ST02949CH
FAA Supplimental Type Certificate

Installation of a Rosemount Aerospace 87600E1
Class 3 Electronic Flight Bag (EFB) System on Boeing 737 Series Aircraft
(FAA STC ST02949CH)

OVERVIEW

- » FAA STC ST02949CH.
- » European Aviation Safety Agency (EASA) STC 10044814.

INTRODUCTION

STC ST02949CH governs the installation of the Rosemount Aerospace 8700E1 Class 3 Electronic Flight Bag (EFB) system in accordance with Electronic Cable Specialists (ECS) Master Data List ECS-209048.

YOUR NEEDS

Provides modernized mounting provisions and EFB system for Boeing 737 series aircraft.

YOUR BENEFITS

The Rosemount Aerospace 87600E1 Class 3 EFB System provides flight crews the ability to interact with electronic maps, charts, and manuals in lieu of accessing standard paper documentation. System installation will reduce materials costs and aircraft weight without compromising ergonomic concerns.

STC AIRCRAFT EFFECTIVITY

- » Boeing 737-600/-700/-700C/-800/-900/-900ER series aircraft.

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derivative configurations, and installation lead time
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STC LIMITATIONS

- » Installation of dual SDU system provisions per STC ST02923CH must be accomplished prior to, or in conjunction with, this modification.
- » Installation of dual SDU mounting provisions per STC ST7528CH-T must be accomplished prior to, or in conjunction with, this modification.

STC CONFIGURATIONS

- » Configuration 1: Installation of dual SDU electrical power with crosstalk capabilities between the two units.
- » Configuration 2: Installation of dual SDU and EFB-IU P1 connections only.
- » Configuration 3: Installation of dual SDU and EFB-IU P1 and P2 connections.

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FAA Supplimental Type Certificate

Installation Overview

» The installed 8700E1 EFB system will support Type A and B software applications in the cockpit. To comply with all applicable regulations, this project will be supported by design, analysis, and test for the installation and activation of the 8700E1 EFB system.
» The 8700E1 EFB system consists of a smart display unit (SDU), electronic flight bag interface unit (EFB-IU), and a compact flash drive (installed within the SDU). The quantities of components are shown below.

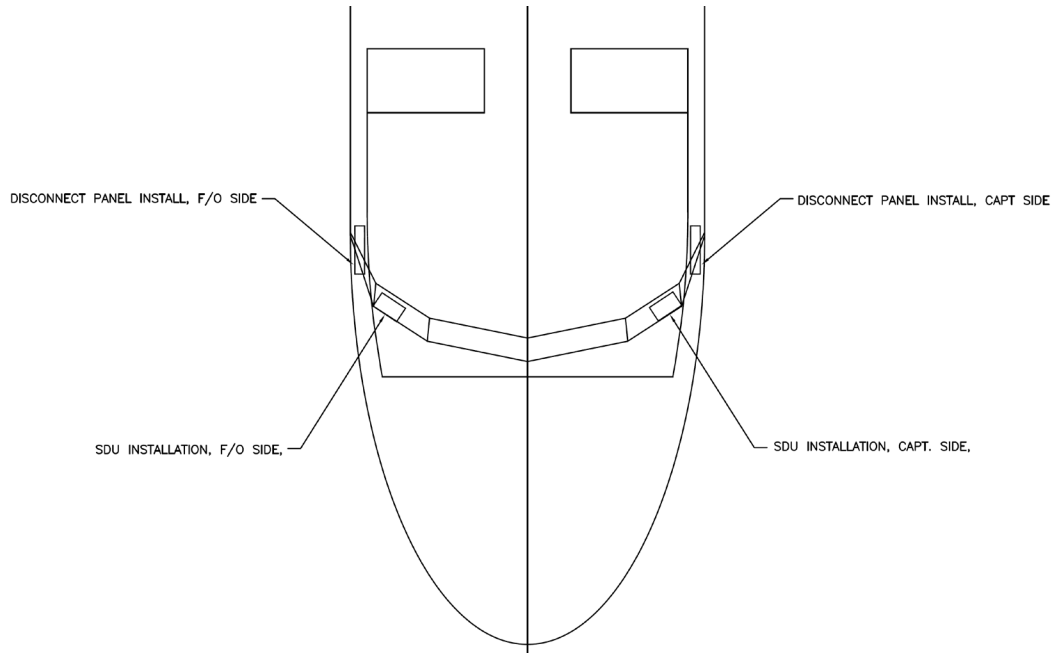|	Configuration 1	Configuration 2	Configuration 3
SDU	0	2	2
EFB-IU	2	1	1
Compact Flash Drive	0	2	2

