, RDS 82VP or RDS 84, RDS 84VP is installed. The CP 466B is used when an RDS 86 or RDS 86VP is installed. For detailed information on the specific weather radar functions refer to the appropriate radar pilot's guide.

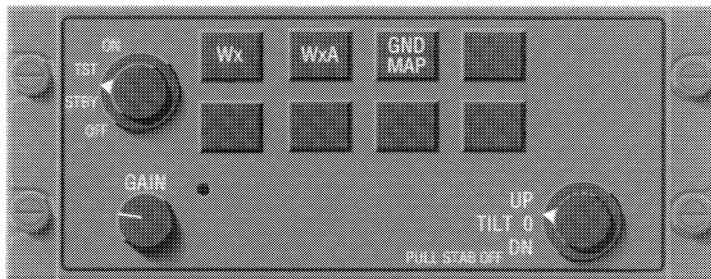
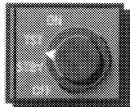


Figure 2.3  
CP 466A EHI Control Panel.

OFF-STBY-TST-ON



The rotary OFF-STBY-TST-ON knob selects the desired operating condition for the radar.

**OFF-** Disables the ART (Antenna, Receiver and Transmitter) power supply. "OFF" will be displayed on the radar mode line, lower left of the display.

**STBY-** After 30 seconds in this mode, the system is in a state of readiness. No radar transmission occurs, and the antenna is parked in the down position. "STBY" is displayed in the lower left corner of the display, if a weather mode is selected.

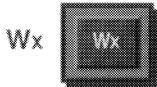
**TST-** Causes the test pattern to be displayed on the indicator, if a weather mode is selected. "TEST" will be displayed on the radar mode line, in the lower left corner of the display.

**ON-** Selects the condition of normal operation, allowing for weather

## Operation

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detection or other modes of operation. Depending on the selected mode of operation WX,WXA or MAP will be displayed on the radar mode line, in the lower left corner of the display.



Selects the weather mode (Wx) when pressed. "Wx" will be displayed on the radar mode line, in the lower left corner of the display, if a weather mode is selected.



Selects the weather-alert mode when pressed. Magenta area of storm flash between magenta and black. "WxA" will be displayed on the radar mode line, in the lower left corner of the display, if a weather mode is selected.



Places the radar in ground mapping mode of operation; disables weather-alert feature and activates gain control. (Magenta is not active in the GND MAP mode.)



Manual gain control becomes active when GND MAP is selected. In all other modes, gain is internally set.



Only present when an RDS 86 or RDS 86VP is installed. Automatic Range Limit displays a blue area behind weather systems where weather detection is no longer possible because of attenuation.



Permits manual adjustment of antenna tilt 15 degrees up or down for best indicator presentation. The tilt angle is displayed in the lower left corner of the display on the radar tilt annunciator line.

If a CP 466A is installed, pull the Tilt selector knob, PULL STAB OFF, for "STAB OFF" operations. "STAB OFF" will appear on the Radar Fault/Warning line in the lower left corner, just under the Antenna Tilt annunciation line.

If a CP 466B is installed, pull the Tilt selector knob, PULL AUTO, for Auto Tilt. If selected, an "A" will follow the tilt direction indication arrow

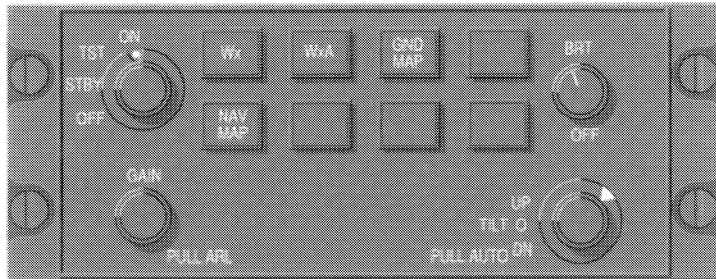


Figure 2.4  
CP 466B EHI Control Panel.



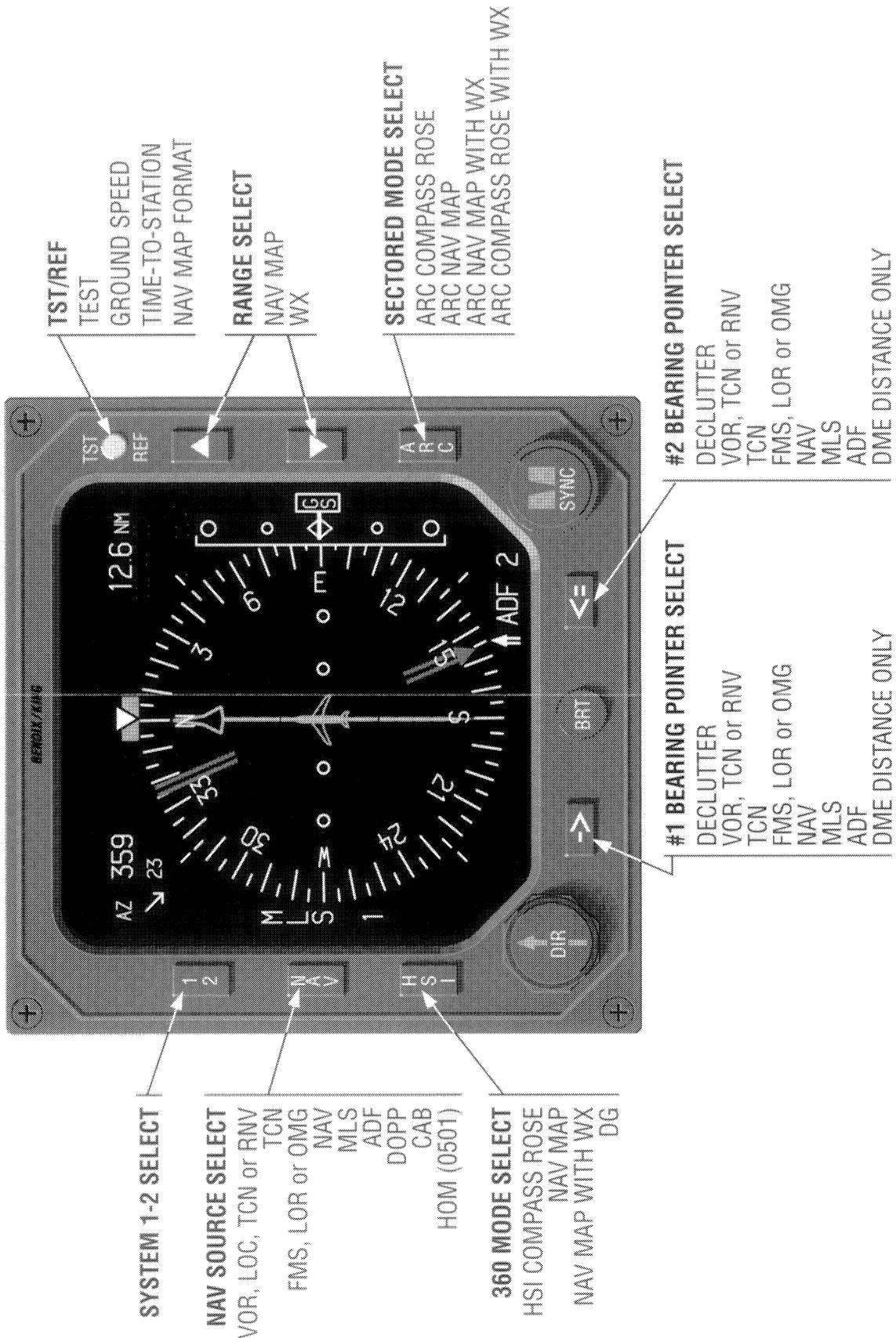


Figure 3.1  
ED 461 EHSI Operation.

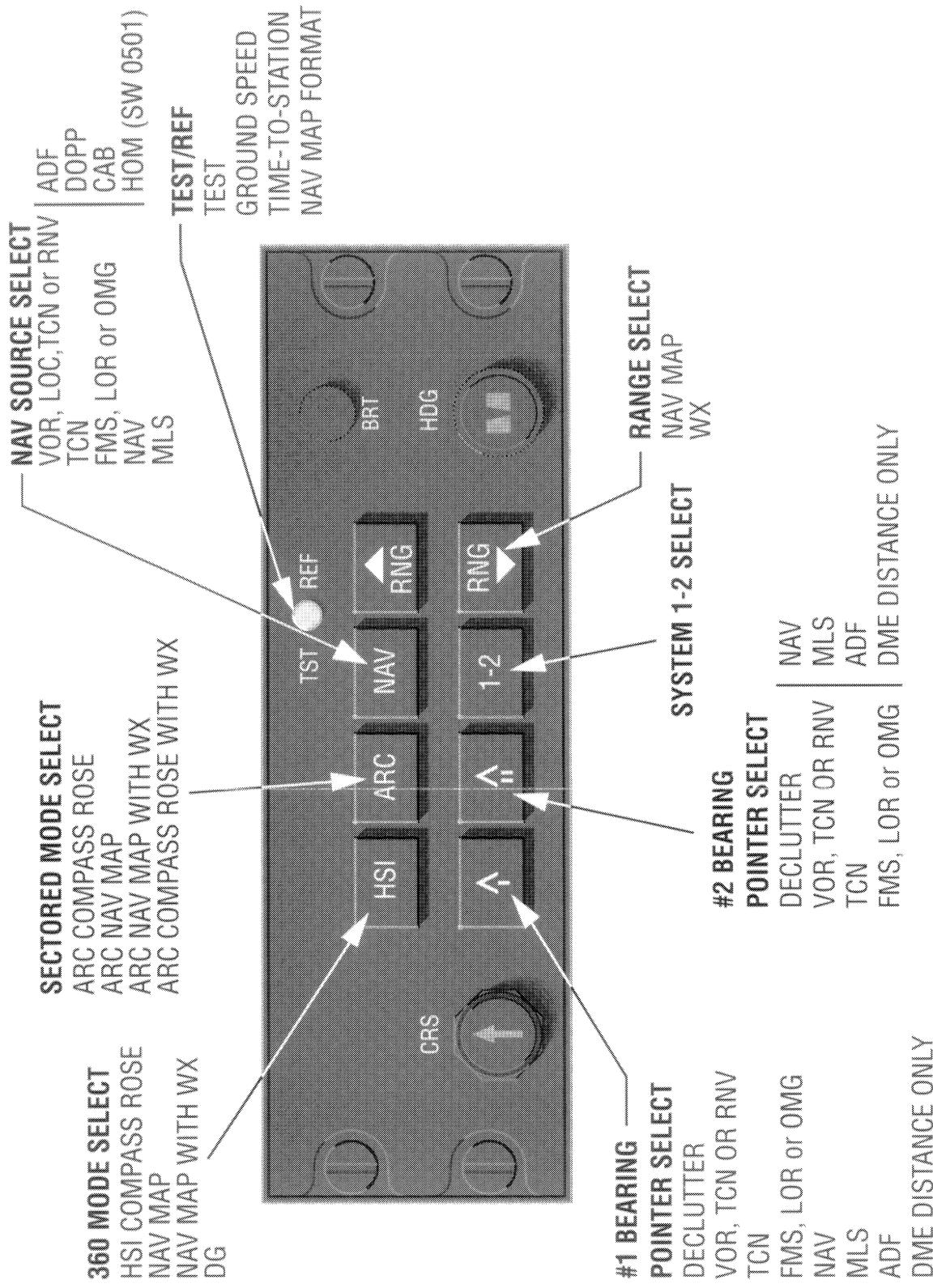


Figure 3.2  
CP 468 EHSI Control Panel Operation.

