ST03141CH
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CARLISLE INTERCONNECT TECHNOLOGIES

Installation of a Rosemount Aerospace 87600E1
Class 3 Electronic Flight Bag (EFB) System on Boeing 747 Series Aircraft
(FAA STC ST03141CH)

OVERVIEW

» FAA STC ST03141CH

INTRODUCTION

STC ST03141CH 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-209908.

YOUR NEEDS

Provides modernized mounting provisions and EFB system for Boeing 747 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 747-400/-400F series aircraft

Contact CarlisleIT for usage rights,
derivative configurations, and installation lead time
(800) 327-9473 • sales@carlisleit.com

STC LIMITATIONS

» All Configurations: Installation of dual SDU mounting provisions per STC ST02907CH-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.
» Configuration 4: Installation of dual SDU and EFB-IU P1 and P2 connections (alternate harness routing).
» Configuration 5: Installation of dual SDU and EFB-IU P1 and P2 connections (alternate harness routing)..

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» 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 (Configurations 2 thru 5 only).

» Electrical wiring for power and signals to the EFB-IU, SDU, and power switch

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

» Smart Display Unit (SDU)
The SDU is mounted on 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 thru 5 only)
The EFB-IU is mounted on the aircraft floor beam approximately at STA 360. It provides interfaces to the aircraft systems and provides data to and from both SDUs to those systems. It operates using the Linux operating system software. The operating system software assurance level has been assessed in accordance with RTCA /DO-178B. It also acts as a firewall to prevent unwanted access to critical aircraft systems.

