

Section 1

Introduction

Welcome

Congratulations on your acquisition of a Chelton Flight Systems FlightLogic EFIS (Electronic Flight Instrument System).

In the last two decades, aviation has become more and more complex; as a result, cockpit resources have followed the commercial carriers' trend toward **“automation-centered”** systems. These sophisticated systems minimize pilot involvement and automate control of the aircraft and its systems to the greatest extent possible, thereby relegating the pilot to the role of manager and emergency backup. Examples are flight directors and fly-by-wire systems where the pilot is removed from the information loop.

Your Chelton EFIS, on the other hand, was conceived and designed as a **“pilot-centered”** system. While still highly automated, this type of system, common in military tactical applications, presents the pilot with information necessary to make decisions about the flight and take the appropriate actions. A good example is the Highway-In-The-Sky (HITS). HITS allows for highly automated approaches, but its predictive nature gives the pilot unprecedented awareness of upcoming maneuvers. Contrary to the popular idea of overloading the pilot with information and options, Chelton Flight Systems EFIS products clearly and concisely present **ONLY** necessary information. This reduces pilot workload, decreases task complexity, and minimizes confusion. The result is safer flying.

Chelton Flight Systems' goal is **IFR-VFR equivalence** and the basic concept of the FlightLogic EFIS is proven HUD symbology overlaying a real-time 3-D virtual reality view of the outside world. The resulting “**synthetic vision**” provides the pilot in IMC with the same simple visual clues for navigation and aircraft control as those used in VFR conditions. This “**virtual VFR**” eliminates the need to scan multiple instruments for aircraft control or mentally interpret complicated enroute and approach procedures. As you gain experience with your Chelton EFIS, you will fly with more precision, awareness, and confidence than you ever thought possible.

Before You Fly

While the EFIS is extraordinarily easy to operate, it does rely heavily on advanced display concepts, so you will likely be exposed to some new terminology and ideas in the following pages.

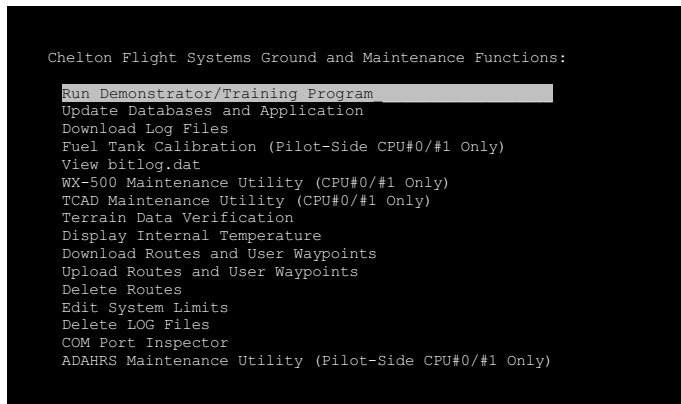
FOR SAFETY OF FLIGHT, IT IS ESSENTIAL THAT YOU STUDY THIS ENTIRE MANUAL PRIOR TO FLYING WITH THE EFIS.

Using the Demonstration Application built into the EFIS, you can fly anywhere and perform any procedure (except takeoff and landing) that you can do in your aircraft. To use this feature:

1. With the power **OFF**, insert the data card into a display (gold side up).



2. Power the system **ON** and select the **RUN DEMONSTRATOR/TRAINING APPLICATION** option using the control knob (turn to scroll, push enter).



3. The demonstrator will begin flying over Reno, Nevada. Heading may be changed with the HDG button. Altitudes may be changed by setting a target altitude. Push Menu, then Bugs, then target altitude, then set the value with the control knob. Push to enter. Airspeed will remain relatively constant. The simulated aircraft may be positioned anywhere in the NAV database. By creating and activating a flight plan in training mode, any published procedure can

be practiced prior to flight. Switching back and forth from PFD to MFD is done by pushing the control knob. All appropriate NAV signals will be simulated, allowing for non-precision and precision approaches to be practiced. Localizer signals will normally be found on VLOC1 and VOR signals will be found on VLOC2. Very little power is consumed by one EFIS screen. This allows for training to be accomplished at any time in the aircraft prior to startup.