## EHSI DISPLAYS

### EHI 40/50 COLOR STANDARDS

The EHI 40/50 uses a defined color set which aids the pilot in interpreting displayed information. A brief summary of the color set is as follows:

Warnings .....	Red
Cautions/Abnormal Source .....	Yellow
Scales and associated figures .....	White
On-side approach navigation data .....	Green
Cross-side NAV data .....	Yellow
On-side non-approach navigation data .....	Cyan
On-side commanded data .....	Green
Cross-side commanded data .....	Yellow
Selected heading, DME HOLD annunciation .....	Orange
Selected source .....	Matches NAV data color
Selected active route/flight plan .....	Green/Cyan
Cross-side selected active route/flight plan .....	Yellow
Held DME distance display .....	White

For an example of the color usage refer to figure 4.1 at the back of this section, Typical EHI 40/50 Color Displays.

### STANDARD EHSI DISPLAYS

Refer to Figs. 4.5 and 4.6 while reviewing the STANDARD EHSI DISPLAYS.

### NORMAL COMPASS CARD

360-degree rotating white compass scale indicates aircraft heading referenced to white triangular heading index (lubber line). The compass scale is divided in 5-degree increments with the 10-degree divisions being approximately twice as long. Fixed 45-degree index marks are adjacent to the compass scale.

Free DG (directional gyro) operation will be annunciated by a yellow FDG to the left of the lubber. This annunciation will only be supported in installations with an ARINC 429 AHRS (Attitude Heading Reference System) that supports Free DG (directional gyro) operation via the digital data bus.

## EHSI Displays

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Dual selectable compass inputs are provided for. If a second compass system is installed, the cross-side source is selected by means of a remote mounted switch. Once the alternate compass source has been selected, a yellow **DG 1** or **DG 2** will be displayed to the left of the lubber line.

In a dual EHI 40/50 installation, if both systems use the same DG source, annunciations will appear on both EHSI's. The EHSI that is using its normal DG source will annunciate a yellow "DG" with a yellow box around it to indicate that its primary DG source has been selected for use on the other EHSI. The EHSI that is using its alternate DG source will annunciate a yellow "DG1" or "DG2" as applicable with a yellow box around it to indicate the DG source being used. For example, if the co-pilot were to select his alternate compass source, DG 1, the following annunciations would appear on the pilot and copilot EHSI's.

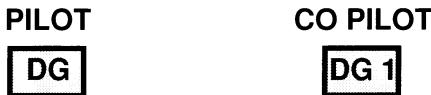


Figure 4.2  
Same DG Source Selection.

When two compass sources are available, the two inputs are compared for agreement within 6 degree. If the two inputs do not fall within the allowable limits, a yellow comparison warning, HDG under a double-ended arrow, will be annunciated to the right of the lubber line. See figure 4.2, EHSI SYMBOL DEFINITION.

## NAVIGATION SOURCE ANNUNCIATION

A vertical three- or four-letter alphanumeric readout located on the left or right side of the display, depending on vertical scale side selection, indicates the navigation sensor and system selected as the primary navigation sensor.

For dual sensor installations the cross-side navigation system may be selected by pressing the 1-2 push button. Example: pilot selecting copilot's navigation system or copilot selecting pilot's navigation system. The 1/2 push button will not be active if the system configuration does not support two of the same type nav sensors.

Green annunciations indicate an on-side approach NAV system is being displayed. Yellow indicates the cross-side system has been selected. Cyan annunciations apply to on-side non-approach NAV systems. These color codes apply to the NAV source annunciator, CRS pointer, deviation bar, CRS line in MAP mode, CRS, distance, groundspeed and time-to-saturation readouts.

If both sides select the same navigation source (i.e., pilot and copilot select VOR 2) a yellow box is placed around the navigation source annunciator on both EHSI's.

If both sides select their respective cross-side navigation source (i.e., pilot selects system 2, copilot selects system 1) then both NAV source annunciators will be yellow with no yellow box.

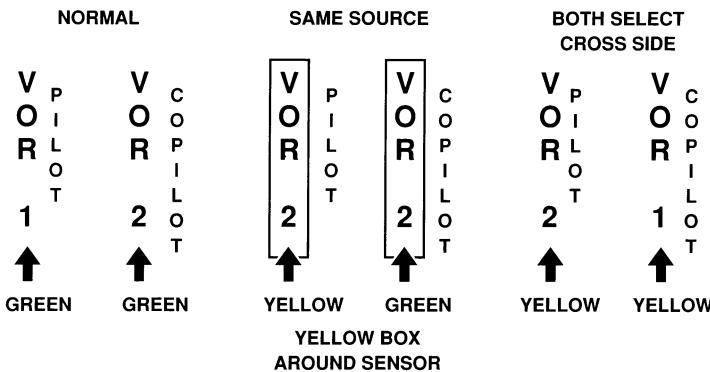


Figure 4.3  
Same Navigation Source Selection Annunciation

**NOTE:** *Same source annunciation rules also apply to the Directional gyro.*

## SYMBOLIC AIRCRAFT

The orange symbolic aircraft provides a visual reference of the aircraft present position in relationship to the deviation bar.

## HEADING SELECT “BUG”

A notched orange heading bug is manually rotated around the compass scale by the heading select knob on the control panel. In the 360-degree compass mode a full time digital readout of the selected

## EHSI Displays

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heading is displayed below the vertical deviation scale position. In the ARC mode a digital heading read out is displayed when the heading bug is not completely in view. The digital readout will be positioned just inside the compass scale on the side nearest the heading bug. Once set, the heading bug rotates with the compass card. The heading bug is used to indicate desired heading and provides selected heading reference for autopilot steering.

A RED X will be drawn through the heading bug if there is a heading select **knob failure** on the EHI 40/50 control panel.

### COURSE SELECT

The CRS control knob rotates the course pointer about the compass scale and sets digital course readout. Once set, the course pointer rotates with the compass card. The selected course indicates desired navigation course to be flown. Depending on the LNAV (long range navigation) installed, the course pointer may automatically be positioned to the DTK (desired track) when LNAV is selected as the primary sensor. When LNAV is the selected sensor and DTK is displayed, the EHI 40 course select knob is disabled.

In the upper left corner of the display an alphanumeric readout announces the letters **CRS** and indicates the selected navigation course in degrees. When in a nav map display mode the course pointer will not be displayed, the alphanumeric readout will be the only reference for the selected course.

**NOTE:** *Desired track readout (DTK) generated by an LNAV system replaces (CRS) in LNAV mode. Some LNAV systems may display CRS or DTK depending on the selected mode. MLS may display AZ or BAZ depending on the selected mode.*

Systems with Software release 0501 retains (remember) the manually selected course, as set by the CRS knob, when the selected primary nav sensor is sequenced through the LNAV position. In previous software releases, once the LNAV sensor was displayed, its CRS or DTK would become the selected course, requiring the CRS to be reset when another primary Nav sensor was selected.

This change will allow an ILS inbound course to be selected prior to the completion of an LNAV flight leg that will be followed by an ILS approach.

In the event of a heading **failure**, the course pointer head and tail are removed and the course deviation scale is fixed in a horizontal position, providing standard course deviation information (CDI) referenced to the digital CRS selected. A RED X will be drawn through the CRS annunciation if there is a course select knob **failure**. In the event the selected course or desired track received from the LNAV becomes invalid, a RED X will be drawn through the digital readout.

**NOTE:** *The above heading **failure** mode does not apply when ADF is the primary NAV sensor. (ADFD-Bar is heading dependent and is non-operational without valid heading.)*

## LATERAL COURSE DEVIATION SCALE

Course deviation scale, two white dots evenly spaced on both sides of the symbolic aircraft, provides a reference for the course deviation bar to indicate the centerline of the selected navigation or localizer course in relation to the symbolic airplane.

The following represents the deviation scale for different navigation sources.

Lateral Deviation Scale		
AIRCRAFT DISPLACEMENT		
MODE	ANGULAR (DEGREES)	LINEAR DEV (MILES)
VOR/TAC	1 dot = 5.0 deg	
	2 dots = 10.0 deg	
ADF	1 dot = 7.5 deg	
	2 dots = 15.0 deg	
LNAV (RNAV)		1 dot = 2.5 NM
		2 dots = 5.0 NM
LNAV (RNAV) APPR		1 dot = 0.625 NM
		2 dots = 1.25 NM

**NOTE:** *Depending on the type of LNAV installed, the Lateral Deviation may be different.*

### LATERAL COURSE DEVIATION BAR

The course deviation bar represents the centerline of the selected navigation or localizer course.

If invalid or failed primary NAV sensor data is received the course deviation bar and scale are removed and a RED X annunciated.

### TO/FROM INDICATOR

A white filled arrow head near the center of the EHSI pointing toward the head (“**TO**”) or tail (“**FROM**”) of the course pointer indicates the selected course TO or FROM the station or waypoint. The **TO/FROM** annunciator is not displayed during ILS/MLS operation or when an invalid NAV signal is received .

### DISTANCE, GROUNDSPEED and TIME-TO-STATION

The EHI 40/50 provides three distance displays: the upper right corner for the selected primary NAV sensor, lower left below the #1 bearing pointer sensor annunciator for distance #1, and lower right below the #2 bearing pointer sensor annunciator for distance #2.

In the upper right corner an alphanumeric readout annunciates distance in nautical miles from the aircraft to the selected primary NAV station when in the VOR, TACAN, ILS or MLS mode or to the waypoint in the LNAV or RNAV mode. An alphanumeric readout of the aircraft groundspeed in knots (KT) or Time-To-Station in minutes (MN) will be displayed below the distance readout if such information is provided by the primary NAV sensor system. The EHI 40/50 maximum displayable ground speed is 999 KTS, Time-To-Station is 511 minutes and distance is 4,095 nautical miles. In most cases the DME will be the limiting factor in displayable data.

When the selected bearing pointer source has associated distance information, the associated distance will be displayed below the bearing pointer source annunciator.

When DME HOLD is selected the distance displayed is white in color. “H” follows GS/TIS field in upper right corner. During HOLD the displayed distance probably will not be associated with the selected bearing pointer. For more information on DME HOLD refer to that

Section.

The bearing sensor selection function offers an *optional DME-only* display feature in the cycle. If the DME-only *option* was selected at the time of installation and certification, DME #1 and #2 information may be independently selected for display in the bearing pointer information area without displaying a bearing pointer.

To annunciate operational Distance Measuring Equipment (including those associated with an RNAV or LNAV) which has not acquired lock on to the selected station, dashes of the same color as the sensor annunciator will be placed in the distance data field. If the equipment has **failed** or information is not being received by the EHI 40/50 the dashes will be Red. In both cases the NM annunciation will remain and the KT/TTS will be removed if normally displayed.

### DME HOLD

When DME HOLD is selected, the DME distance and annunciator color will change to white and remains that color until HOLD function is released. The sensor identifier (ADF, VOR ILS, etc) shall retain the original assigned color, this color difference indicates there may be no relationship between the two fields. The HOLD function is additionally indicated by an orange letter "H" which is displayed directly below and to the right of the distance information. DME groundspeed and time-to-station will not be displayed when DME HOLD is active. If the DME provides frequency information, the HELD FREQUENCY will be displayed in white where the groundspeed and time-to-station was previously displayed.

