

ST03341CH

FAA Supplemental Type Certificate



Installation of a Class 2 Electronic Flight Bag (EFB) System Provisions on Boeing 747 Series Aircraft (FAA STC ST03341CH)

OVERVIEW

» FAA STC ST03341CH.

INTRODUCTION

STC ST03341CH oversees installation of Class 2 electronic flight bag (EFB) system provisions in accordance with Electronic Cable Specialists (ECS) Master Data List ECS-209939.

YOUR NEEDS

Provides modernized EFB system mounting provisions for Boeing 747 series aircraft.

YOUR BENEFITS

The Class 2 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.

STC LIMITATIONS

» The equipment for which these provisions are intended has not been certified. Additional FAA approval is required for the installation of this equipment, which entails evaluation to ensure satisfactory compliance with applicable airworthiness standards.

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STC CONFIGURATIONS

- » Configuration 1: Installation of provisions for dual DU electrical power with crosstalk capabilities between the two units.
- » Configuration 2: Installation of dual DU provisions and EFB-IU P1 connections only.
- » Configuration 3: Installation of dual DU provisions and EFB-IU P1 and P2 connections.
- » Configuration 4: Installation of dual DU provisions and EFB-IU P1 and P2 connections (alternate harness routing).
- » Configuration 5: Installation of dual DU provisions and EFB-IU P1 and P2 connections (alternate harness routing).

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PRODUCT DESCRIPTION

Installation Overview

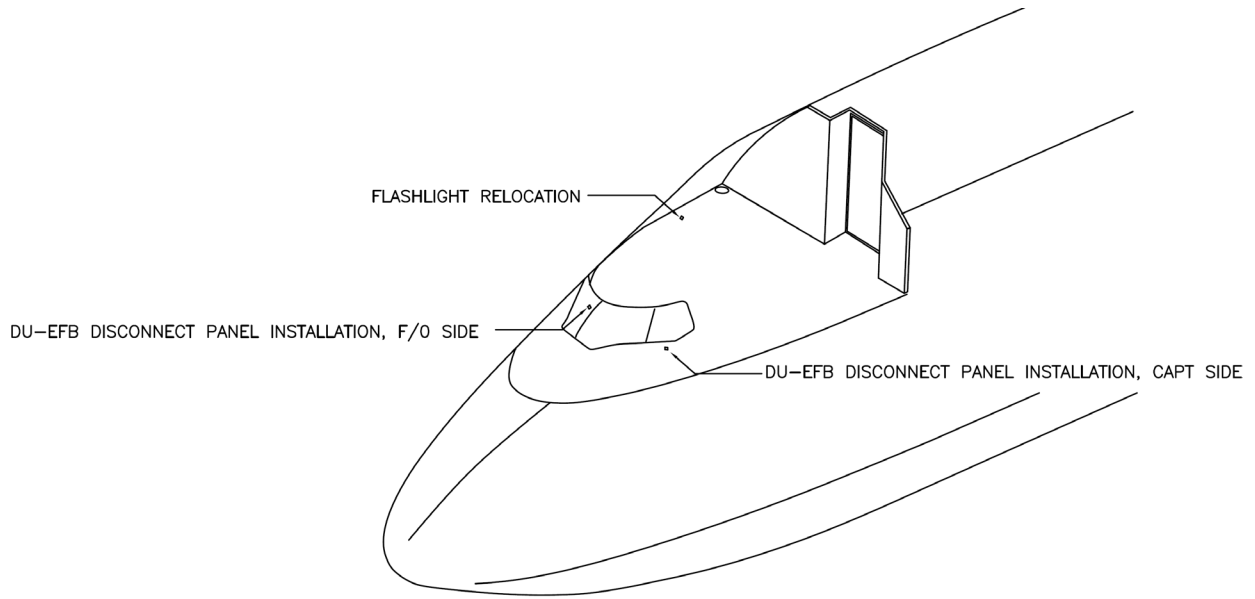
- » The Class 2 EFB system LRU provisions consist of an electronic flight bag interface unit (EFB-IU). The EFB-IU is not installed as part of Configuration 1.
- » Five circuit breakers (4-DU, 1-EFB-IU).
- » Two disconnect and power switch panels for removing power from the system.
- » One mounting structure for holding the EFB-IU (Configurations 2 thru 5 only).
- » Electrical wiring for power and signals to the DU disconnects and power switches.
- » Electrical wiring for power and signals to EFB-IU (Configurations 2 thru 5 only).