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 THRU 5
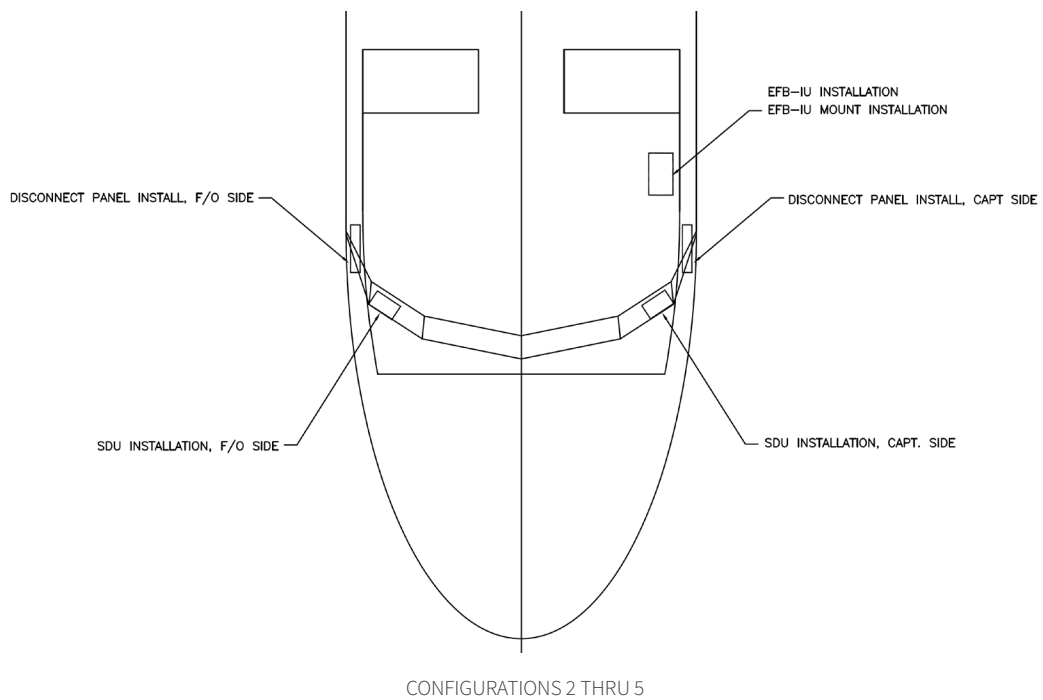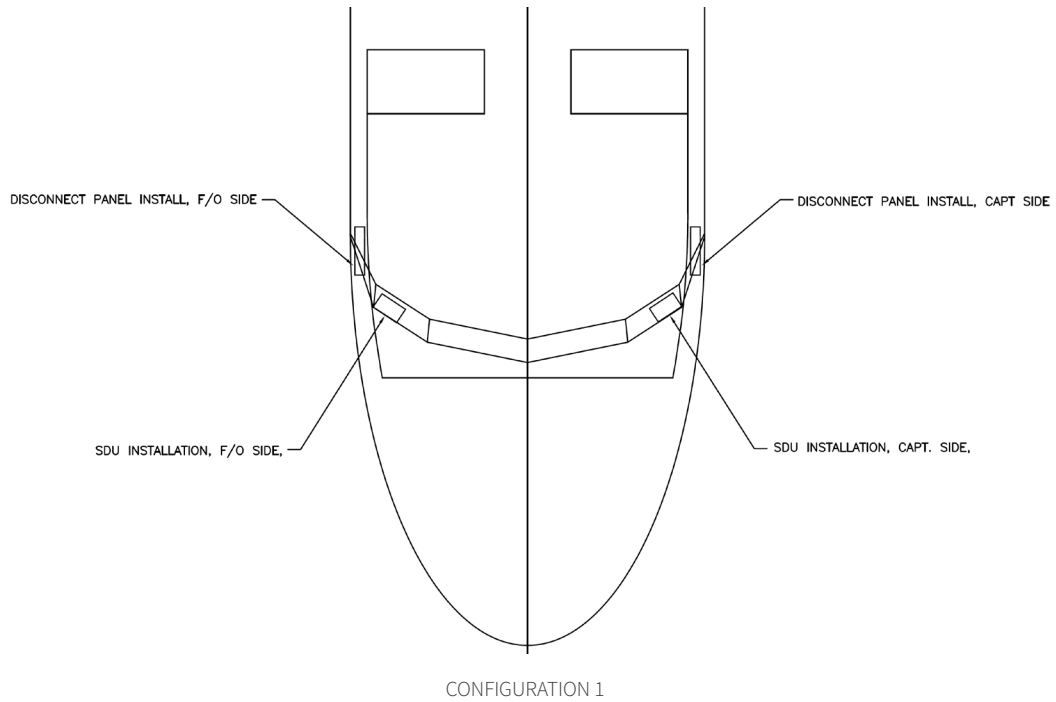
FIGURE 1: INSTALLATION OVERVIEW

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MECHANICAL CHANGES - ALL CONFIGURATIONS

» The existing shroud located on the captain's sidewall is removed and replaced with a disconnect panel assembly. The assembly consists of a power switch, power relay, and connector for the SDU.

» Wherever applicable, the flight crew flashlights may be relocated.