We recommend flying with a flight instructor prior to using the system. Professional instruction and recurrent training are highly recommended. Chelton Flight Systems utilizes a FITS (FAA, Industry Training Standards) accepted training curriculum and syllabus that comprises a minimum of 10.5 flight hours of dual instruction in addition to ground school. Copies of this syllabus may be obtained from the Chelton Flight Systems web site at no charge.

For a list of Chelton authorized flight instructors, please visit our website at www.cheltonflightsystems.com.

If you ever have any questions about the use of your FlightLogic EFIS, please do not hesitate to contact your Chelton dealer for assistance.

About this Guide

This document describes the operation of the Chelton Flight Systems EFIS with the software version specified in the footer at the bottom of the page and is divided into ten sections as follows: Introduction, System Overview, Display Symbology, Rotorcraft Display Symbology, Button-Menu Functions, Step-by-Step Procedures, Quick Start Tutorial, IFR Procedures, Appendix and Index.

System Overview

The **System Overview** provides a basic system description and block diagram, operational warnings, acronyms and

abbreviations, coloring conventions, and a detailed description of the EFIS hardware.

Use this section . . .

to gain a basic understanding of the system.

Display Symbology

The **Display Symbology** section provides identification of each screen element of the flight display. For each software screen, every element of the symbology is identified on a sample screen. Immediately following the sample screens, all elements for that screen are listed in alphabetical order. This section also covers failure modes.

Use this section . . .

to identify and understand the elements you see on the screen.

Rotorcraft Display Symbology

The **Rotorcraft Display Symbology** section provides identification of each screen element of the flight display. For each software screen, every element of the symbology is identified on a sample screen. Immediately following the sample screens, all elements for that screen are listed in alphabetical order. This section also covers failure modes.

Use this section . . .

to identify and understand the elements you see on the screen.

Button/Menu Functions

The **Button/Menu Functions** section shows a flow diagram and selection options for each button and menu.

Use this section . . .

when you want to determine the function of a specific button or menu.

Step-by-Step Procedures

The **Step-by-Step Procedures** section will guide you through each system function.

Use this section . . .

when you want to perform a specific task like creating a flight plan or selecting an approach.

Quick Start Tutorial

The **Quick Start Tutorial** will give you the basics you need to go for a VFR familiarization flight with the system. In a few simple steps, you will learn to enter a waypoint and control the view on the display.

Use this section . . .

in conjunction with the Approved Flight Manual Supplement before you fly for the first time and for a quick refresher when needed.

IFR Procedures

The **IFR Procedures** section provides detailed information about selecting and flying instrument approaches, arrivals, and departures.

Use this section . . .

to familiarize yourself with instrument procedure conventions.

Appendix

The **Appendix** section contains support material and other useful information about system operation, including a complete Flight Manual Supplement and detailed discussions of TAWS functions.

Use this section . . .

to review normal and emergency procedures, operational tips, specifications, or other reference material.

Index

The **Index** section provides an alphabetical listing of terms used in the guide with corresponding page numbers.

Use this section . . .

for reference material.

Joe Pilot



“Hi, I’m Joe Pilot.

I have about a thousand hours flying this system and I’ll share some tips with you as you read through the manual. Due to the advanced nature of this thing, you may come across stuff you’ve never even thought about before. I’ll explain, in plain language, the important concepts that you need to know to use the system safely. Being a pilot, you probably hate to read instructions but, please, at least flip through the manual and listen to what I have to say.”

Chelton Flight Systems is committed to producing the highest quality product possible; we welcome comments and suggestions concerning this manual. Please e-mail comments and suggestions to chelton-support@s-tec.com.

Should you encounter problems with the operation of your Chelton EFIS, please complete and return the Service Difficulty Report in the **Appendix** section directly to:

Cobham Avionics
One S-TEC Way
Municipal Airport
Mineral Wells, Texas 76067
OR
Fax (940) 325-3904