DME HOLD for BEARING POINTER/DME #1 and BEARING POINTER/DME #2 will operate as described above, but HELD FREQUENCY information will not be displayed.

Once the DME is placed in HOLD, its distance will continue to be displayed and will not be affected when bearing pointers and primary NAV sensors are changed unless the selected sensor provides range information such as an LNAV or MLS. In these cases, the held information will be replaced with the selected sensors range information.

The bearing pointer sensor annunciations located in the lower right and

## EHSI Displays

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left corners of the display also provide range information when the selected bearing sensor has associated range. If the associated range information is provided by DME then the range information and NM annunciation will change from the normal light blue or magenta color to white and be followed by an orange "H" when HOLD is activated. If an ADF is the selected bearing pointer sensor and the DME assigned to that side is placed in HOLD, the large ADF annunciation will reduce in size as the white held DME range information and orange "H" is displayed below it.

Please note that the range information being displayed is **not** referenced to the ADF, but to whatever channel the DME was tuned to when the pilot placed it in HOLD.

DME HOLD will not function when an LNAV or RNAV is the selected sensor, and is not allowed when MLS is the selected primary sensor. The associated distance field is used to display waypoint distance or distance to the MLS station.

**NOTE:** *It is important to remember that once a DME is placed in HOLD it probably is not referenced to any VOR/ILS sensor being displayed. Hold removes the dependency of the DME to the VOR/ILS control head. It is, therefore, up to the pilot to recognize that when the DME distance information color changes to white and the orange "H" is displayed, the distance presented is probably not paired to the VOR/ILS control head frequency.*

Hold is a pilot selected mode of operation for the DME. Once the pilot selects hold, it is his responsibility to remember where the DME is HELD.

DME and DME HOLD operation may vary greatly from installation to installation. This variation in operation is directly dependant upon the number and types of DME installed. To best understand how these two functions work in a particular installation, refer to the aircraft flight manual supplement or contact the installing agency for a detailed explanation.

### **BEARING POINTER**

The rotating light blue single bar #1 Bearing Pointer points in the direction of the selected bearing sensor ground station or long range NAV waypoint.

The rotating magenta double bar #2 Bearing Pointer performs the identical function for #2 bearing sensor systems.

If the selected bearing sensor is not receiving valid data, the Bearing pointer assigned to that bearing source will not be displayed. A RED X will be drawn through the selected bearing source annunciator at the bottom left or right of the display, the associated distance data will remain displayed if valid.

If the compass card is MAG (magnetic) referenced, TRUE bearing sensor pointers, such as LNAV, may be displayed if valid mag var (magnetic variation) is provided to the EHI 40/50. The TRUE sourced bearing pointer information will be converted to MAGNETIC reference. If the compass card is TRUE referenced, MAGNETIC bearing sensor pointers, such as VOR and ADF, may be displayed if valid mag var (magnetic variation) is provided to the EHI 40/50. The MAGNETIC sourced bearing pointer information will be converted to TRUE reference.

In most cases mag var is provided by an LNAV. In a single LNAV installation the EHI 40/50 will use the single mag var source to compute display correction for both number 1 and number 2 sensors. In dual LNAV installations, the on-side source of mag var will be used to compute correction unless the cross-side source is selected as the primary NAV source; then its mag var will be used.

If mag var becomes invalid, those bearing pointers displayed with mag var correction will be removed and a RED X is drawn through the sensor annunciator in the lower right or left corner.

In the event a heading failure occurs, a heading flag will be displayed to the pilot, the compass card will remain active to follow input from the compass system. Bearing pointer information will continue to be displayed. The EHI 40/50 will process the bearing information and present all bearing pointer information except ADF referenced to the compass card, the ADF bearing pointer will be relative to the nose of the aircraft and lubber line on the EHSI.

**EXAMPLE:** *Aircraft actual mag heading is 030 degrees, EHSI compass is failed and displays a heading of 090 degrees. If the VOR, TCN, RNV, OMG, FMS or LOR bearing pointer is pointing to 120 degrees, the aircraft is on the 300*

## EHSI Displays

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*degree radial of the VOR/TAC or waypoint. The bearing to the VOR/TAC or waypoint is 120 degrees. If the ADF bearing pointer is pointing to 180 degrees, right wing, the aircraft is on the 300 degree radial of the NDB. The bearing to the NDB is 120 degrees. Remember, Magnetic Bearing is the aircraft Magnetic Heading, 030 degrees, plus the Relative Bearing , 090 degrees right wing, equals 120 degrees Magnetic Bearing to the station, MH + RB = MB. Refer to figure 4.4, BEARING POINTER OPERATION WITH LOSS OF HEADING.*

### MAGNETIC/TRUE HEADING ANNUNCIATIONS

To the left of the lubber line a white “T” will be displayed when the compass card is in the true mode of operation or left blank when in magnetic mode.

Magnetic compass heading is automatically displayed unless True heading is selected by a remote switch or when the selected primary NAV sensor is an LNAV and it selects the True mode of operation. Valid mag var must be present before True heading can be selected by the LNAV.

### GLIDE SLOPE/VERTICAL NAVIGATION

When the selected primary NAV sensor is ILS, MLS or LNAV with VNAV selected, a stationary white vertical deviation scale will appear on the right or left side of the EHSI display as configured at the time of installation and certification. This scale provides a reference for the vertical deviation pointer. The deviation pointer moves in relation to the scale to indicate glide path center with respect to aircraft position.

When the on side sensor is selected for display the deviation pointer is green in color. When the off side sensor is selected for display the deviation pointer changes to yellow alerting the pilot he has select other than his on side nav sensor

If the selected sensor is ILS or MLS a “GS” will be displayed in the pointer. “VN” will be annunciated if the selected sensor is an LNAV with VNAV selected. When MLS is the selected sensor, the selected glide path angle is displayed above the glide slope deviation scale. If VNAV is displayed “FT” (feet) or “AN” (angle) will be annunciated above the vertical deviation scale.

An additional configuration *option* selectable at the time of installation and certification allows the vertical deviation scale to be *in view at all times* or only when the selected course is within 105-degrees of the aircraft heading.

***For a particular installation, refer to the Aircraft Flight Manual Supplement to determine the EHI 40/50 VNAV scale factors.***

If invalid or failed glide slope or VNAV data is received the course deviation bar and scale are removed and a RED X annunciated.

## **WIND VECTOR**

Provided the aircraft is equipped with the appropriate LNAV equipment, an *optional* full time *wind vector* indicating approximate wind direction and speed *may be displayed in white* in the upper left corner below the selected course. Wind vector information will only be available when valid data is provided by the LNAV. ***The information provided by this vector is advisory only. It is NOT intended for use during approach as critical flight data because it will become inaccurate during altitude changes.***

In single LNAV systems the wind vector data may be displayed on all EHSI displays. In dual LNAV installations the wind vector data will only be displayed from the on-side LNAV.

**NOTE:** *If the selected LNAV is configured as a Crouzet Omega, the wind vector will be displayed as a typical meteorological wind symbol.*

## **DRIFT ANGLE POINTER (LNAV only)**

The drift angle pointer is an *optional*/hollow cyan (or green in approach mode) triangular pointer which is generated by some LNAVs and rotates about the outside of the compass scale. Referenced to the lubber line, the drift angle pointer represents drift angle left or right of the aircraft heading. With respect to the compass scale, the drift angle pointer represents aircraft actual ground track.

Drift angle pointer information is provided by the LNAV and will only be displayed when the LNAV is selected as the primary NAV source and valid information is present. If the pointer information becomes invalid it will be removed from the display.

### 360 MAP DISPLAYS

Refer to Figs. 4.7 and 4.8 while reviewing 360 MAP DISPLAYS.

The EHI 40/50 provides two basic map formats, a 360-degree map display about the aircraft and an approximately 85-degree sectored map display in front of the aircraft. Information which may be displayed includes waypoints, navaids, airports and weather radar information. The type and amount of data presented on the map will depend on the interfacing equipment. When coupled with a compatible LNAV, such as the BENDIX/KING KNS 660 or KLN 88, a sum total 15 nearest waypoints, (10) navaids and airports (4) with ICAO identifiers may be displayed. When coupled with a simple RNAV, such as the BENDIX/KING KNS 81, waypoints referenced to the selected VOR may be displayed. The simplest map data is provided by plotting map symbols referenced to the aircraft using bearing and distance from the select bearing sensor.

**NOTE:** *The following will address only those areas of the EHI 40/50 map mode which are different from the standard compass presentations.*

*All map presentations provide a traditional CDI display.*

### MAP 360 COMPASS CARD

The operation of the compass card remains the same in the Map mode as in the standard EHSI display. However, the outside of the compass card now performs a secondary function by becoming the outer range ring for the Map display.

### SELECTED COURSE

The alphanumeric course select readout in the upper left corner of the display functions the same in the map mode as in the standard EHSI mode. The standard EHSI selected course pointer, to/from pointer, deviation bar and deviation scale are removed from within the compass card display. When the primary NAV sensor provides distance and bearing information the selected course pointer is replaced with the course line. If the primary NAV sensor "TO" or "FROM" waypoint or VOR is within the selected map range, a movable course line is drawn through its center. As the selected course is changed, the course line will rotate about the referenced point. If the selected primary NAV sensor is an approach on-side sensor, the inbound "TO" course line is green and the outbound "FROM" course line is white. If the selected

primary NAV sensor is LNAV or en route RNAV the inbound “TO” course line is cyan (green in approach mode). Any time the cross-side sensor is selected as the primary NAV sensor the inbound “TO” course line is yellow.

If the primary NAV sensor distance or bearing information becomes invalid the NAV symbol and course line will be removed. “NO MAP” will be displayed to alert the pilot that insufficient data is present to calculate and plot the primary NAV sensor map. “NO MAP” will also be displayed if the selected primary NAV sensor, (e.g. ILS, ADF), does not provide distance and bearing information. The lateral deviation scale will remain as long as valid bearing or deviation information is present.

## MAP COURSE DEVIATION INDICATOR

A stationary white scale along the bottom center of the display provides reference for the course deviation bar to indicate the position of the aircraft in relation to the selected navigation course. This course scale provides a conventional CDI (course deviation indicator) presentation.

When LOC is selected while in a map mode, **Back Course** annunciation and CDI needle reversal is provided when the selected course is 105 degrees from the aircraft heading. “**BC**”, in green, (yellow “BC” if cross-side sensor is selected) is annunciated left of center on the lateral deviation .

## TO/FROM

To the right of the alphanumeric Course Select a white “TO” or “FR” will replace the standard EHSI TO/FROM pointer when in non-ILS map modes.

## BEARING POINTER

While in the map modes standard EHSI bearing pointers are displayed when the selected bearing source does not have distance associated with it or when the distance is greater than the selected map range. Once the bearing source falls within display range the bearing pointer is removed and the associated map symbol is displayed.

## EHSI Displays

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The #1 system map symbol will be displayed in light blue and the #2 will be displayed in magenta as are the standard bearing pointers.

If bearing or distance information becomes invalid, the map symbol will be removed. If only the distance information becomes invalid, the map symbol will be removed and replaced with the standard bearing pointer.