EFB DISCONNECT
PANEL ASSEMBLY
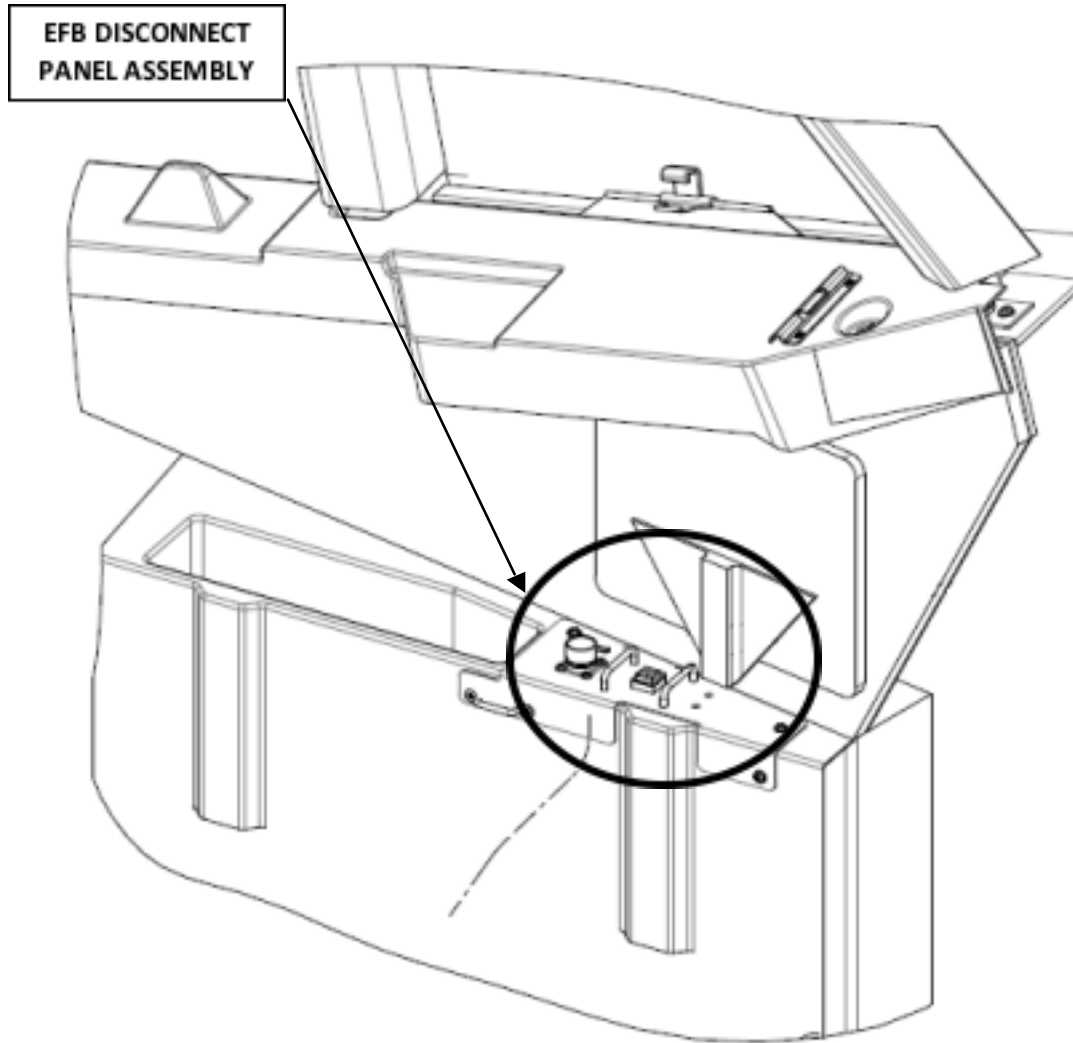
FIGURE 2: EFB DISCONNECT PANEL CAPTAIN'S SIDE
(FIRST OFFICER'S SIDE IS A MIRROR IMAGE)