» Five circuit breakers (4-SDU, 1-EFB-IU).
» Two disconnect and power switch panels for removing power from the system.
» One mounting structure for holding the EFB-IU.
» Electrical wiring for power and signals to the EFB-IU, SDU, and power switch.
» An ACARS ethernet printer.

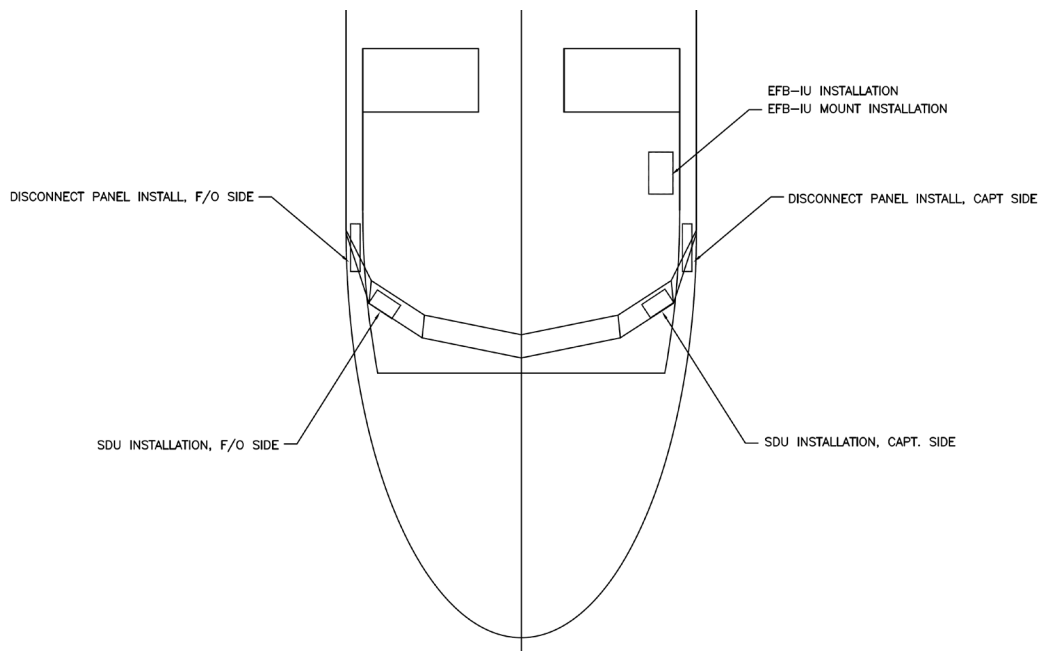For this project, the EFB system will consist of the following:

» Smart Display Unit (SDU)
The SDU is mounted adjacent to the window and is the point of pilot interaction. It features a 10.4-inch LCD touchscreen and a compact flash slot. The unit operates using the base operating system (Windows XP Professional), which is stored on the compact flash drive. The SDU contains one small non-rechargeable coin size lithium battery.
» Compact Flash Drive
The compact flash drive is installed into the SDU to provide the operating system (Windows XP Professional), as well as the operator provided software applications. The operation system software is designed to RTCA/DO-178B Level E.
» Electronic Flight Bag Interface Unit (EFB-IU) (Configurations 2 and 3 Only)
The EFB-IU is mounted forward of the electronics bay on the left side of the forward landing gear. It provides interfaces to the aircraft systems and provides data to and from the SDU to those systems. It operates using the Linux operation system and is designed to RTCA/DO-178B Level E. It also acts as a firewall to prevent unwanted access to critical aircraft systems.
» Printer (Configurations 2 and 3 Only)
The printer is a full-format printer designed in accordance with ARINC 744A specifications. It contains two ethernet ports along with a standard connector for power and ARINC 429 signals. The operating software (open source Linux based on the 2.6 Kernel) is designed to RTCA/DO-178B Level E.

