CHAPTER

45

CENTRAL MAINTENANCE SYSTEM

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CENTRAL MAINTENANCE SYSTEM - DESCRIPTION AND OPERATION

1. General

A. The central LRUs (Line Replaceable Unit) of the Maintenance System are the Maintenance Diagnostic Computer (MDC), the Flight Guidance Computer (FGC), and the MFD. The maintenance data is displayed on the MFD. The controls are the MFD Line Select Keys. Maintenance information may also be downloaded to a diskette in the Data Base Unit (DBU) to allow further examination off of the aircraft.

The Maintenance System involves failure detection, retrieval of current and past failures, display of current LRU diagnistic, and display and control of specifical aircraft information. Most LRUs perform self monitoring (failure detection) and report failures to the MDC. The MDC compiles a maintenance record for each reporting LRU and stores this file in nonvolatile memory. The pilot or flight-line technician can display LRU status information and, current or past failures. Airplane identification, time and date can be entered and stored in the MDC.

The Maintenance Diagnostic Computer (MDC) is a Electronic Board located in the (IAPS) Integrated Avionics Processor System (Ref. Fig 1).

For the Maintenance Diagnostic Procedures Refer to CNP 815-5587-001 CAGEC 4V7942 Rockwell Collins Manual, last revision.

B. An optional Digital Aircraft Data Acquisition System (ADAS) can be installed on the airplane. The system enable the A/C operator to control, qualify and manage engine maintenance operations.

C. An optional Data Transmission Unit (DTU) System can be installed on the airplane. The DTU system provides the communication capabilities through which the engine performance data can stream to the maintenance organisation without operator intervention

CENTRAL MAINTENANCE SYSTEM - MAINTENANCE PRACTICIES

1. Maintenance Diagnostic Tables Mdt-3110- Acquisition

A MDT-3110 Maintenance Diagnostic Table software CPN 810-0042-050 is acquired with each MDC-3110 Maintenance Diagnostic Computer and has to be uploaded in order to perform dedicated P.180 fault logic to ProLine 21 LRUs.The tables are delivered on a single floppy disk labeled with its CPN.

2. Installation

No installation is necessary before MDT-3110 upload.

3. Upload

A. DBU-4100 UPLOAD PROCEDURE

(1) On the Cursor Control Panel (CCP) push the STAT button to show the last displayed status page format.
(2) If the last displayed status page format is not the MAINTENANCE MAIN MENU, push the MENU button on the CCP. When the STATUS MENU appears, turn the outer MENU ADV knob to highlight MAINTENANCE MAIN MENU.
(3) Push the PUSH SELECT button to access the MAINTENANCE MAIN MENU page. The MAINTENANCE MAIN MENU page shows on the MFD.
(4) Position the cursor on the MDC SETUP line using the UP or DOWN line select keys on the left side of the MFD.
(5) Push the SELECT line select key to show the MDC SETUP page Figure 201.
(6) Position the cursor on the LOAD FILES FROM DISK line using the UP or DOWN line select keys on the left side of the MFD.
(7) Push the SELECT line select key to show the LOAD FILES FROM DISK page Figure 202.
(8) Position the cursor on the DIAGNOSTIC TABLES line using the UP or DOWN line select keys on the left side of the MFD.
(9) Insert the disk containing the Diagnostic Tables into the DBU
(10) Push the SELECT line select key to show the DIAGNOSTIC TABLES.
(11) If any faults are stored in the MDC's Fault History memory, the MDC will display an ALERT PAGE notifying the user that all Fault History will be deleted by loading new diagnostic tables.
(12) To continue loading the diagnostic tables, select Continue on this page.

NOTE: - The MDC will delete any faults stored in Fault History and will display the LOADING DIAGNOSTIC TABLES progress page. During the load process, the MDC will acquire the DBU and verify the contents of the DBU disk. Once it has verified the correct files, the MDC will start loading each of the diagnostic table files.