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

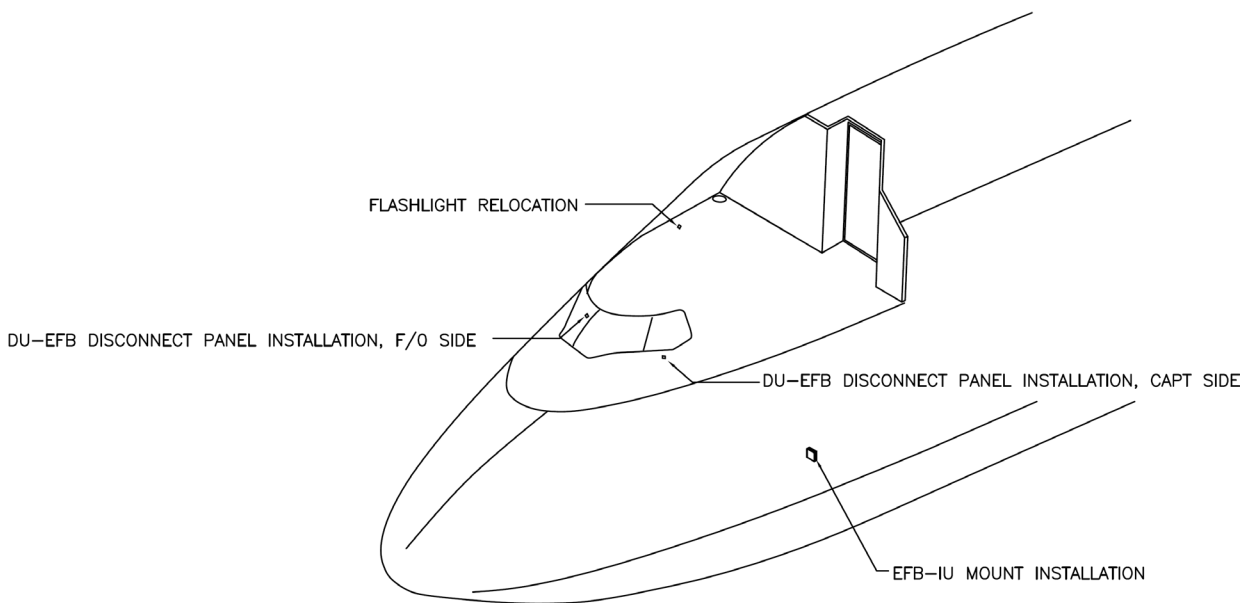
- » Display Unit (DU) Provisions (All Configurations)
The dual display units with interface cable will be approved under a separate FAA operational approval and are not included in this project. The provisions under this project include electrical power, discrete and ethernet wiring. They are installed to power the DUs, provide crosstalk capabilities, and air/ground status. These units are not interfaced with any other aircraft systems.
- » Electronic Flight Bag Interface Unit (EFB-IU) (Configurations 2 thru 5 only)
The EFB-IU is mounted on the aircraft floor beam at approximately STA 360. It provides interfaces to the aircraft systems and provides data to and from both DUs 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.