DISCONNECT PANEL INSTALL, F/O SIDE

DISCONNECT PANEL INSTALL, CAPT SIDE

SDU INSTALLATION, F/O SIDE,

SDU INSTALLATION, CAPT. SIDE,

CONFIGURATION 1

EFB—IU INSTALLATION
EFB—IU MOUNT INSTALLATION

DISCONNECT PANEL INSTALL, F/O SIDE

DISCONNECT PANEL INSTALL, CAPT SIDE

SDU INSTALLATION, F/O SIDE

SDU INSTALLATION, CAPT. SIDE

CONFIGURATIONS 2 & 3

FIGURE 1: INSTALLATION OVERVIEW

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» The existing ash tray located on the captain's sidewall is removed and replaced with a disconnect panel assembly. The assembly consists of a power switch and connector for the SDU.
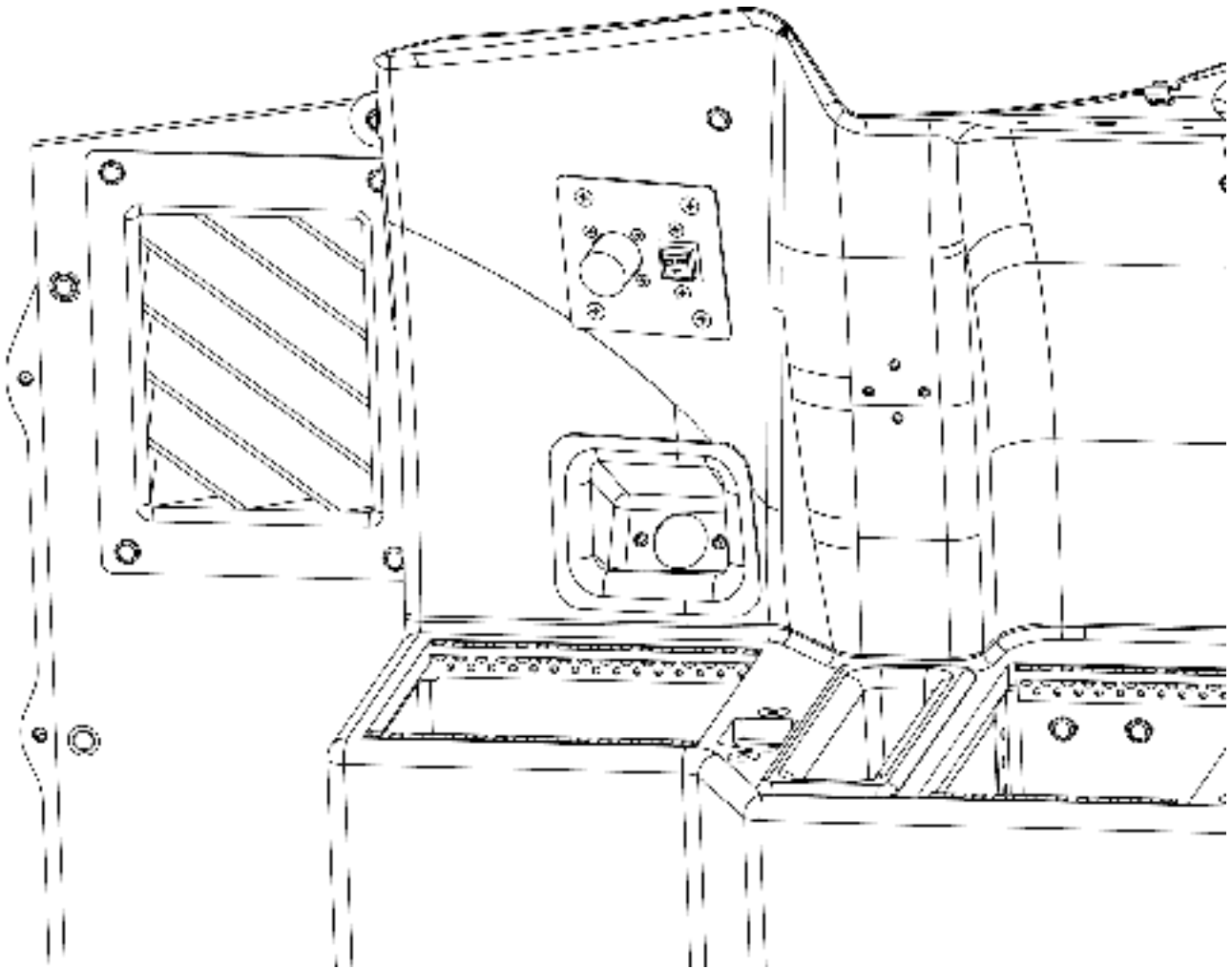
FIGURE 2: EFB DISCONNECT PANEL CAPTAIN'S SIDE
(FIRST OFFICER'S SIDE IS A MIRROR IMAGE)