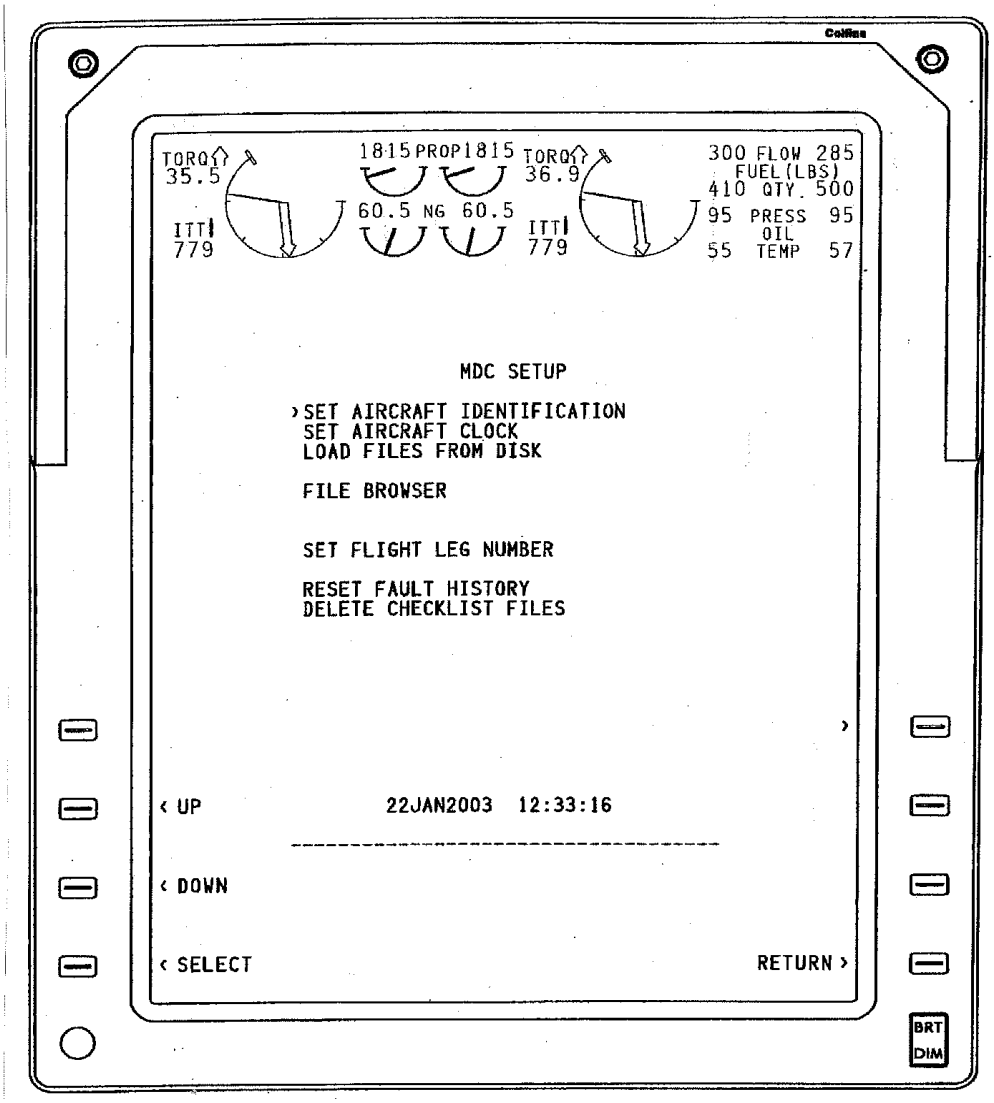

Fig. 201 - MDC Setup Page

(13) When all of the diagnostic table files have been loaded into the MDC, the MFD will display Load Complete on the LOADING DIAGNOSTICS TABLES progress page.

(14) Select Return on this page.

(15) The MFD will display the LOAD FILES FROM DISK page.

(16) Select Return on the LOAD FILES FROM DISK page.

(17) The MDC will re-boot to allow the new diagnostic table to take effect.

(18) When the MDC completes the re-boot process, if the diagnostic tables had been previously loaded into the MDC, it will display the MAINTENANCE MAIN MENU page. If this is the first time diagnostic tables have been loaded into the MDC, the MDC will display the SET AIRCRAFT ID page, prompting the user to enter aircraft identification. Once the operator has entered the aircraft identification, the MDC will again restart and will now display the MAINTENANCE MAIN MENU page.

NOTE: - To ensure proper recognition of the newly installed software data (and avoid displaying incorrect data) by all of the avionics systems, the entire avionics equipment suite must be turned off and restarted after the completion of any load onboard the aircraft.
- The CPN of the loaded tables will be displayed on the cockpit display under the MDC CONFIGURATION page.
- It may take the MDC at least one minute after the diagnostic tables have been loaded until the MDC CONFIGURATION page display is available.