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CONFIGURATION 1



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

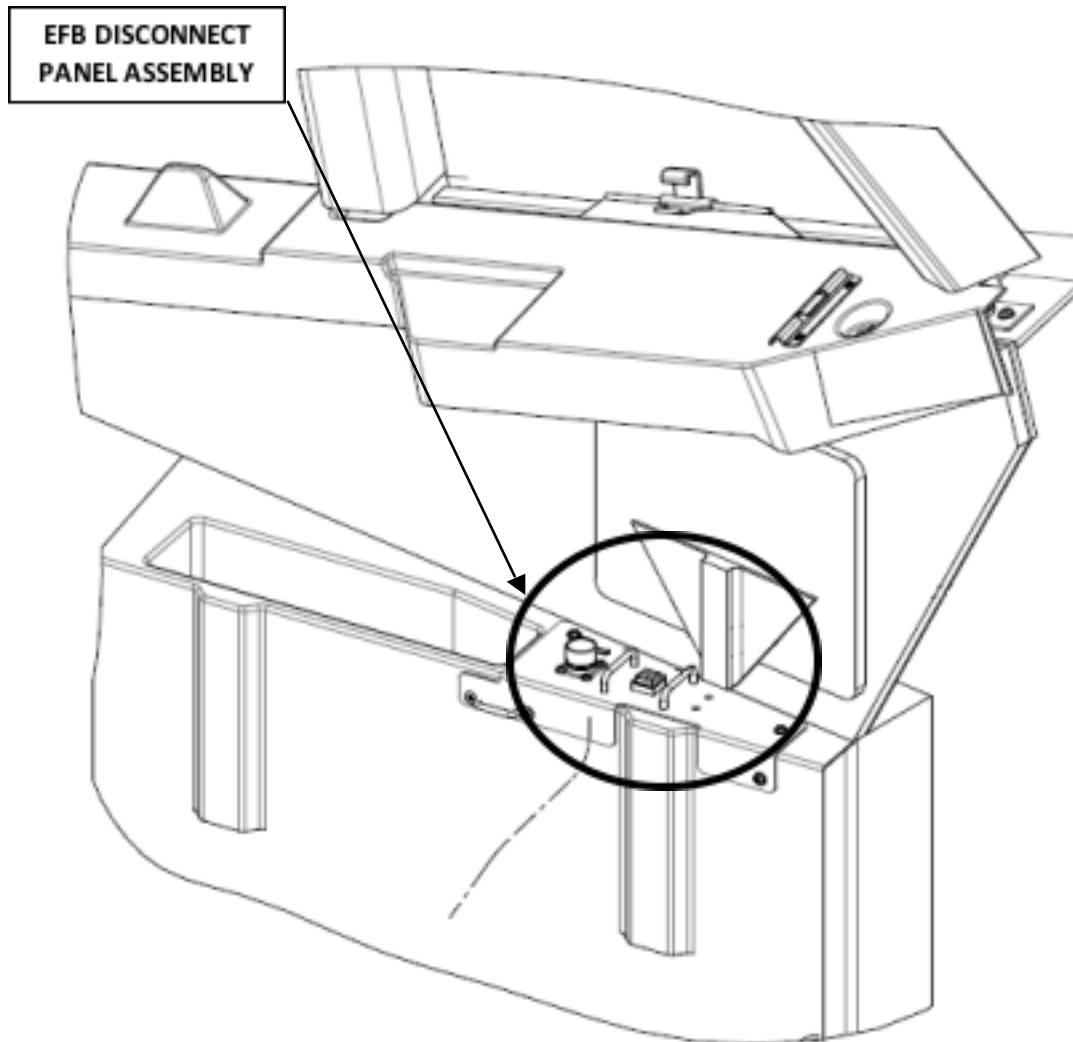


FIGURE 2: EFB DISCONNECT PANEL CAPTAIN'S SIDE
(FIRST OFFICER'S SIDE IS A MIRROR IMAGE)