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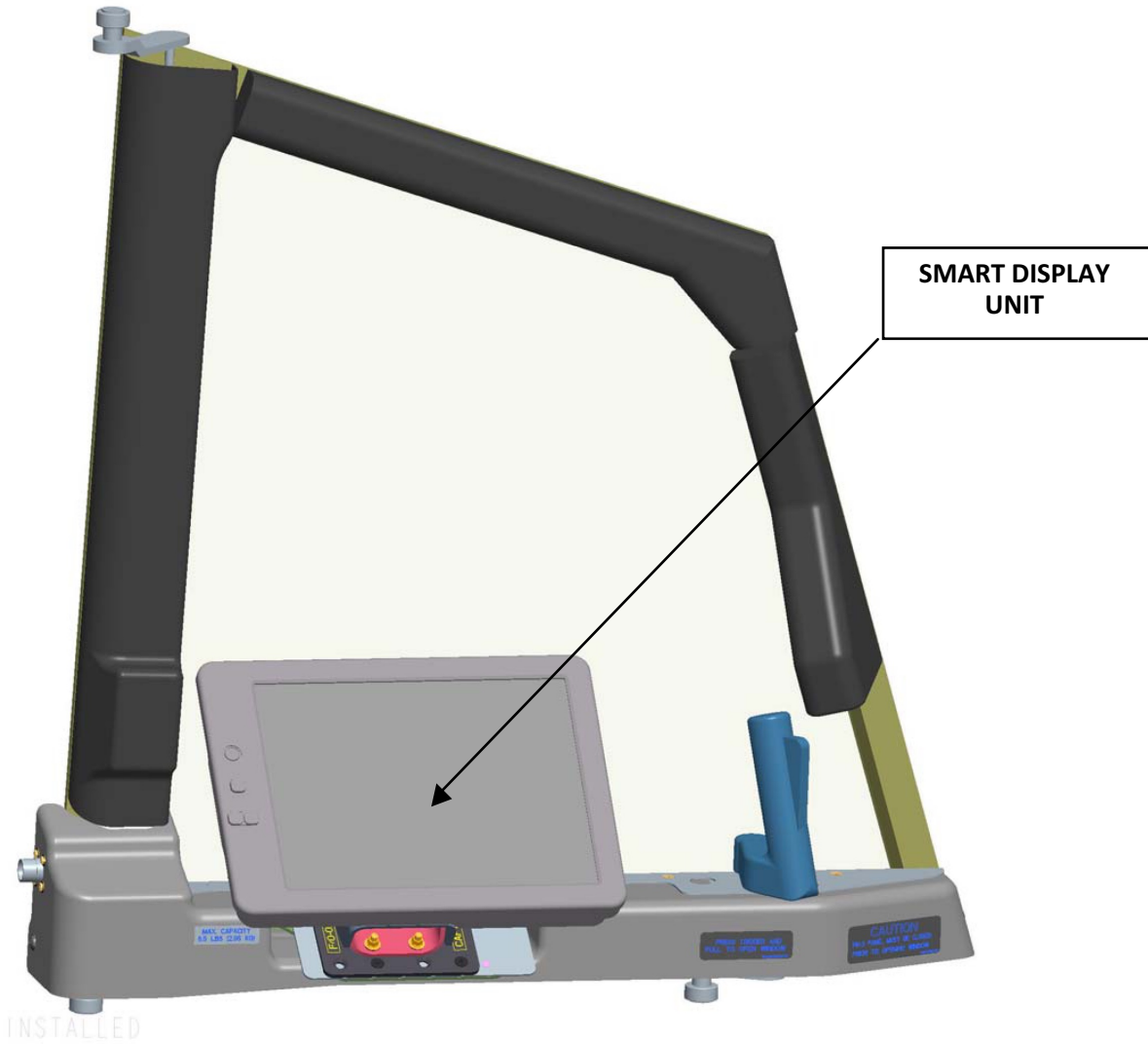» The SDU is mounted to the structural provisions contained within ST7528CH-T.