**NOTE:** See **STANDARD EHSI BEARING POINTER** for details on the display of Magnetic bearing pointers when the compass card is True referenced and the display of True bearing pointers when the compass card is magnetic referenced.

## RANGE RING

A light blue range ring located half way between the center of the symbolic aircraft and the outside of the map compass scale aids in determining distance of radar returns and/or position of navaids in relation to the aircraft. Off the right wing of the symbolic aircraft, adjacent to the range ring is the range ring distance. The range ring represents half the distance to the outer range ring of the compass scale. The available ranges, selectable from the EHI 40/50 are 5, 10, 20, 40, 80, 160, 240, 320 and 1000 nm.

**NOTE:** Systems which have the RDR 1400 interfaced with the EHI 40/50 will display weather ranges of .5, 1 and 2 NM. However, due to the accuracy limitation of most NAV and LNAV receivers, the NAV MAP feature is not supported on these shorter ranges.

*TEST, STBY and WX are the only RDR 1400 mode annunciation's displayed on the EHSI. Tilt and beacon information is only displayed on the RDR 1400 Control/Display unit.*

## 360-DEGREE MAP WX RADAR (IF EQUIPPED)

If a compatible ARINC 708 weather radar such as the BENDIX/KING RDS series is installed, weather information may be selected for display. When selected, weather information will transparently overlay the existing navigation data. Light blue dotted weather radar scan limit lines provide the borders that weather information will fall within.

Depending on the installation, the EHI 40/50 may act as a weather radar range controller or as a simple remote display when the EHSI has

weather selected and matches the radar range. As a display only, if weather is selected for display and the EHSI map range does not match the selected weather radar range "WX FLT" will be annunciated in the weather radar fault/warning position. As a range controller, if the selected range does not match one allowed by the radar, "WX FLT" will be annunciated in the weather radar fault/warning position. When the 1000 NM range is selected "RANGE" is displayed and the weather radar is placed in standby. If the EHI 40/50 is the only display media for the weather radar, the radar will be placed in standby when weather is not selected for display.

**NOTE:** *EHSI installations with the BENDIX/KING RDS series radar provide dual range selection by allowing the radar indicator and EHSI or dual EHSIs to select independent ranges. Only one source of radar mode, tilt and gain is supported. When the ranges selected on the two controlling indicators do not match, the weather presentation will be updated on alternating sweeps of the radar antenna. Example: if pilots EHSI is updated on the right sweep then the radar indicator will be updated on the left sweep or vice versa.*

*In installations capable of providing weather information on three displays, the display without radar range control must match one of the controlling displays in order to present weather. If the range does not match, "WX FLT" will be annunciated in the weather radar fault/warning position.*

Four data lines are reserved below the primary NAV sensor source annunciator to display radar information. The first line displays special performance feature annunciations such as ARL (automatic range limiting). The second line annunciates the standard radar modes WX, WXA or MAP. The third line provides a digital read out of tilt angle displayed in tenths of a degree preceded by an arrow pointing up or down to indicate tilt direction. If Auto Tilt is activated, an "A" will follow the tilt arrow. The fourth line will display radar faults and warnings. The radar faults have been prioritized, if more than one fault occurs then the one with the highest priority will be displayed.

## FULL TIME LNAV MAP

Incorporated in software 0501, is an option selectable at the time of installation and certification, which allows the LNAV map to be displayed when the selected primary NAV sensor is either an ILS or ADF in the map mode.

## EHSI Displays

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Before software 0501 or after software 0501 without the full time LNAV map configuration selected, when the selected primary NAV sensor is either an ILS or ADF with the map mode selected, the “NO MAP” message will be annunciated since sufficient data is not provided to create a map presentation. However, if a bearing pointer sensor is selected which provides bearing and distance information, an appropriate map symbol will be displayed if the selected map range is greater than the distance to the navaid or waypoint, if the selected range is less the normal bearing pointer will be displayed.

If the full time LNAV MAP option is selected, the LNAV map will be presented when ever the selected primary NAV sensor is either an ILS or ADF with the map mode selected. The LNAV map will be presented all in white to show the information being displayed is not to be used as primary navigation information. The purpose of the LNAV map information being presented is to provide the pilot better orientation between his present position and intended flight plan, mainly for use during the phase of the approach while being vectored for the intercept. ***Primary navigation must be accomplished according to the raw data presented by the selected primary NAV sensor being displayed on the lateral and vertical deviation pointers, not by the LNAV map.***

The LNAV map will be displayed only if an LNAV is installed on the same side as the selected ILS or ADF primary NAV sensor and the map mode is being displayed.

**NOTE:** *Extreme care must be taken when this mode is used not to focus on the LNAV map. Depending on the LNAV being used, the accuracy may be off several miles, providing opposite fly to commands than the ILS or ADF. It is a must that the primary NAV sensor data be the data flown.*

***Not flight certified at time of publication.***

## ARC (EXPANDED SECTORED MODE) DISPLAYS

Refer to Figure 4.9 while reviewing ARC DISPLAYS.

The expanded sectored (ARC) format provides an enlarged display of weather radar information and increased resolution to navigation data due to the enlarged compass scale presentations.

**NOTE:** *The following will address only those areas of the EHI 40/50 ARC mode which are different from the standard EHSI compass or MAP presentations.*

### **HDG BUG (ALL ARC FORMAT MODES)**

Heading bug operation is the same in all modes. The only noticeable difference in the ARC mode is that the digital orange readout of selected heading is displayed only when the heading bug is not completely in view. In this event the heading readout appears on the right or left side of the compass scale depending on which side is closer to the heading bug's hidden position.

### **COURSE DEVIATION INDICATOR (EHSI ARC NON-MAP FORMAT)**

The rotating white course deviation scale operates the same in all non-map modes. The differences in the ARC modes are location and size: the scale is moved to the bottom center of the display and is slightly reduced in size.

### **CUSTOM (NON STANDARD EHSI) DISPLAYS**

The displays covered in this section are custom displays, created at the request of specific customers to satisfy unique requirements. Every attempt was made to ensure these displays followed standard EHI 40/50 colors, symbology and methodology. In some cases this was not possible, it is therefore, most important to read the following information and ensure you have very good understanding of the display and its intended use. If there are any questions concerning the following displays, contact the installing agency or a Bendix/King factory representative for additional information.

### **DOPPLER**

Refer to Figure 4.10 while reviewing the DOPPLER DISPLAY.

Incorporated in software 0401, the doppler mode, annunciated as DOPP, provides navigation information from a doppler nav sensor. Primary use of this mode is helicopter related, with the intended purpose of search and rescue hover. The DOPP mode is displayed on the EHSI as dual concentric velocity and target range circles inside the compass card. Cross bars represent components of the aircraft's left/right and fore/aft velocity.

## EHSI Displays

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Only one doppler nav system may be interfaced to the EHI 40/50 at a time. If more than one system is interfaced, it will have to be externally switched into the EHSI.

**NOTE:** *The following will address only those areas of the EHI 40/50 Doppler mode which are different from the standard EHSI presentations.*

### COMPASS CARD

The map compass card is used in the DOPP mode, the symbolic aircraft however, is the larger one used in the normal EHSI mode.

### DOPPLER VELOCITY BARS

Green bars, the length of the compass card's diameter, represent the aircraft's velocity left/right (Vx) and fore/aft (Vy) as referenced to the symbolic aircraft. The intersection of the two bars provide the sum of the two velocity components.

If the doppler velocity information becomes invalid or failed the velocity bars will be removed and a red X will be displayed in the center of the compass.

### VELOCITY AND TARGET SCALE

Two white concentric circles inside the compass card provide reference for the doppler velocity bars and LNAV target waypoint. When used as a reference for the doppler velocity these circles represent 10 and 20 KTS with the compass card representing 30 KTS of velocity. When used as a reference for the target waypoint they represent .2 NM and .4 NM with the compass card representing .6 NM.

The symbolic aircraft is one sixth the size of the compass card; making it 5 KTS or .1 NM to wing tips or tail and nose.

### LNAV GROUND SPEED READOUT

A cyan display of Ground speed information from the LNAV is provided in the upper right corner.

If the ground speed information becomes invalid or failed, a cyan FMS with a red X drawn through it will be displayed in the distance location.

## **WIND VECTOR INFORMATION**

If an appropriate LNAV is installed and providing valid information, wind information will be displayed in its normal location. See WIND VECTOR under STANDARD EHSI DISPLAYS for additional information.

## **TARGET WAYPOINT**

A cyan waypoint symbol will be displayed representing target position if an appropriate LNAV is installed and providing valid information.

## **TENDENCY CIRCLE**

A green circle, the diameter of which corresponds to 5 kts, is displayed if an appropriate autopilot is installed and providing valid command data. If the autopilot indicates winchman control, the circle will be dashed.

If the auto pilot fails, "COUPLER" in red with a red X through it will be annunciated in the upper left corner and the tendency circle will be decluttered.

## **MEMORY**

If the doppler nav sensor goes into the memory mode and advises the EHSI, "MEMORY" in orange will be displayed above the symbolic aircraft, and the velocity bars and circles will change to orange to alert the pilot.

## **HEADING BUG**

Software version 0501 added the heading bug to the Doppler display and activated the Heading datum and analog deviation outputs for autopilot coupling.

## **CABLE**

Refer to Figure 4.11 while reviewing the CABLE DISPLAY.

Incorporated in software 0401, the cable mode, annunciated as CAB, provides navigation information from a cable position sensor. Primary use of this mode is helicopter related, with the intended purpose of search and rescue hover, and heavy lift operations. The CAB mode is

## EHSI Displays

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displayed on the EHSI as dual concentric angle circles inside the compass card. Cross bars represent cable angular position left/right and fore/aft relative to the aircraft..

Only one cable sensor system may be interfaced to the EHI 40/50 at a time. If more than one system is interfaced, it will have to be externally switched into the EHSI.

**NOTE:** *The following will address only those areas of the EHI 40/50 Cable mode which are different from the standard EHSI presentations.*

### COMPASS CARD

The map compass card is used in the CAB mode, the symbolic aircraft however, is the larger one used in the normal EHSI mode.

### ANGLE BARS

Green bars, the length of the larger circle's diameter, represent the cable's position angle left/right component ( $P_x$ ) and fore/aft component ( $P_y$ ) as referenced to the symbolic aircraft. The intersection of the two bars provide the vector sum of the two position components, or actual angular position of the cable referenced to the aircraft.

If the cable sensor information becomes invalid or failed the position angle bars will be removed and a red X will be displayed in the center of the compass.

### FUNNEL SCALE

Two concentric circles inside the compass card provide reference for the cable position angle bars. A white circle represents 6 degrees and a yellow circle 12 degrees with the compass card representing 18 degrees of cable displacement.

The symbolic aircraft is one sixth the size of the compass card; making it 3 degrees to wing tips, tail and nose.

### LNAV GROUND SPEED READOUT

A cyan display of Ground speed information from the LNAV is provided in the upper right corner.

If the ground speed information becomes invalid or failed, a cyan FMS with a red X drawn through it will be displayed in the distance location.

Software release 0501 removed the LNAV ground speed readout from the cable mode display.

## **WIND VECTOR INFORMATION**

If an appropriate LNAV is installed and providing valid information, wind information will be displayed in its normal location. See WIND VECTOR under STANDARD EHSI DISPLAYS for additional information.