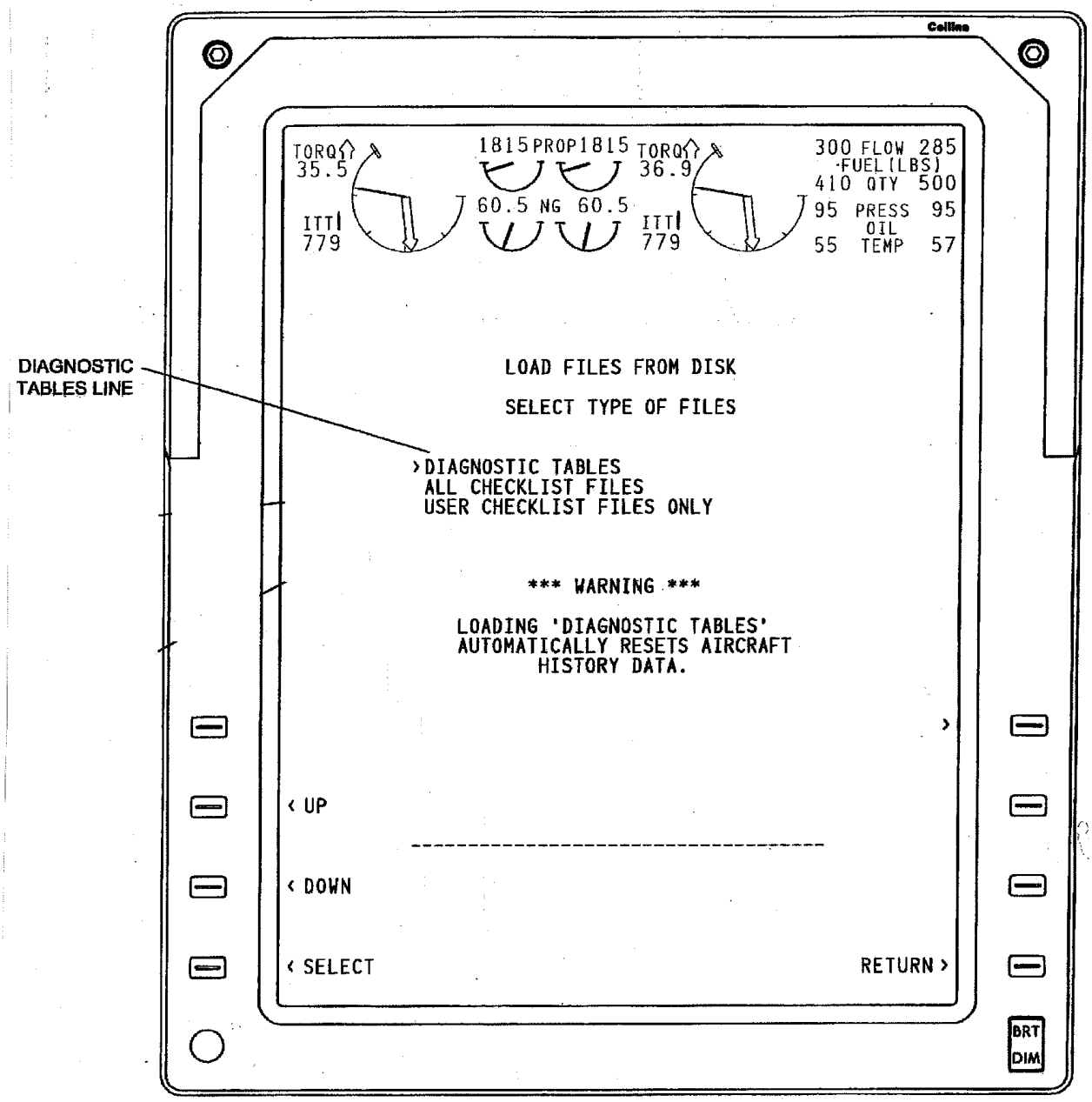

Fig. 202 - Load File From Disk Page

B. PCD-3000 UPLOAD PROCEDURE

(1) Ensure the MDC is operating and that the PC is properly connected to the aircraft with the appropriate cable.

(2) Double click on the PCD-3000 icon.

(3) Refer to Figure Under Database Upload, select MDC.