» The SDU is mounted to the structural provisions contained within STC ST02907CH

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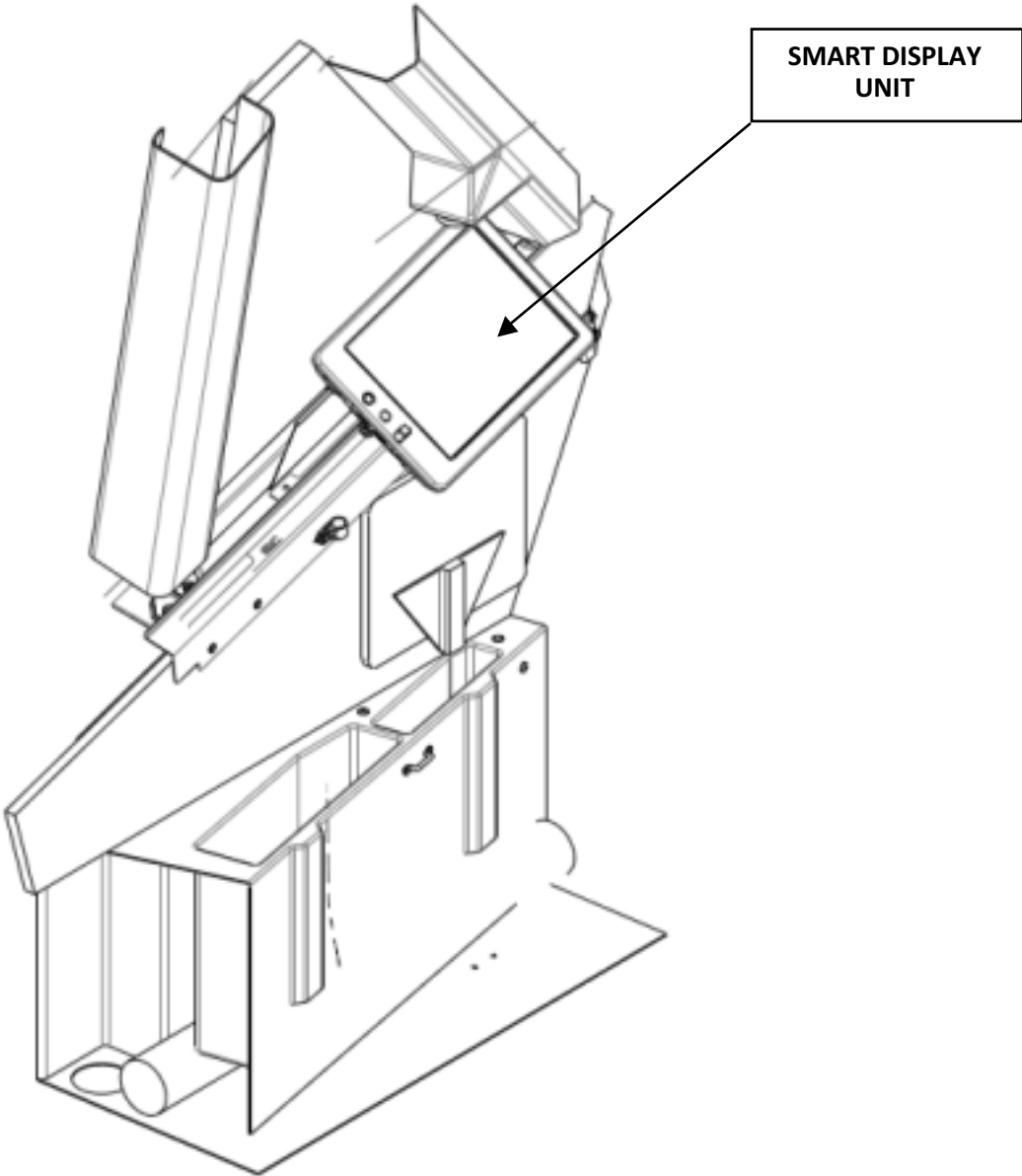
FIGURE 3: INSTALLED SDU CAPTAIN'S SIDE
(FIRST OFFICER'S SIDE IS A MIRROR IMAGE)