## **OPTIMUM CABLE POSITION CIRCLE**

A green circle, 1/12 the diameter of the compass card, is displayed if an appropriate autopilot is installed and providing valid command data. If the autopilot indicates winchman control, the circle will be dashed.

## **THRUST COMMAND**

If the cable position sensor provides the thrust command, the angle position bars and 12 degree funnel circle change to orange.

## **HEADING BUG**

Software version 0501 added the heading bug to the Cable display and activated the Heading datum and analog deviation outputs for autopilot coupling. Course datum output is not active in this mode.

## **HOMING**

Refer to Figure 4.12 while reviewing the HOMING DISPLAY.

Incorporated in software 0501, the Homing mode, annunciated as HOM, provides navigation information from a homing sensor. Primary use of this mode is to provide the pilot left right navigation information to a beacon. The HOM mode is displayed in much the same way as the standard EHSI. Since the homing sensor only provides left right guidance information the alphanumeric selected course display is removed from the upper left corner as is the course pointer head and tail. The deviation scale and bar are displayed in a horizontal manner and do not rotate with the compass card. The display provided

## EHSI Displays

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resembles a standard EHSI with a heading failure. However, the compass card will function as normal.

Two homing sensors may be interfaced to the EHI 40/50 at a time.

Since the basic Homing display closely resembles the standard system, all normal display options are provided in the Homing mode. All 360 EHSI and ARC formats are operational as is the addition of bearing pointers.

**NOTE:** *The following will address only those areas of the EHI 40/50 Homing mode which are different from the standard EHSI presentations.*

### LATERAL DEVIATION BAR

Green bar, the length of a standard EHSI D-Bar, represents fly left, fly right commands as referenced to the symbolic aircraft.

If the Homing sensor information becomes invalid or failed the deviation bar and scale will be removed and a red X will be displayed in the center of the compass.

### SENSITIVITY SCALE AND POINTER

If the installed Homing sensor provides a sensitivity output, a stationary white vertical sensitivity scale will appear on the right or left side of the EHSI display as configured at the time of installation and certification. This scale provides a reference for the sensitivity pointer, which moves in relation to the scale to indicate signal strength being received by the Homing sensor.

The sensitivity pointer will have “SN” displayed inside it to advise the pilot of the type of data he is monitoring.

When the on side sensor is selected for display the sensitivity pointer is green in color. When the off side sensor is selected for display the sensitivity pointer changes to yellow alerting the pilot he has selected other than his on side nav sensor.

If invalid or failed sensitivity data is received the sensitivity deviation pointer and scale are removed.

**NOTE:** *The scale and pointer used to display sensitivity information is the same that used for Glideslope and Vertical Navigation.*





Figure 4.1  
Typical EHI 4050 Display.



Figure 4.4  
Loss of Heading Display.

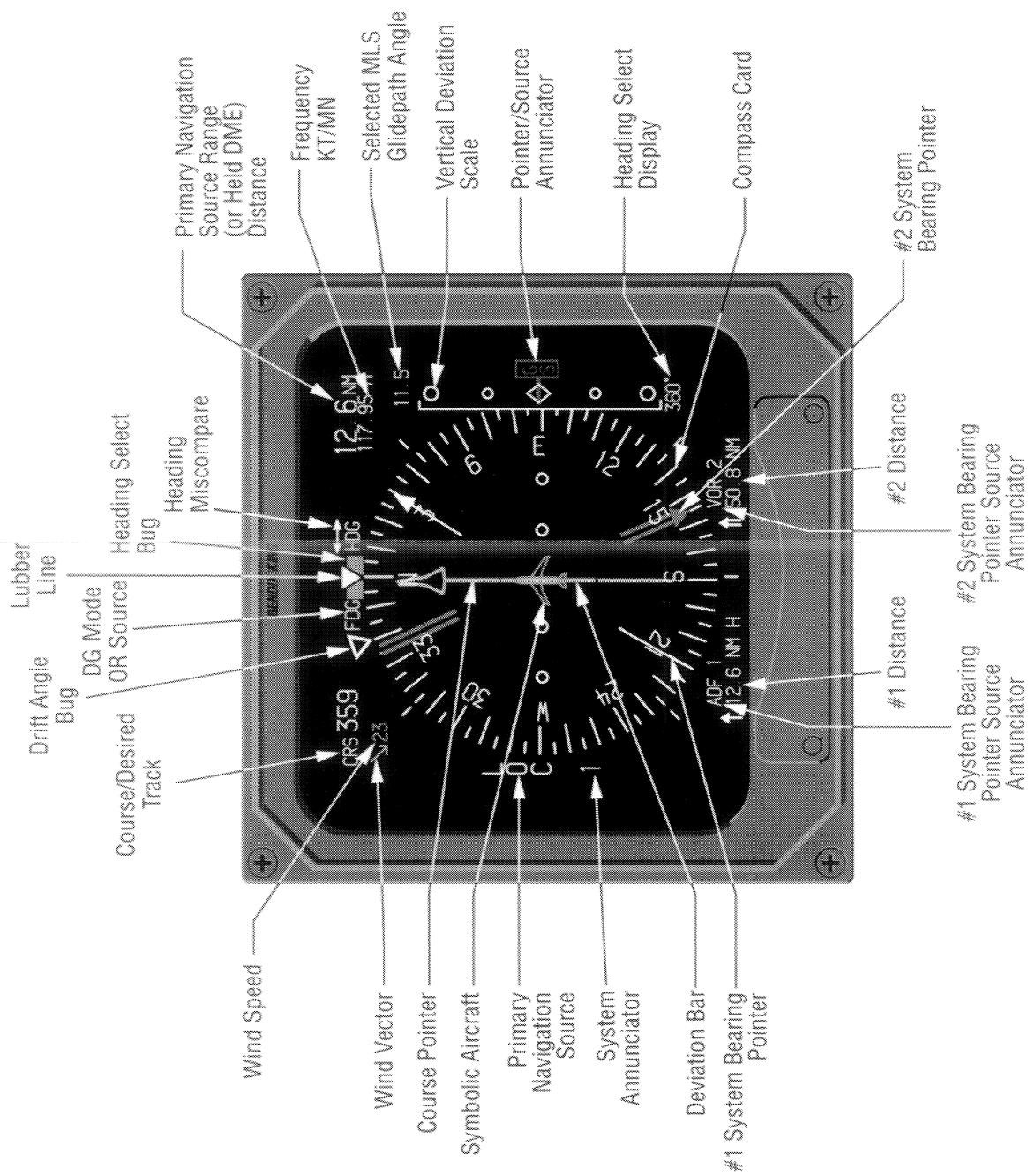


Figure 4.5  
EHSI Symbol Definition.

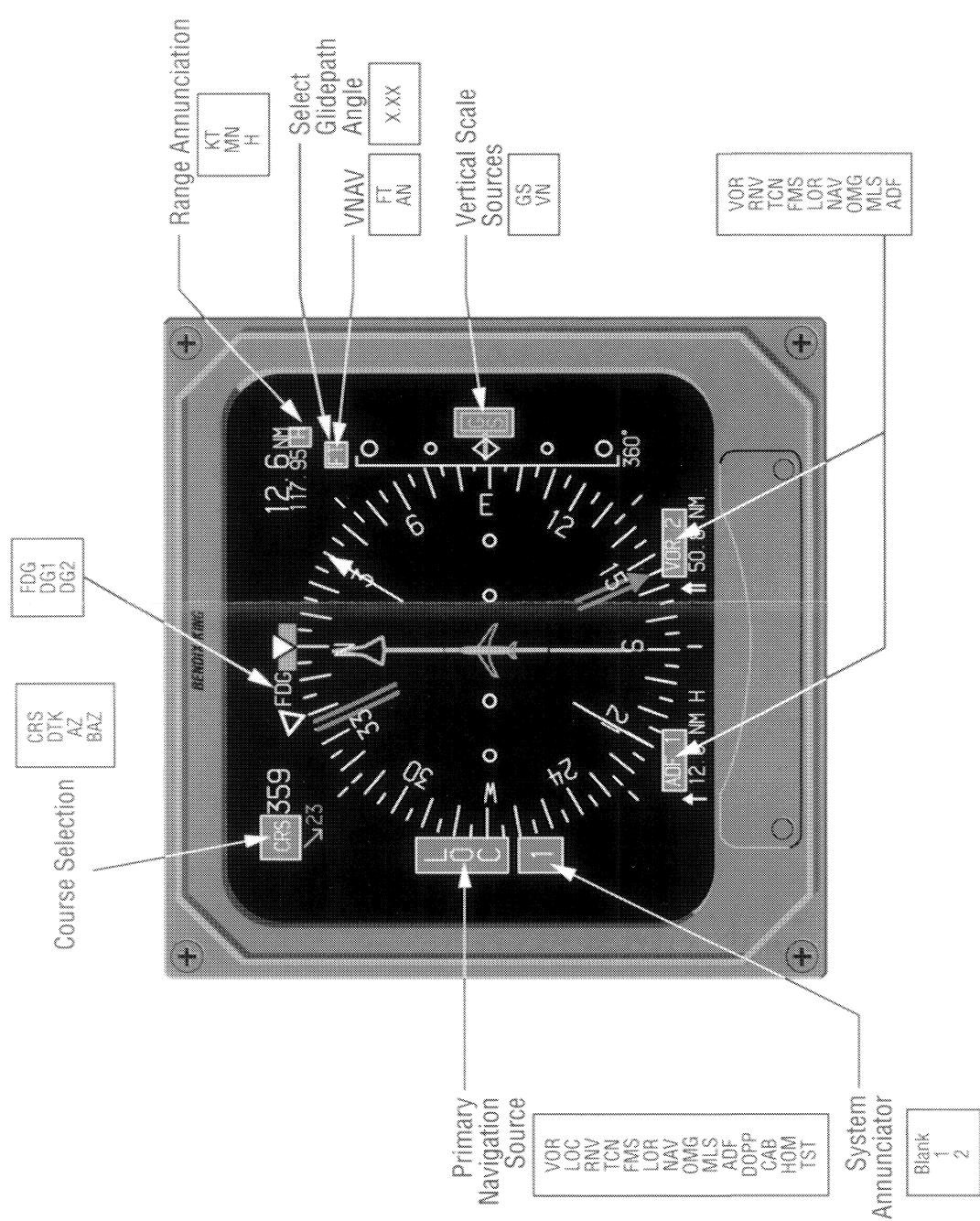


Figure 4.6  
EHSI Symbol Definition.