(4) To upload software from the PC's hard drive, select the MDC DQE files item from the MDC drop-down box and proceed to the next step. To upload software from a compact disk (CD), click on the Load From CD button. If the PC contains more than one CD-ROM drive, the Select CD-ROM drive window will appear, displaying a list of available CD-ROM drives. Select the desired drive and click the OK button. Select the desired software item from the Select Data/Software to be Updated drop-down box

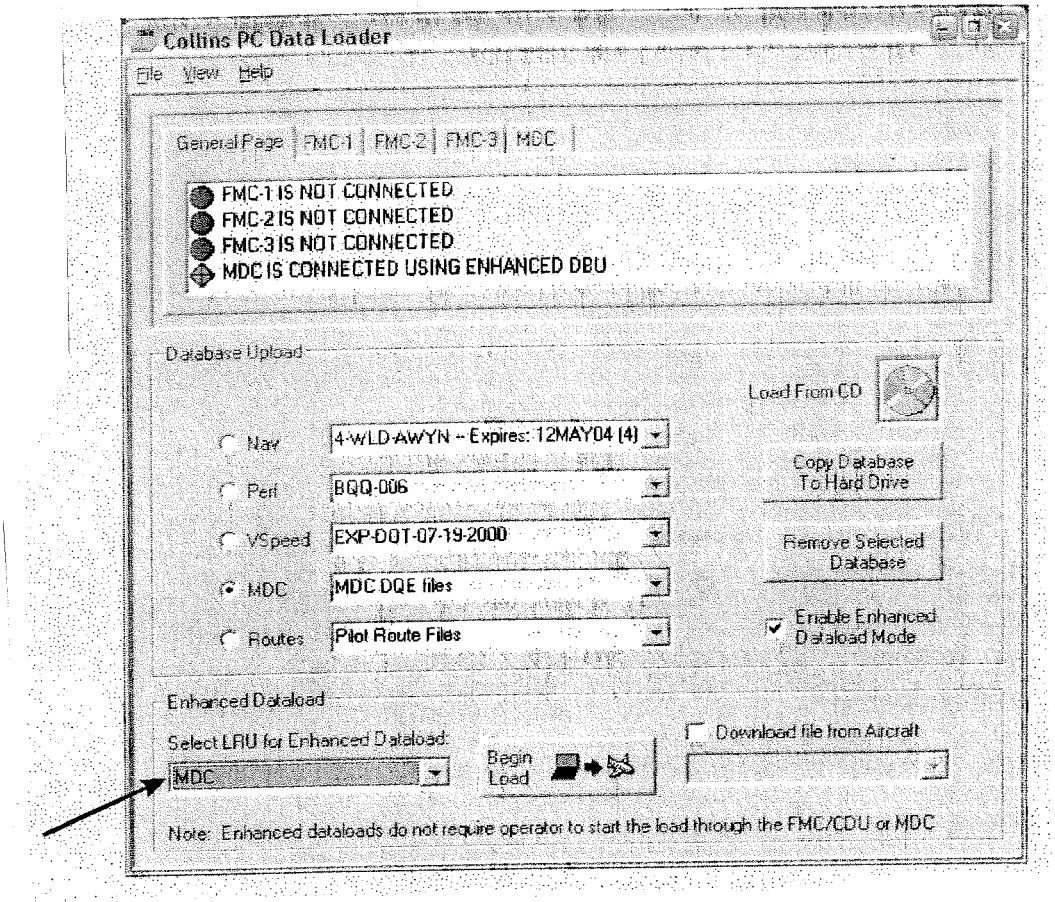

Fig. 203 - Dataload Drop-Down Menu

(5) Select MDC in the Select LRU for Enhanced Dataload dropdown menu and then click on the Begin Load button. The upload is now in process.

(6) When software loading is complete, a load complete message is momentarily displayed on the MFD.

NOTE: - To ensure proper recognition of the newly installed software data (and avoid displaying incorrect data) by all of the avionics systems, the entire avionics equipment suite must be turned off and restarted after the completion of any load onboard the aircraft.
- The CPN of the loaded tables will be displayed on the cockpit display under the MDC CONFIGURATION page.
- It may take the MDC at least one minute after the diagnostic tables have been loaded until the MDC CONFIGURATION page display is available.