ADDITIONAL MECHANICAL CHANGES – CONFIGURATIONS 2 THRU 5 ONLY

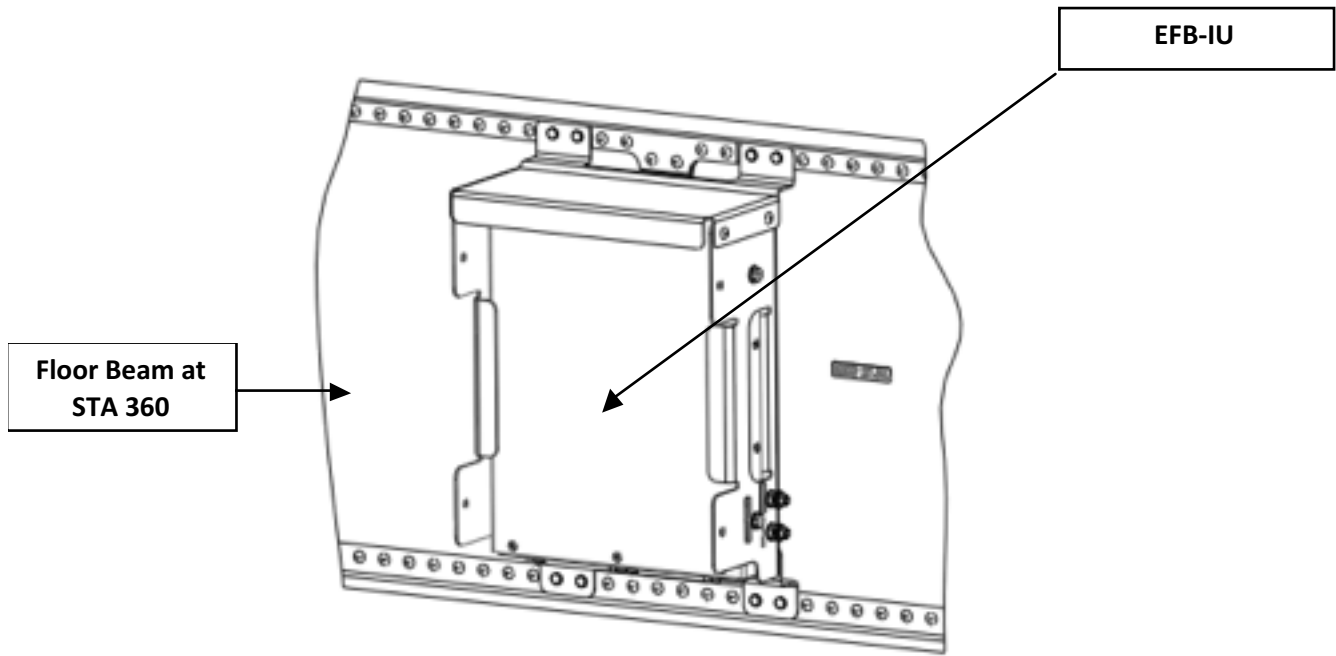» An EFB-IU mounting assembly is installed to the aircraft floor beam at approximate STA 360.

EFB-IU

Floor Beam at STA 360

FIGURE 4: EFB-IU INSTALLATION – CONFIGURATIONS 2 THRU 5

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ELECTRICAL CHANGES

CONFIGURATION 1

» Wiring to the L1/L2 entry doors and air/ground relays for enabling/disabling SDU USB capabilities.
» 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 and SDU.
» Ethernet crosstalk wiring between the captain's and first officer's SDU.

CONFIGURATION 2

» Wiring to the L1/L2 entry doors and air/ground relays for enabling/disabling SDU USB capabilities.
» 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, EFB-IU, and SDUs.
» Ethernet crosstalk wiring between the EFB-IU and the captain's and first officer's SDU.
» Aircraft interface wiring to the inertial reference unit (IRU), air data computer (ADC), flight management computer (FMC), and the aircraft condition monitoring system data management unit (ACMS DMU).
» Aircraft interface wiring to either the multi-mode receiver (MMR) or global positioning system sensor unit (GPSSU), which is dependent upon aircraft equipment effectivity.
» Provisions wiring to traffic alert and collision avoidance system (TCAS) and the aircraft communication addressing and reporting system (ACARS) printer.