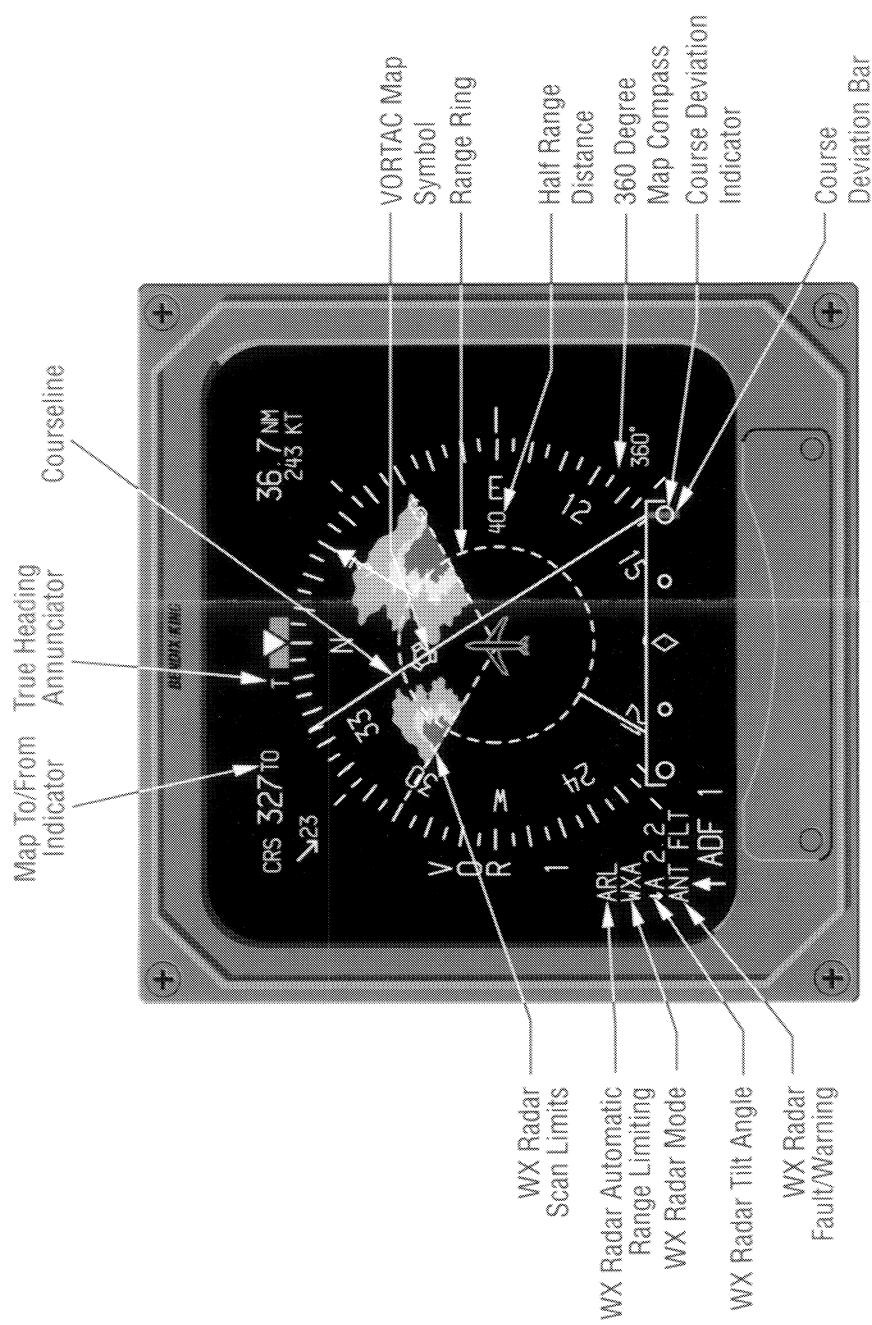


Figure 4.7  
EHSI Map Symbol Definition.



Figure 4.8  
EHSI Map Symbol definition.

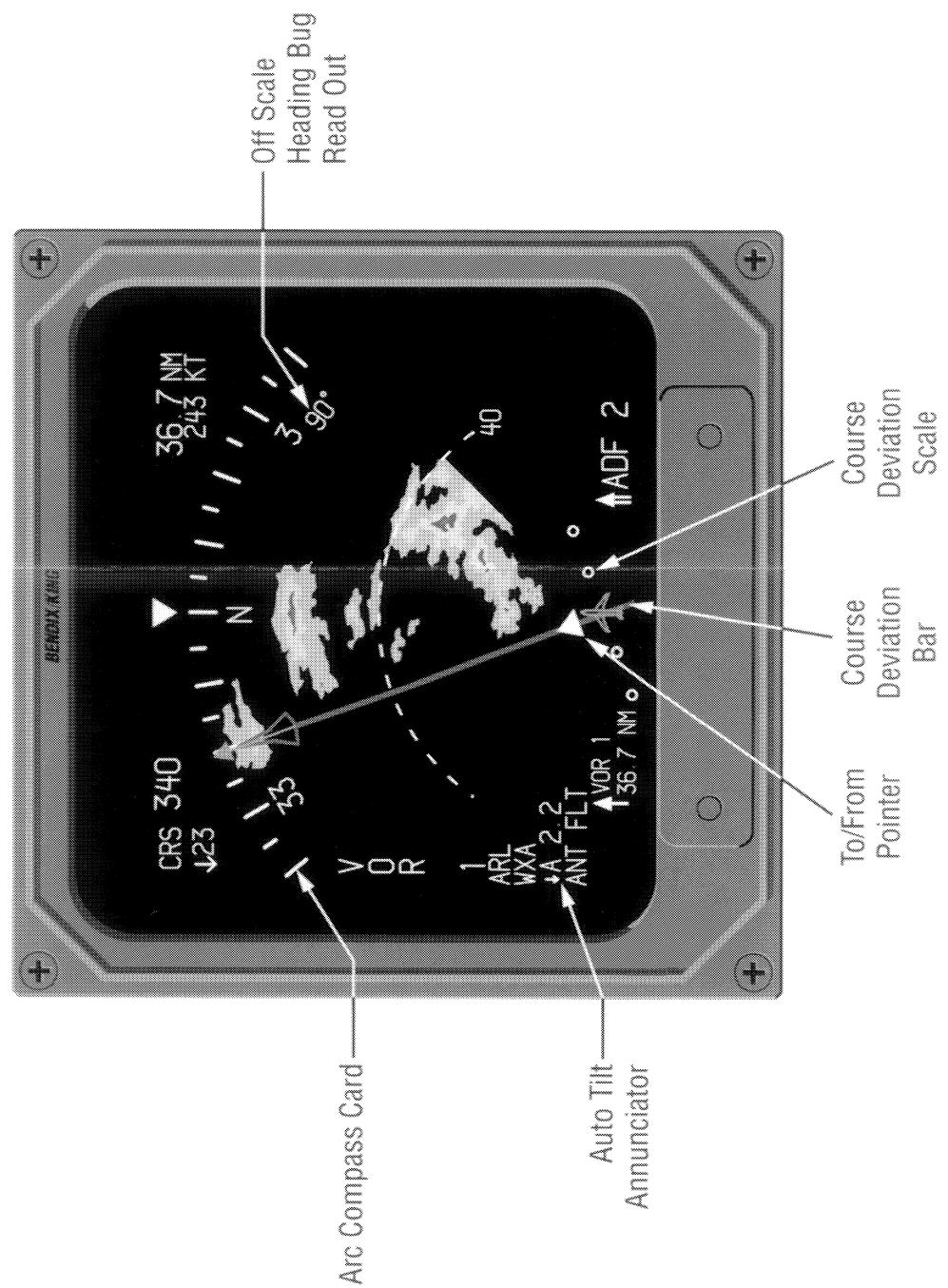


Figure 4.9  
EHSI ARC Map Symbol Definition.

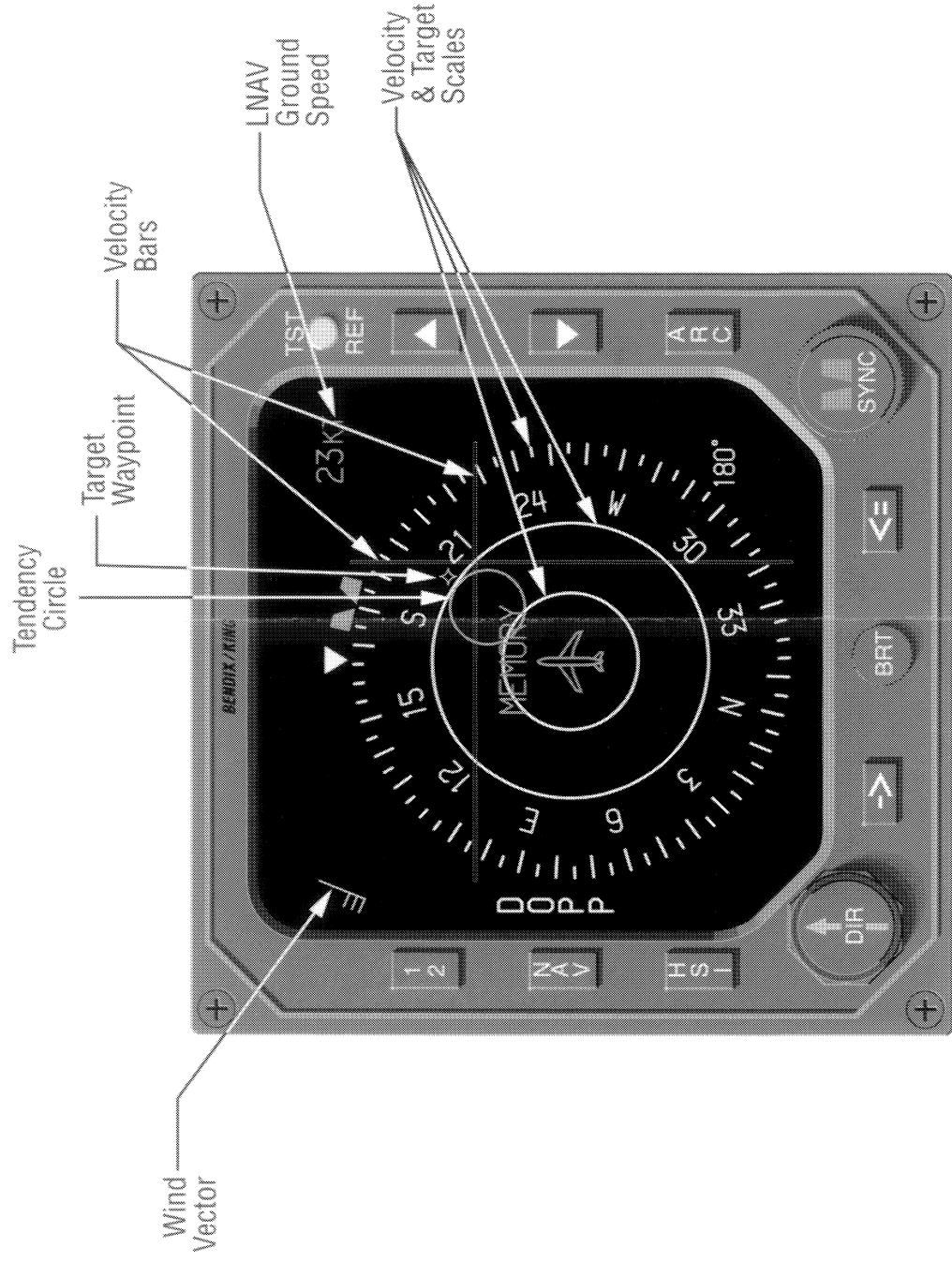


Figure 4.10  
EHSI Doppler Symbol Definition.



Figure 4.11  
EHSI Cable Symbol Definition.