C. CPAS-3000 UPLOAD PROCEDURE

Figure 204 shows the data flow during CPAS-3000 upload

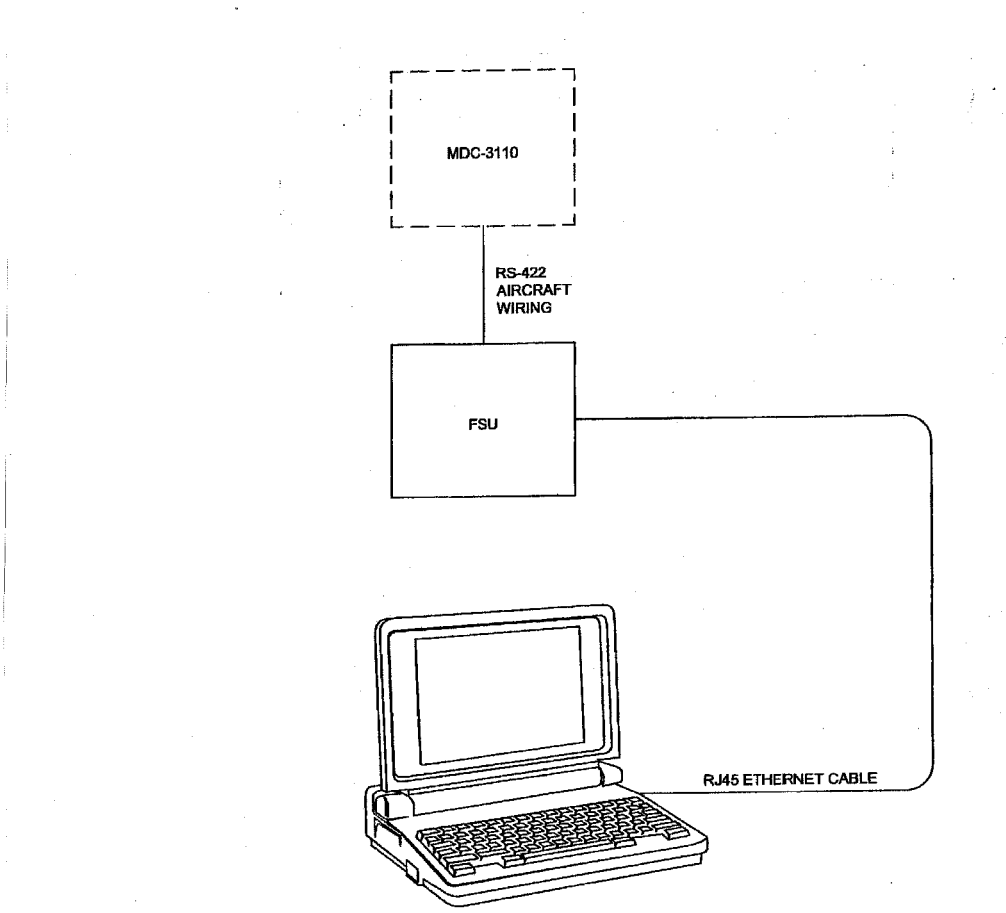

Fig. 204 - MDT Data Flow using CPA - 3000

(1) Ensure the MDC and the FSU are operating and the PC is properly connected to the FSU with the appropriate Ethernet cable.

(2) On the PC, double click on the Launch Pad icon and then click on the Data Load button to launch the application.

(3) Select the load direction by clicking on the Upload button.

(4) Refer to Figure 205. Select the desired MDC target from the Select Target/LRU to be Updated drop-down box. If there are no targets in the list, click on the Refresh Targets button. If there are still no targets in the list, verify the data load targets/line replaceable units are properly connected to the network and repeat this step.

(5) To upload software from the PC's hard drive, select the desired Diagnostic Tables software item from the Select Data/Software to be Updated drop-down box and proceed to the next step. To upload software from a compact disc (CD), click on the Load From CD button. If the PC contains more than one CD-ROM drive, the Select a CD-ROM Drive window will appear, displaying a list of available CD-ROM drives. Select the desired drive and click the OK button. Select the desired software item from the Select Data/Software to be Updated drop-down box.