SMART DISPLAY UNIT

FIGURE 3: INSTALLED SDU CAPTAIN'S SIDE
(FIRST OFFICER'S SIDE IS A MIRROR IMAGE)

ADDITIONAL MECHANICAL CHANGES – CONFIGURATIONS 2 & 3 ONLY

» An EFB-IU mounting assembly is installed to the aircraft frames located behind the forward most, captain's side access panel of the nose wheel well. The view in Figure 4 is looking outboard through the forward access panel in the nose wheel well landing gear.
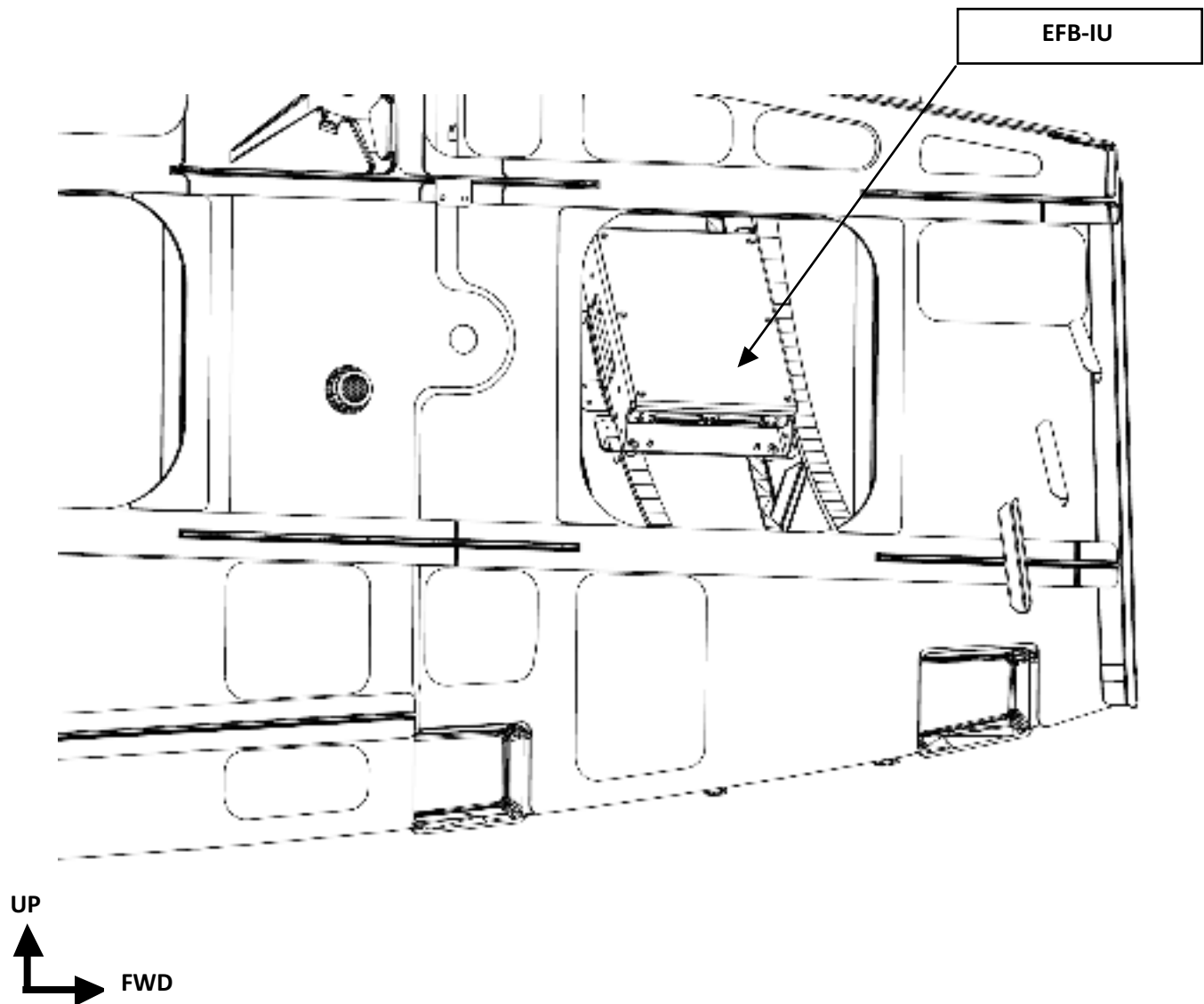
EFB-IU

UP

FWD

FIGURE 4: EFB-IU INSTALLATION

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ELECTRICAL CHANGES

CONFIGURATION 1 – SEE FIGURE 5

» Wiring to the proximity switch electronics unit (PSEU) for the forward entry door status discrete.
» Wiring to the air/ground relay for the aircraft status discrete.
» Wiring from each power switch/annunciator to the annunciator master dim and test circuit.
» Circuit breakers and associated power wiring to each power switch/annunciator, each SDU, and circuit breaker provisions for the EFB-IU.
» Ethernet crosstalk wiring between the captain's and first officer's SDUs.

CONFIGURATION 2 – SEE FIGURE 6

» Wiring to the proximity switch electronics unit (PSEU) for the forward entry door status discrete.
» Wiring to the air/ground relay for the aircraft status discrete.
» Wiring from each power switch/annunciator to the annunciator master dim and test circuit.
» Circuit breakers and associated power wiring to each power switch/annunciator, each SDU, and to the EFB-IU.
» Ethernet crosstalk wiring between the captain's and first officer's SDUs.
» Ethernet crosstalk wiring between the EFB-IU and the captain and first officer SDU.
» Aircraft interface wiring to the flight management computer (FMC), air data inertial reference unit (ADIRU), multi-mode receiver (MMR), and aircraft communication addressing, and reporting system (ACARS) printer.
» Provisions wiring to traffic alert and collision avoidance system (TCAS) and digital flight data acquisition unit (DFDAU).