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ADDITIONAL MECHANICAL CHANGES - CONFIGURATIONS 2 THROUGH 5 ONLY

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

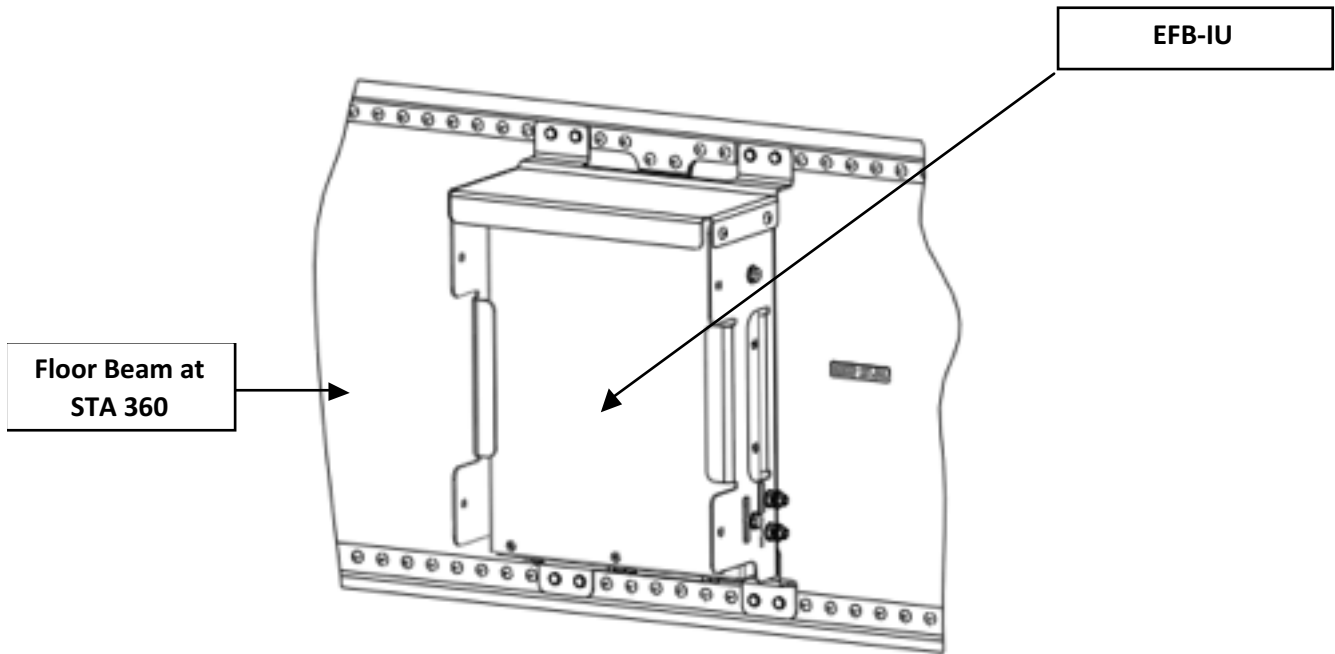


FIGURE 3: EFB-IU INSTALLATION – CONFIGURATIONS 2 THROUGH 5

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ELECTRICAL CHANGES

CONFIGURATION 1

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

CONFIGURATION 2

- » Wiring to the L1/L2 entry doors and air/ground relays for enabling/disabling DU 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 DUs.
- » Ethernet crosstalk wiring between the EFB-IU and the captain's and first officer's DU disconnects.
- » 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 THROUGH 5

- » Wiring to the L1/L2 entry doors and air/ground relays for enabling/disabling DU 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 DUs.
- » Ethernet crosstalk wiring between the EFB-IU, captain's, and First Officer's DU.
- » 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, ACARS communications management unit (CMU), and engine indicating crew alerting system interface unit (EIU).