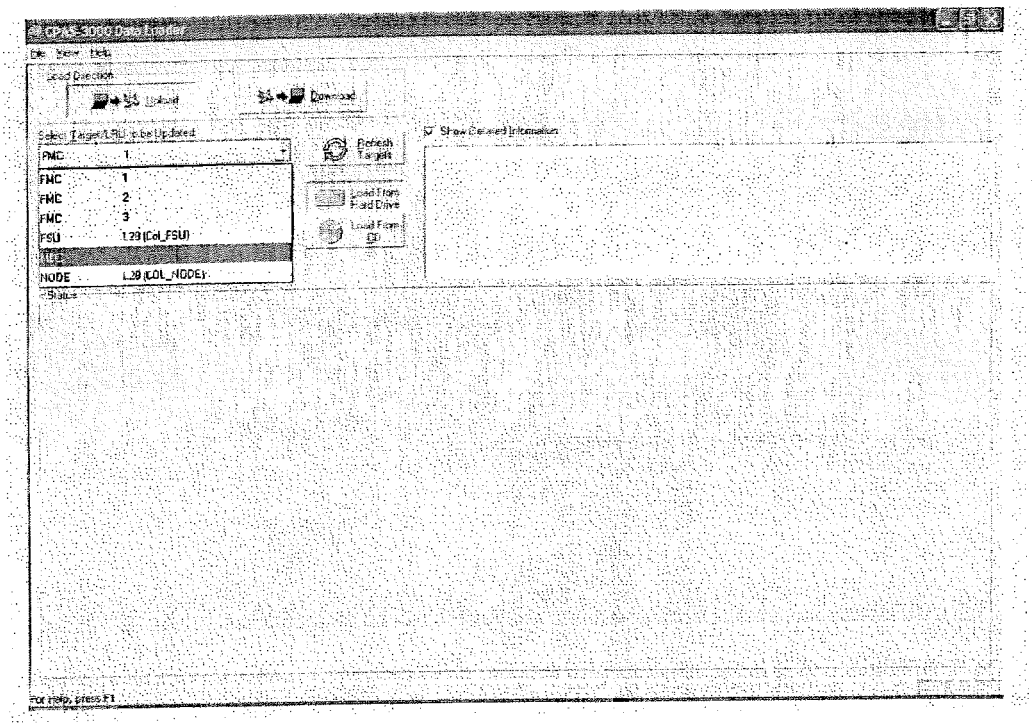

Fig. 205 - Target / LRU to be Updated Window

(6) Click on the Begin Load button. The upload is now in progress. A tab displaying the status of the load will appear in the Status area (Figure 206).
(7) When the MDC interface used to start the load indicates the load is complete, click on the Cancel Upload button. The button text will change to "Close Status".
(8) Click the Close Status button to close the status tab for the completed load.
(9) Select File > Exit from the menu bar to exit the CPAS-3000 Data Loader.
(10) Remove power from the PC. The FSU may remain powered up.
(11) Disconnect the data load cable from the LRU and the PC.