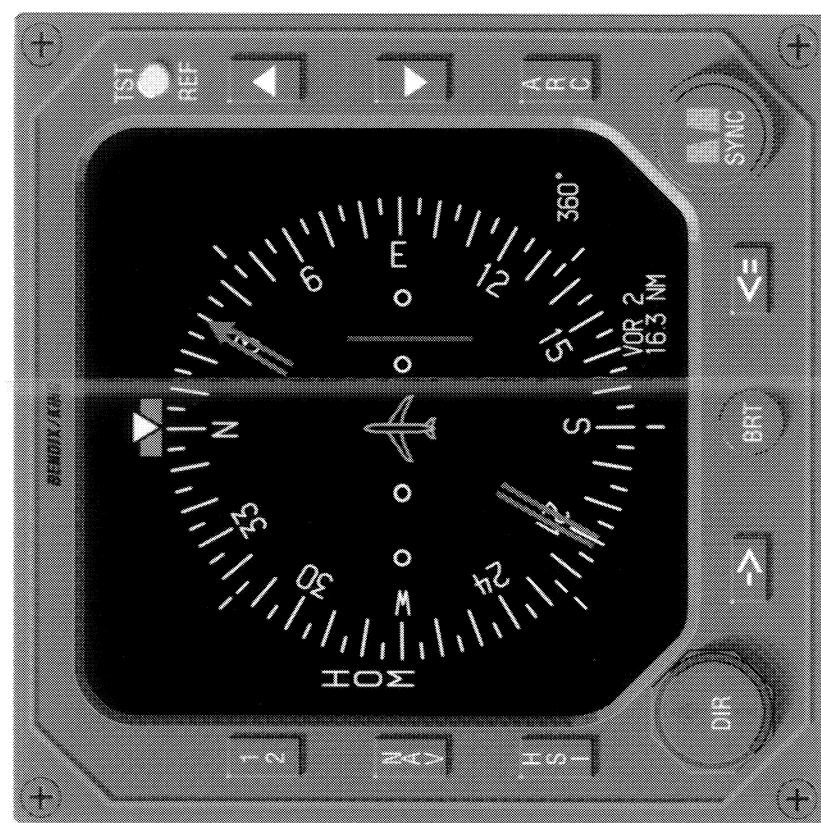


Figure 4.12  
EHSI Homing Symbol Definition.

## OPERATING INSTRUCTIONS

Consult Aircraft Flight Manual Supplement for specific procedures and limitations in operation.

### PREFLIGHT PROCEDURES

#### START UP

At engine start, power should not be applied to the EHI 40/50 system, low voltage may turn the EHI 40/50 system off momentarily, and transient voltages may induce premature failures. With engines operating, turn on gyros and flight control systems, turn on avionics master switches to include the EHI 40/50 master, and turn on NAV systems to remove the EHSI flags.

When power is initially applied to the EHI 40/50 system, various flags maybe annunciated on the display, representing systems not yet operational.

#### SELF TEST

Adjust BRT control on the EHI 40/50 CP 468 or ED 461 for the desired brightness.

After a two minute warm-up, press and hold the TST/REF button for three seconds to display the SELF TEST. A SELF TEST PASS or SELF TEST FAIL message will be annunciated. If the system is operating properly the SELF TEST PASS message will be annunciated. If a malfunction exists, SELF TEST FAIL will be annunciated and the system should be serviced. Refer to figure 5.1, Self Test annunciation. **Additionally, the pilot should ensure that the compass scale is white, which indicates that all three colors are operational in the display unit.**

#### PUSH BUTTON TEST

Check each push button function on the EHI 40/50 control panel. Push button operation should be as described in previous sections.

# Operating Instructions

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## PRE-TAKEOFF PROCEDURES

After the system test has been completed, select the desired Primary NAV sensor with the **NAV** source select push button. Set the desired course and heading, and check that the appropriate display is present on the indicator. Set the desired NAV and COMM frequencies for takeoff. Then press the appropriate push buttons (HSI, ARC, BEARING #1, BEARING #2, etc.) on the EHI 40/50 control panel for the desired display presentation.

## IN-FLIGHT OPERATION

Select the desired **NAV** sensor by pressing the **NAV** push button.

Select NAV system #1 or #2 by pressing the **1/2** push button.

Select **HSI** or **ARC** display by pressing the **HSI** or **ARC** push button.

Select the display mode (map and/or weather radar) by sequential presses of the HSI or ARC push button.

Use **HEADING SELECT** (SYNC) and **COURSE SELECT** (DIR) knobs to select the desired bearing or course. **ED 461:** The center push buttons on the knobs may be used to 1) rapidly acquire the DIRECT TO course to the station (DIR push button), or 2) center the heading bug under the lubber line (SYNC push button). **CP 468:** The heading and course knobs may be used to 1) rapidly acquire the DIRECT TO course to the station (pull DIR knob), or 2) center the heading bug under the lubber line (pull SYNC knob).

Use the #1 and #2 **BEARING POINTER SELECT** push buttons to display the bearing to the desired station or waypoint through sequential presses of the push button. These push buttons are also used to display independent DME information without a bearing pointer.

## ADF

To fly a pre-selected ADF course, select the ADF using the **NAV** push button. Select the desired NDB frequency on the ADF receiver. Identify the station. Using the CRS knob, select the desired course as you would a VOR radial and fly the left-right steering information presented on the deviation bar.

**NOTE:** *ADF D-Bar presentation may not be available if the ADF does not provide a suitable flag output.*

Flying an ADF course using the bearing pointer in a traditional fashion is also possible by selection the ADF on bearing pointer #1 or #2.

### **LNAV (RNAV)**

After selecting LNAV, NAV or RNAV mode and the desired waypoint, set Bearing Pointer #1 to the desired #1 bearing source. Using CRS knob, select desired course TO or FROM the waypoint (for the on-side LNAV only). The course deviation bar on the EHSI now provides guidance in flying the selected course. Waypoint passage is indicated by the TO-FROM indicator and waypoint BEARING pointer reversal.

**NOTE:** *Wind vector and speed information is presented if supplied by ancillary equipment and only if the system was configured to display the information during installation.*

Once the external LNAV system transmits to the EHI 40/50 that it is in an enroute mode, the EHSI and system sensitivity is set to + or - 5 NM for full-scale CDI deflection.

**NOTE:** *Depending on the type of LNAV installed, the Lateral Deviation Scale maybe different and may only support DTK.*

### **VNAV**

VNAV operation greatly depends on the type of VNAV installed. It is therefore very important to *refer to the Aircraft Flight Manual Supplement and VNAV operation manual for additional information.*

## **APPROACH PROCEDURES**

### **ILS APPROACH**

On the CP 468 or ED 461, select VOR as the Primary NAV sensor with the NAV push button. Then tune an ILS frequency. Note that LOC replaces VOR annunciation and the glideslope scale becomes active on the EHSI when an ILS frequency is selected. Once an ILS frequency is selected, the Bearing pointer and TO-FROM indicator associated with that NAV disappears.

## Operating Instructions

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When DME Hold is selected on the DME control panel, DME distance is displayed in white. Groundspeed or Time-To-Station is replaced with the held VOR frequency followed by an orange H for HOLD. DME groundspeed and VOR frequency may not be displayed in all installations.

### **BACK COURSE APPROACH**

An option may be selected at the time of installation and certification to automatically declutter GS information from the EHSI displays when the aircraft heading is greater than + or - 105 degrees from selected ILS course. In NAV MAP, CDI sensing is reversed and BC is annunciated below the deviation scale.

Not all installations will declutter the glideslope scale. This is a display configuration option selected at the time of installation.

### **ADF APPROACH**

After selecting ADF mode and tuning ADF #1 receiver to the desired NDB, set Bearing pointer #1 to ADF. Using CRS control, select desired course TO or FROM the NDB. The course deviation bar on the EHSI now provides guidance in flying the selected course as in flying a VOR course. This eliminates the mental calculations required while tracking an NDB course in the conventional manner. NDB station passage is indicated by the TO-FROM indicator and Bearing pointer reversal.

**NOTE:** *ADF D-Bar presentation may not be available if the ADF does not provide a suitable flag output.*

### **LNAV (RNAV) APPROACH**

After selecting LNAV mode and the desired waypoint, set Bearing Pointer #1 to the desired #1 bearing sensor. If the installed LNAV supports selected course from the EHI 40/50, use the CRS knob to select desired course TO or FROM the waypoint. The course deviation bar on the EHSI now provides guidance in flying the selected course. Waypoint passage is indicated by the TO-FROM indicator and waypoint Bearing pointer reversal.

Once the external LNAV system transmits to the EHI 40/50 that it is in an Approach Approved mode, the cyan colors turn green on the EHSI

and system sensitivity increases to + or - 1.25 NM for full-scale CDI deflection. Cross-side annunciation remains yellow, but the increased sensitivity is implemented if the cross-side LNAV is in Approach Approved mode.

**NOTE:** *Depending on the type of LNAV installed, the Lateral Deviation Scale may be different and may only support DTK.*

## VOR APPROACH

After selecting NAV mode and tuning the VOR receiver to the desired frequency, set Bearing Pointer #1 to VOR #1. Using CRS control, select desired course TO or FROM the VOR station. The course deviation bar on the EHSI now provides guidance in flying the selected course. VOR passage is indicated by the TO-FROM indicator and Bearing pointer reversal.

Note that EHSI NAV information is similar to ADF except that VOR is displayed rather than ADF.

## LIMITATIONS

For information on EHI 40/50 system operating limitations please refer to the approved Flight Manual Supplement for the particular aircraft in question, if one is provided.

## EMERGENCY PROCEDURES

For information on EHI 40/50 system emergency procedures please refer to the approved Flight Manual Supplement for the particular aircraft in question, if one is provided.





Figure 5.1  
Self-Test Annunciation.

## **FAULT ANNUNCIATIONS**

### **GENERAL**

#### **EXTERNAL SYSTEM FAILURES HEADING**

Once a heading failure is detected, the EHSI rubber line and course pointer head and tail are removed. The rubber line is replaced by a RED box with a RED HDG inside it. The course deviation scale is frozen horizontally to perform the function of a conventional CDI. Selected course reference is provided by the alphanumeric CRS readout in the upper left corner.

During a heading failure the automatic Back Course function normally performed by the EHI 40/50 system is inhibited.

#### **EHI 40/50 SYSTEM FAILURES DU—DISPLAY UNIT LOSS OF COOLING**

A yellow DU enclosed in a yellow box is annunciated at the bottom left center of the EHSI display when insufficient airflow is detected in the Display Unit. Once annunciated, the Display Unit will continue to operate for at least 30 minutes if the rated ambient temperature is not exceeded. To extend the operating time, reduce display information and brightness to a minimum.

#### **SG—SYMBOL GENERATOR LOSS OF COOLING**

A yellow SG enclosed by a yellow box is annunciated at the bottom right center of the display if insufficient airflow is detected in the Symbol Generator. Once annunciated, the Symbol Generator will continue to operate for at least 30 minutes if the rated ambient temperature is not exceeded. To extend the operating time, reduce display information and brightness to a minimum.

#### **CP—CONTROL PANEL (CP 468 or ED 461)**

A RED CP enclosed by a RED box is annunciated left center of the EHSI display if a control panel switch becomes stuck for greater than 10 seconds. If a switch fails the display should maintain all currently

## Fault Annunciations

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selected conditions. If the switch should become functional the fault annunciation will be removed and normal operation will be restored.

### **HEADING SELECT “BUG”**

A RED X will be drawn through the heading bug if there is a heading select **knob failure** on the EHI 40/50 control panel.

### **COURSE SELECT**

A RED X will be drawn through the course pointer head and tail if there is a course select **knob failure** on the EHI 40/50 control panel.

### **RCP—RADAR CONTROL PANEL (if equipped)**

A RED RCP enclosed by a RED box is annunciated at the lower left center of the EHSI display if a radar control panel failure is detected.