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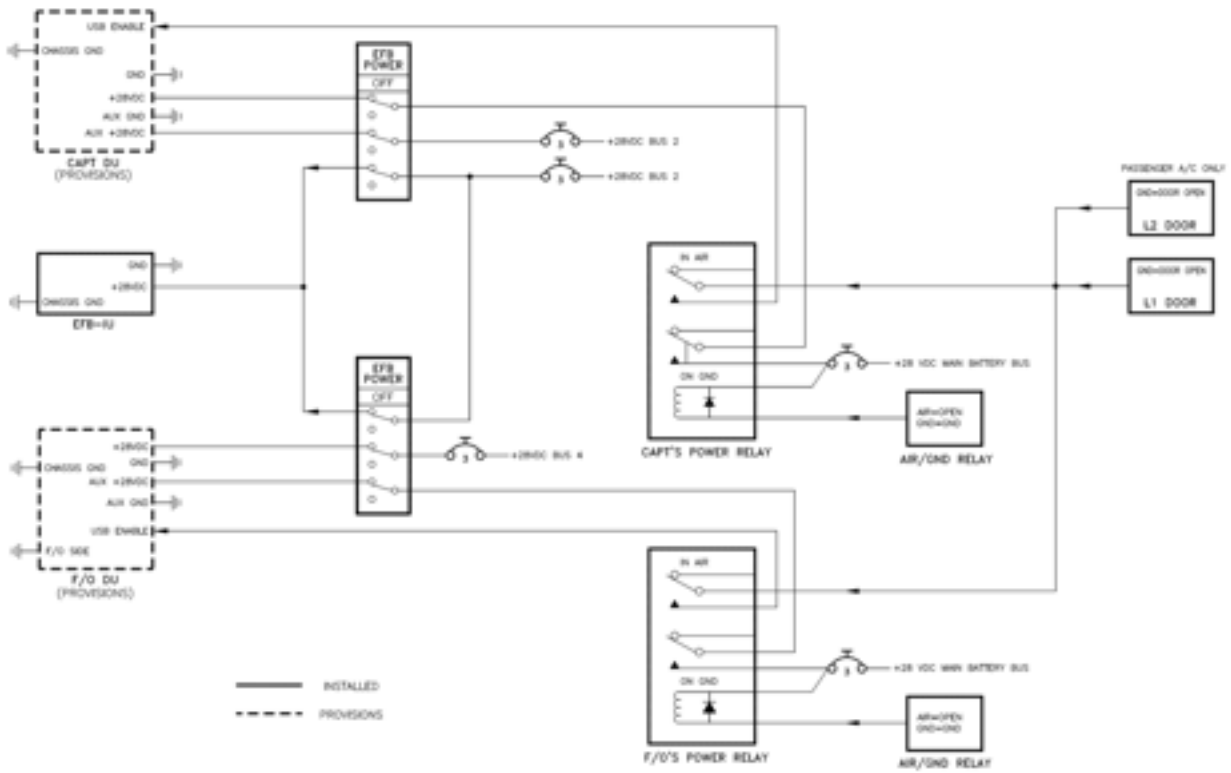