CONFIGURATION 3 – SEE FIGURE 7

» Wiring to the proximity switch electronics unit (PSEU) for the forward entry door status discrete.
» Wiring to the air/ground relay for the aircraft status discrete.
» Wiring from each power switch/annunciator to the annunciator master dim and test circuit.
» Circuit breakers and associated power wiring to each power switch/annunciator, each SDU, and to the EFB-IU.
» Ethernet crosstalk wiring between the captain's and first officer's SDUs.
» Ethernet crosstalk wiring between the EFB-IU and the captain and first officer SDU.
» Aircraft interface wiring to the flight management computer (FMC), air data inertial reference unit (ADIRU), multi-mode receiver (MMR), and aircraft communication addressing and reporting system (ACARS) printer.
» Provisions wiring to traffic alert and collision avoidance system (TCAS) and digital flight data acquisition unit (DFDAU).
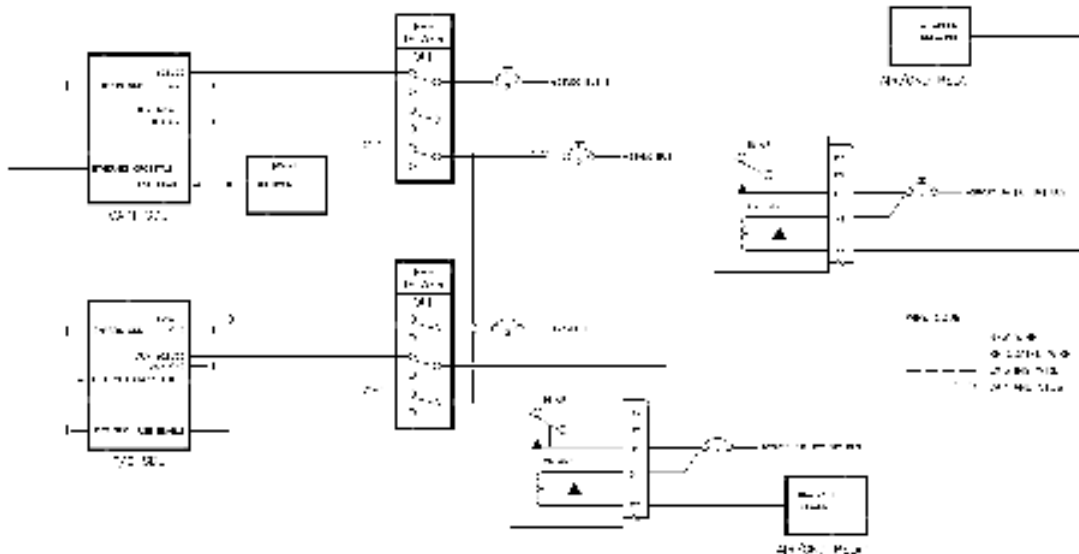» Interface wiring to the communications management unit (CMU) and display electronics unit (DEU).