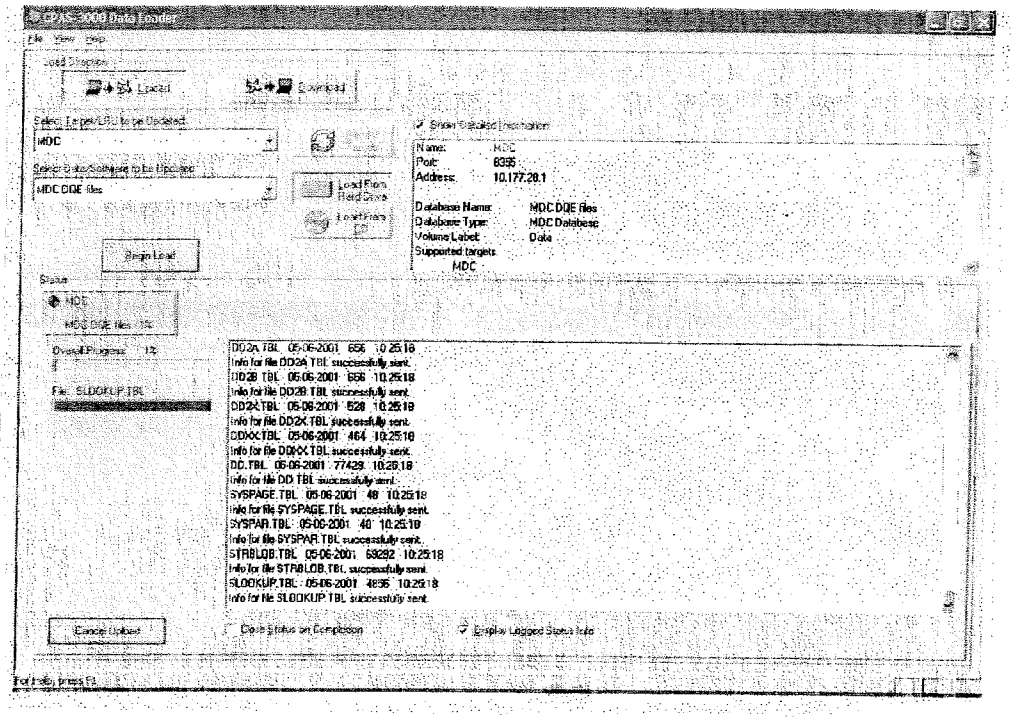

Fig. 206 - Status Window

NOTE: - To ensure proper recognition of the newly installed software data (and avoid displaying incorrect data) by all of the avionics systems, the entire avionics equipment suite must be turned off and restarted after the completion of any load onboard the aircraft.
- The CPN of the loaded tables will be displayed on the cockpit display under the MDC CONFIGURATION page.
- It may take the MDC at least one minute after the diagnostic

tables have been loaded until the MDC CONFIGURATION page display is available.

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CENTRAL MAINTENANCE SYSTEM - DESCRIPTION AND OPERATION

1. Digital Aircraft Data Acquisition System (ADASd) - Description

An optional Digital Aircraft Data Acquisition System (ADASd) (Refer to Fig. 1) can be installed on the airplane. The system enable the A/C operator to control, qualify and manage engine maintenance operations.
The ADASd system performs three primary functions:

- Exceedance Events Recording: the processor monitors several engine parameters and record istances where they have exceeded preset value;
- Engine Trend Monitoring: the system can gather and store engine data sample for trend analisys;
- Trend/Fault Illuminated Pushbutton: can be configured to record data either manually or automatically.

Collected data is accessed through a download serial port by means of dedicated link program MLP (Monitor Link Program), used also to upload system configuration files. Collected data shall be uploaded, via Internet connection, to P&W / Altair's dedicated website to perform analysis of log data and eventually generate reports/graphs.

The System Processor Unit is the core of the ADASd system and is installed in a cabinet above the Freon system cabin evaporator box, with an access door on the aisle side.

The Trend/Fault Illuminated Pushbutton is installed on the copilot instrument panel and allows test operation and fault monitoring. Fault indications are displayed to the operator through the on/off or flashing status of the lamp.

The Download Connector is installed in the same cabinet accomodating the System Processor Unit.

The system is powered by the RH Single Feed Bus through a 3A circuit breaker labelled ADASd, located on the Copilot CB Panel and by the Hot Battery Bus through a 3A circuit breaker labelled ADAS1, located in the Main Junction Box.

2. Digital Aircraft Data Acquisition System (ADASd) - Operation

A. System Initialization

The system will initialize if it receives both the Hot Battery and Right Single Feed Bus power feedings and the fault lamp TREND will indicate the various stages of the process.
The initialization sequence will proceed as follows.
When the processor's power is first applied, the fault lamp will illuminate (first solid for 1 to 3 seconds then flashing) for 3 to 5 seconds while the system performs the self-tests.

If any self test fails, the processor will restart the initialization cycle and the cycle will continue until power is removed. The illumination of the lamp will be a period of ON followed by a very brief OFF, repeated every 5 seconds, or less.
If the initial self-tests do not fail, the processor will normally extinguish the lamp for approximately 3 to 5 seconds, indicating completion of the self-test phase.

It will then proceed to check for a "Matching Engine Configuration Value", and if the hard-wired engine/sensor/system configuration does not match the expected software value stored internally, the lamp will illuminate solid.
Such a fault can be corrected by loading a configuration file using the Altair Avionics Monitor Link Program (MLP).

NOTE: If the engine configurations do not match, the system will be in **Fault State**.

– If the test passes, the lamp will remain out and the processor will enter a system mode.

System Modes

After initialization, the processor will enter one of two primary system modes of operation,

– **Run Mode** (for data collection), or
– **Configuration Mode** (communication with a laptop through download port.

Configuration Mode is entered when download cable is attached with switch set to CONF.
Run Mode is entered when the cable is not attached, or attached with switch set to RUN.

There are four possible states for the system in Run Mode.