FIGURE 4: SYSTEM BLOCK DIAGRAM – POWERS AND GROUNDS

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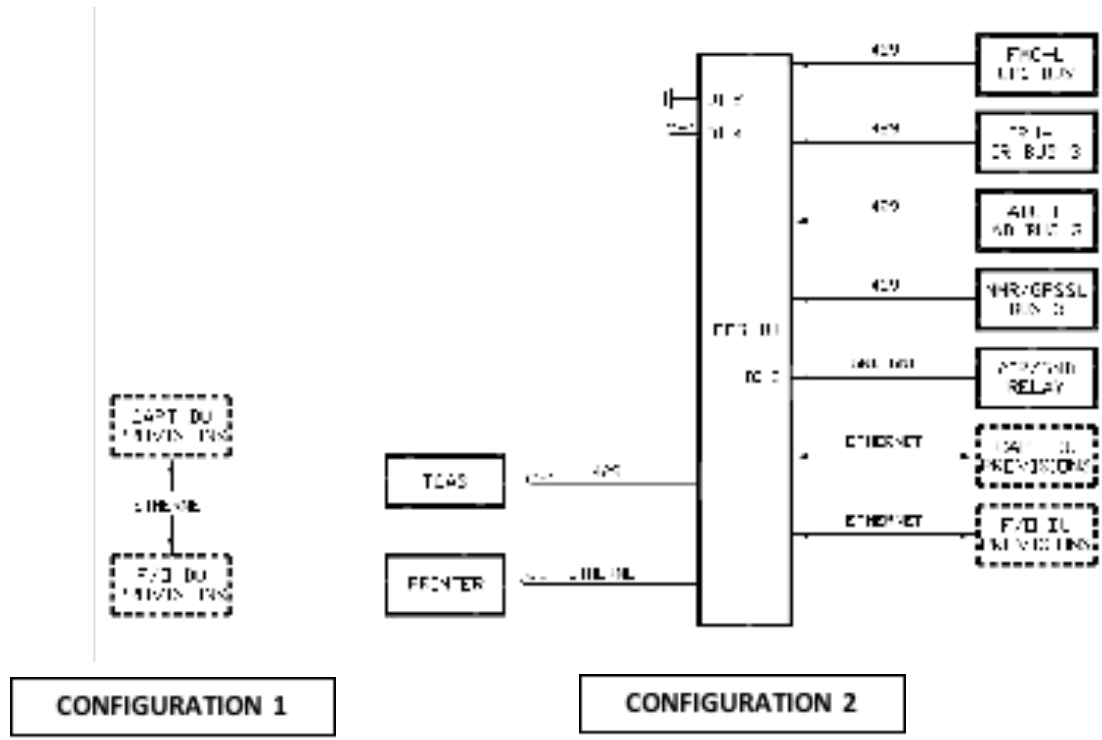
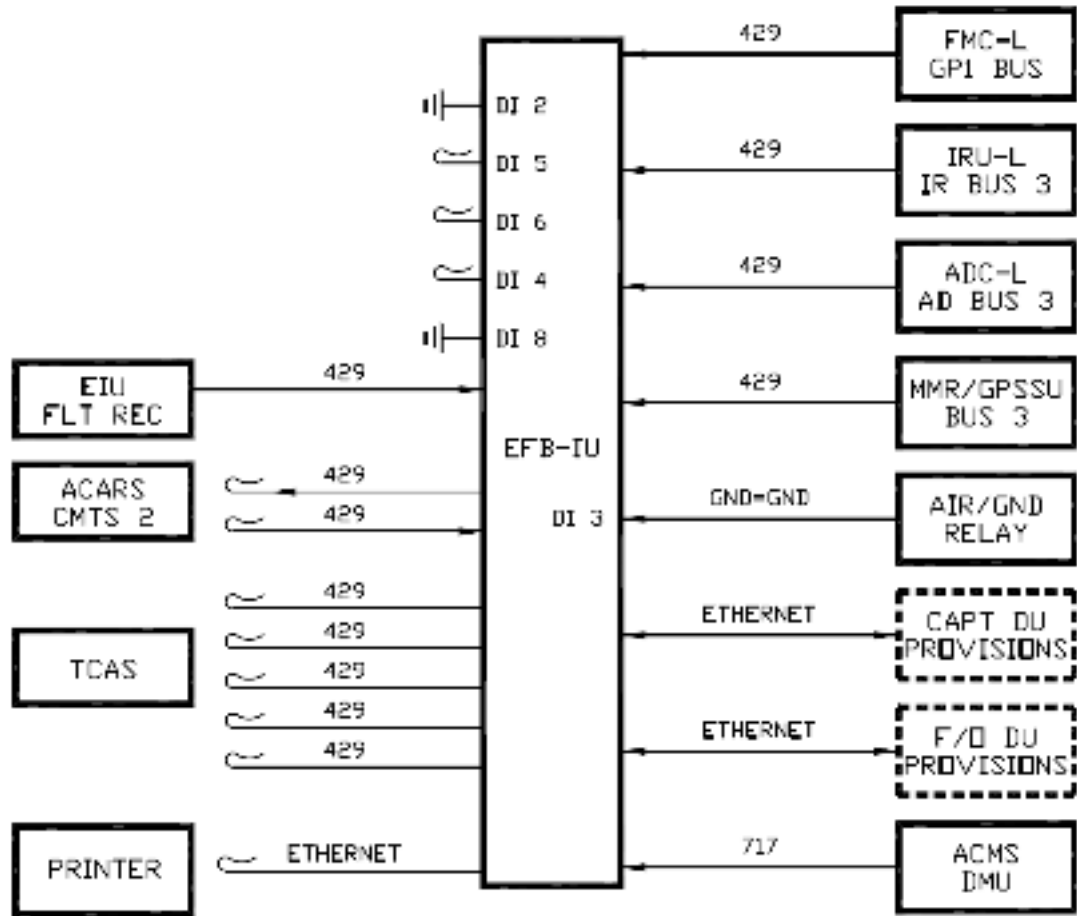


FIGURE 5, SHT 1 OF 2: SYSTEM INTERFACE BLOCK DIAGRAM

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CONFIGURATIONS 3 THRU 5

FIGURE 5, SHT 2 OF 2: SYSTEM INTERFACE BLOCK DIAGRAM

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Sales@CarlisleIT.com