FIGURE 5: CONFIGURATION 1 - SYSTEM BLOCK DIAGRAM
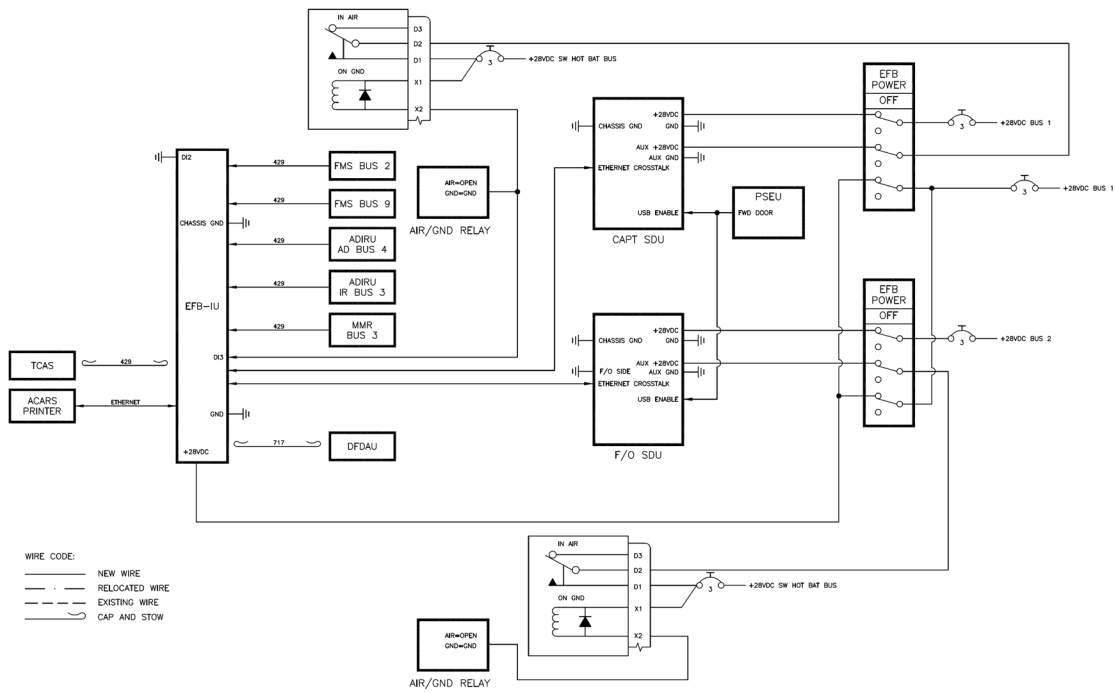
FIGURE 6: CONFIGURATION 2 - SYSTEM BLOCK DIAGRAM
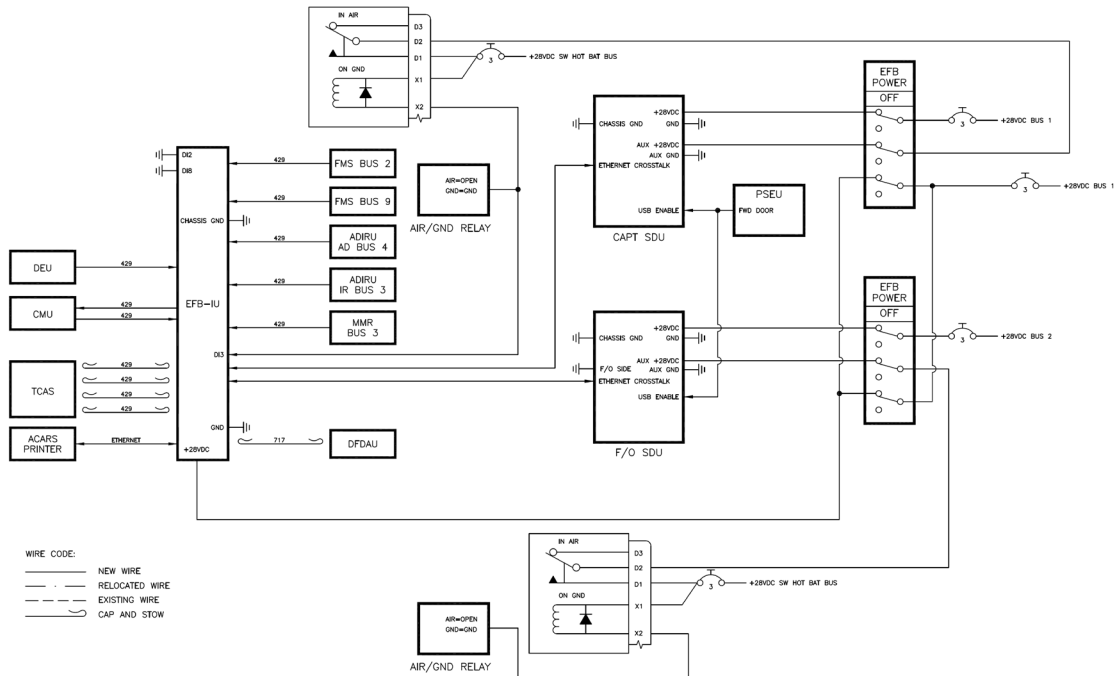
FIGURE 7: CONFIGURATION 3 - SYSTEM BLOCK DIAGRAM