CONFIGURATION 3 THRU 5

» Wiring to the L1/L2 entry doors and air/ground relays for enabling/disabling SDU USB capabilities.
» 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, EFB-IU, and SDUs.
» Ethernet crosstalk wiring between the EFB-IU and the captain's and first officer's SDU.
» Aircraft interface wiring to the inertial reference unit (IRU), air data computer (ADC), flight management computer (FMC), and the aircraft condition monitoring system data management unit (ACMS DMU).
» Aircraft interface wiring to either the multi-mode receiver (MMR) or global positioning system sensor unit (GPSSU), which is dependent upon aircraft equipment effectivity.
» Provisions wiring to traffic alert and collision avoidance system (TCAS) and the aircraft communication addressing and reporting system (ACARS) printer.
» Additional aircraft interface wiring to TCAS, to the ACARS communications management unit (CMU) and engine indicating crew alerting system interface unit (EIU).
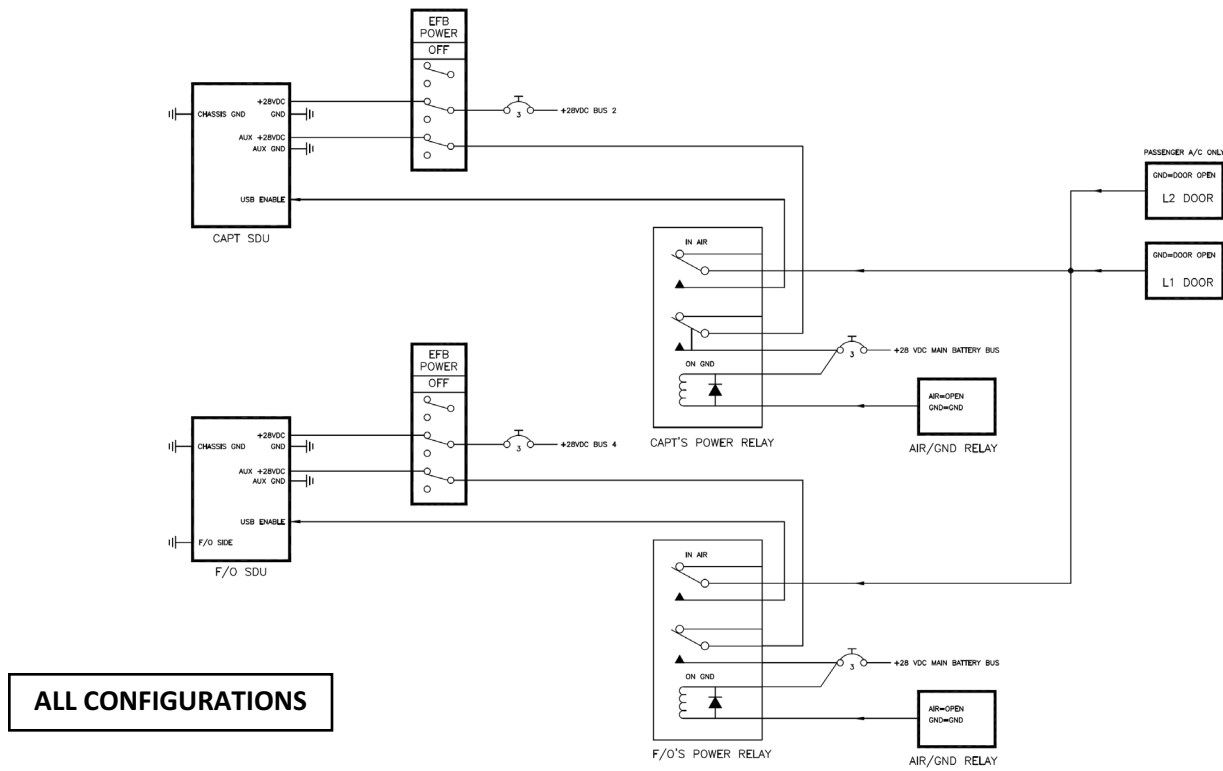
FIGURE 5: SYSTEM BLOCK DIAGRAM – POWERS AND GROUNDS
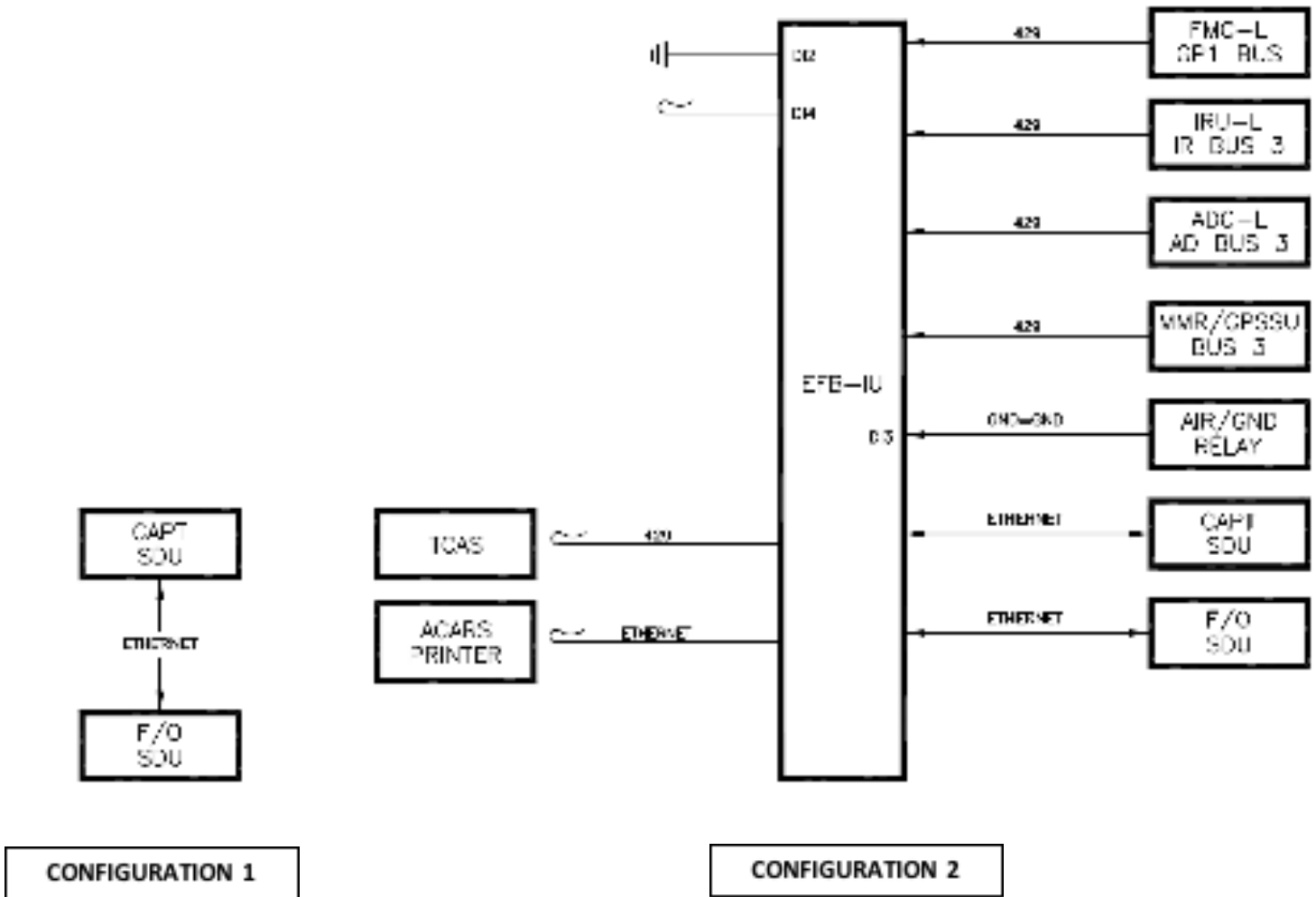
FIGURE 6, SHT 1 OF 2: SYSTEM INTERFACE BLOCK DIAGRAM
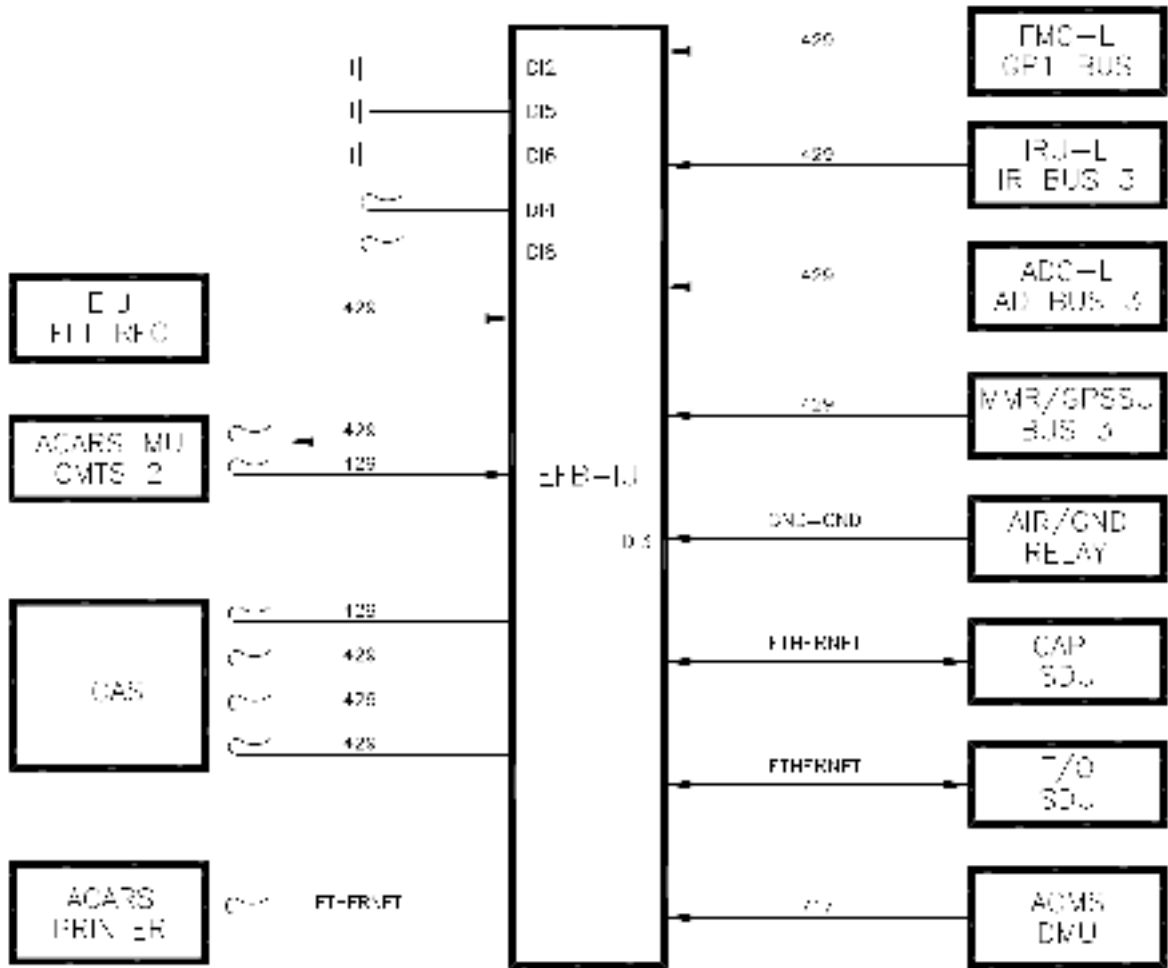
CONFIGURATIONS 3 THRU 5

FIGURE 6, SHT 2 OF 2: SYSTEM INTERFACE BLOCK DIAGRAM