### **SG—SYMBOL GENERATOR**

A RED SG enclosed by a RED box is annunciated at the upper left center of the display if certain monitored functions are detected invalid. If the RED SG annunciation is encountered extreme caution should be used to validate any data used on the display for navigation. Even after validation and re-validation the data should only be used as supplementary information.

A large RED “SG” appearing on a black back display annunciates a Symbol Generator failure which would result in processed data that is unusable for navigation.

### **RAW DATA DEVIATION ANNUNCIATIONS**

Pointer/Scale malfunctions are annunciated by removal of the associated pointer/scale and placing a RED X drawn in their place. A flag presented on the vertical deviation scale will result in the deviation pointer being removed. On the EHSI, the pointer/scale annunciations include L/R deviation, GS or VN and fore/aft in doppler and homing mode. Refer to figure 6.1 for display presentations showing these annunciations.

### **BEARING POINTER ANNUNCIATIONS**

Bearing pointer source failure or invalid data reception (No Computed Data, NCD) causes a RED X to be drawn through the source annunciator. The bearing pointer or NAVAID symbol is also removed.

### **ALPHANUMERIC READOUT ANNUNCIATIONS**

Failures affecting alphanumeric readouts are annunciated by a RED X drawn through the readout. On the EHSI (figure 6.1), the alphanumeric readouts include NAV bearing pointer source and course (CRS) or desired track (DTK).

Failures affecting distance information are annunciated by RED dashes in the data field. When the Distance Source is operational but not providing valid distance data (no lock on or NCD) dashes the color of the sensor will be placed in the data field. Speed (KT) and time (MN) annunciation will be removed if valid distance, speed and time-to-station information is not provided by the primary NAV sensor system.

### **CHECK CONFIG**

A yellow CHECK CONFIG message will display in the upper right corner when ever the system configuration memory in the symbol general and aircraft installation rack do not match. Test routines resident in the symbol generator select the best possible system configuration to use, however, the selected configuration may not be the intended one. Once the CHECK CONFIG message is noted, extreme caution should be exercised when using any information presented on the EHSI. It is also most important that the aircraft be taken to an authorized dealer for repair as soon possible.

### **WEATHER RADAR ANNUNCIATIONS**

When a weather radar failure occurs while operating in the WX mode, a white alphanumeric annunciation appears below the Weather Mode annunciation.

The annunciations capable of being displayed when interfaced with an RDS 81, 82/VP, 84/VP and 86/VP are listed below in order of priority.

## Fault Annunciations

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<b>FAULT</b>	<b>DESCRIPTION</b>
WX FLT	Advises a miss match of mode, tilt, gain or range information between the EFIS and radar RT has existed for more than 30 seconds.
BUSY VP	Displayed when the radar is in the continuous VP mode.
STB LMT	Displayed when the combination of tilt, roll, roll trim and pitch exceeds +/- 30 degrees.
ANT FLT	Displayed when the measured antenna tilt does not match the requested tilt angle.
TX FLT	Displayed when a fault is detected in the radar transmitter.
STB OFF	Displayed when stab off has been selected or when the stabilization reference is not present at the radar.
RANGE	Displayed when the EFIS selects the 1000 mile range. The radar is unable to operate at this range and is placed in standby.
WAIT	Displayed when in VP mode and one of the TRACK buttons are pressed, indicating the radar will perform the desired slicing function as soon as the antenna returns to the last selected profiling-azimuth angle.

## CUSTOM DISPLAY FAILURE ANNUNCIATIONS

### DOPPLER/CABLE

### EXTERNAL SYSTEM FAILURES

#### ~~FMS~~—FMS WARNING

In the upper right hand corner of the display, a RED X will be drawn through a cyan FMS if the FMS has failed or is not supplying the EHI 40/50 with valid computed data.

#### ~~COUPLER~~—AUTOPILOT WARNING

In the upper left hand corner of the display, a RED X will be drawn through a red COUPLER if the autopilot or coupler has failed or is not supplying the EHI 40/50 with valid computed data.

**NOTE:** *A configuration option selectable at the time of installation and certification allows for installations of the Doppler and Cable mode with out interface to an autopilot or coupler. If this option is selected the COUPLER warning will not be annunciated.*



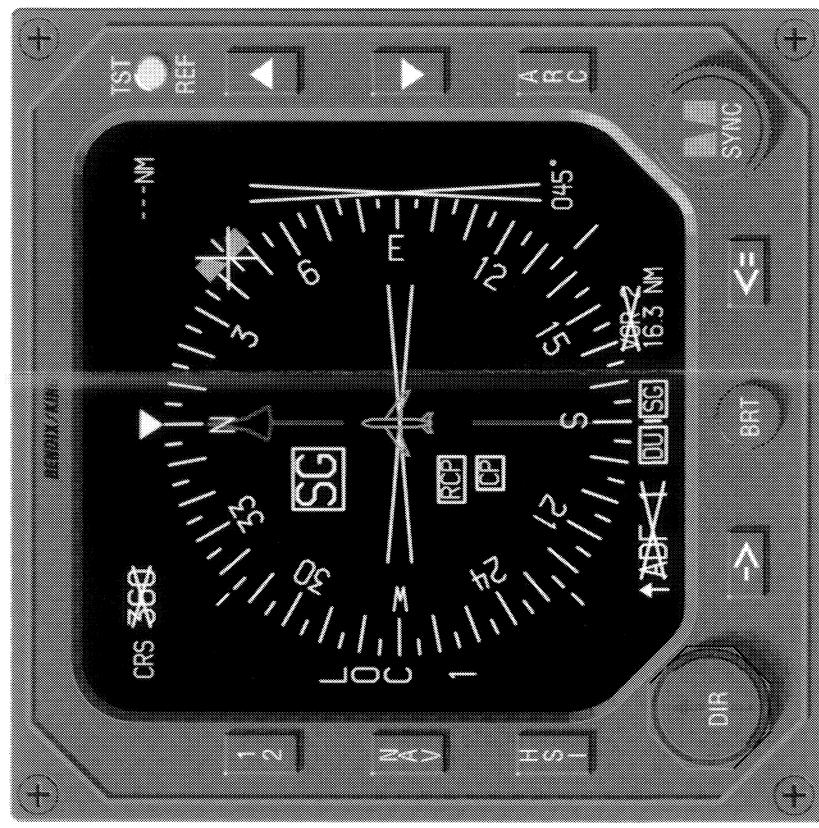


Figure 6.1  
EHSI Fault Annunciation



Figure 6.2  
EHSI Fault Annunciation



Figure 6.3  
EHSI Fault Annunciation



Figure 6.4  
EHSI Fault Announcement

## REVERSIONARY MODE

### COPY

In a dual display system, a copy reversionary mode may be provided in the event of a symbol generator failure. For this mode to be functional in an EHI 40 system the on-side symbol generator power supply must be functional as the symbol generator supplies low voltage power to the display unit. In an EHI 50 system the on-side symbol generator power supply does not have to be functional.

For a symbol generator failure, press the appropriate (pilot or co-pilot) COPY push button to copy the opposite side display to the on-side display. Refer to figure 7.1 for an illustration showing a pilot side symbol generator failure. To annunciate that copy has been activated SW 0501 displays a yellow COPY on the lower right side of the EHSI display.

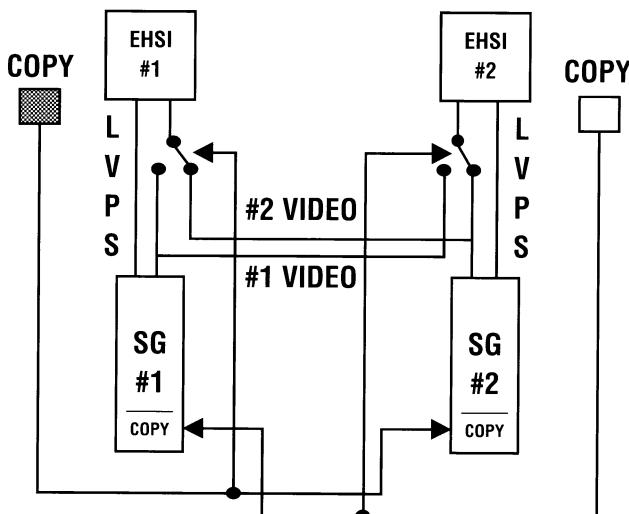


Figure 7.1  
EHSI #1 Copy.

**NOTE:** *EHI 40/50 systems with software earlier than 0501 may be installed to perform the copy function. However, COPY will not be annunciated on the EHSI display, external annunciation will be required.*



## ABBREVIATIONS

<b>ADF</b>	Automatic Direction Finder
<b>AHRS</b>	Attitude Heading Reference System
<b>AN</b>	Angle
<b>ARINC</b>	Aeronautical Radio Incorporated
<b>ATR</b>	Air Transport Radio
<b>AZ</b>	Azimuth
<b>BAZ</b>	Back Azimuth
<b>BC</b>	Back Course
<b>BRG</b>	Bearing
<b>BRT</b>	Bright
<b>CDI</b>	Course Deviation Indicator or Course Deviation Information
<b>CDU</b>	Control Display Unit
<b>CONFIG</b>	Configuration
<b>CRS</b>	Course
<b>CRT</b>	Cathode Ray Tube
<b>D-BAR</b>	Deviation Bar
<b>DEG</b>	Degree(s)

## Abbreviations

---

<b>DEV</b>	Deviaiton
<b>DG</b>	Directional Gyro
<b>DIR</b>	Direct
<b>DME</b>	Distance Measuring Equipment
<b>DTK</b>	Desired Track
<b>DU</b>	Display Unit
<b>EFIS</b>	Electronic Flight Instrument System
<b>EHI</b>	Electronic Horizontal Situation Indicator
<b>EHSI</b>	Electronic Horizontal Situation Indicator
<b>FDG</b>	Free Directional Gyro
<b>FLT</b>	Fault
<b>FMS</b>	Flight Management System
<b>FPL</b>	Flight Plan
<b>FR</b>	From
<b>FT</b>	Feet
<b>GS</b>	Ground Speed or Glideslope
<b>HSI</b>	Horizontal Situation Indicator
<b>ICAO</b>	International Civil Aviation Organization
<b>ID</b>	Identification

<b>ILS</b>	Instrument Landing System
<b>LMT</b>	Limit
<b>LNAV</b>	Lateral Naviagtion
<b>LOR</b>	Loran
<b>MLS</b>	Microwave Landing System
<b>NAV</b>	Navigation
<b>NM</b>	Nautical Mile
<b>OMG</b>	Omega
<b>RCP</b>	Radar Control Panel
<b>REF</b>	Reference
<b>RMI</b>	Radio Magnetic Indicator
<b>RNAV</b>	Area NAV
<b>SG</b>	Symbol Generator
<b>SN</b>	Sensitivity
<b>STB</b>	Stabilization
<b>SYNC</b>	Synchronization
<b>TACAN</b>	Tactical Air Navigation
<b>TCN</b>	TACAN, Tactical Air Navigation
<b>TST</b>	Test

## Abbreviations

<b>TTS</b>	Time-To-Station
<b>TX</b>	Transmitter
<b>VNAV</b>	Vertical NAV
<b>VOR</b>	VHF Omni Range
<b>VP</b>	Vertical Profile
<b>WX</b>	Weather
<b>WXA</b>	Weather Alert

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