– **Normal** state, system is performing normally OR recorded an input programmed to indicate Normal state.
– **Maintenance** state, the system recorded an input programmed to indicate Maintenance state.
– **Caution** state, the system recorded an input programmed to indicate Caution state.
– **Fault** state, the system has failed OR recorded an input programmed to indicate Fault state.

Each state determines the fault lamp display as follows:

LAMP STATE		OPERATION
		Normal State
Lamp Extingushes		- System is normally performing (system checks all passed) and there are no previous flight exceedance recorded.
		Maintenance State
Lamp Flashes	Pressing button turns lamp OFF	- The system has detected a minor fault condition that will not affect its ability to function as exceedance monitor, or - A previous flight exceedance has occured.
		Caution State
	Pressing button does **NOT** turn lamp OFF	- The system has detected a fault condition that may not affect its ability to function as an exceedance monitor, or - The memory is full and the system will NOT record any further data.
		Fault State
Lamp Solid		The system has detected a fault condition that **WILL** affect its ability to function as an exceedance monitor.

B. Download (COMM) Port

The Serial COMM Port is used to interface with the processor allowing data upload and download, by means of the dedicated link program MLP with RS485 serial protocol.

C. Monitor Link Program

Altair's Monitor Link Program (MLP) is a multipurpose communication tool designed to allow the operator to quickly retrieve and transfer engine operational data, and to configure, calibrate and troubleshoot the ADASd monitoring system.
MLP runs on a laptop PC with a simple Windows interface and it is designed as an easy-to-use interface to Altair's trend analysis and fleet management system.
The RS-232 serial port of the laptop shall be connected to the ADAS COMM Port by means of a dedicated Communication Cable provided with a RUN/CONFIGURE switch to set different modes of operation (USB laptop port can be used with a USB to RS-232 adapter).
As a configuration tool, MLP enables the operator to set up the Processor for the particular aircraft, engine, and system installed.
As a verification and troubleshooting tool, MLP allows the operator to view live

data from engine and aircraft sensors as it is collected (live data displayed parameters are recorded on the laptop in a location defined by the user).

3. View Live Data

MLP can show a picture of the system as it is working and collecting data in real time.
This feature, called Live Data Display is especially useful during initial installation and testing, or for troubleshooting the system.
A typical use for Live Data Display would be for checking proper acquisition of a sensor by comparing its current reading against the corresponding cockpit instrument's current reading. Or for checking to see if a sensor channel has been faulted by the system. Graphic view of live data is also available.

The latest version on MLP is available for download in the appropriate section of Turbine Tracker Internet Web Site, along with a dedicated User's Guide.

MLP includes a feature for synchronizing aircraft installation and Turbine Tracker data (bi-directional sync). This feature allows data log retrieval and configuration files update.

4. Configuration File

An MLP data file that contains engine, sensor and calibration information for a specific airplane. This file is transmitted to the processor during configuration.

5. Data Transmission Unit System (DTU) - Description

An optional Data Transmission Unit (DTU) system (Refer to Fig. 2) can be installed on the airplane. The (DTU) system provide the communication capabilities through which the engine performance data can stream to the maintenance organization without operator intervention.
The source of this data is the "ADASd " engine monitoring and recording system (therefore has to be already or concurrently installed onboard).
In this mode of operation the DTU passively receives (from "ADASd ") and relays the aircraft data after landing by means of multiple communication modes (download connector, cellular and wireless LAN this last one not enabled on P 180).
The Data Transmission Unit (DTU) system consists of:
System Processor: it is the core of the system and is installed above the Freon system cabin evaporator box, with an access door on the aisle side.

GSM/GPRS patch antenna: this antenna will be installed inside the cabinet, by means of dedicated Velcro strips. The antenna guarantees cellular communication for the TRI-Band GSM standard.

LAN antenna: this antenna will be installed directly on the relevant System Processor SMA connector.

DTU RF Status/Fault Lamp: it is a two section lamp switch that presents and controls the DTU status.

The connection to the cellular band is available only if a dedicated SIM card is installed in a dedicated cardholder (with a matching notched corner) located on DTU side and protected by a dedicated cover.
The SIM card must have data (GPRS) enabled and must first be activated by the provider.
It must:

– have PIN access DISABLED, or
– if PIN must be used the default must be set to 1234.

Unless, in either case the card will be locked requiring PUK activation

The power supply to the DTU is provided through the ADASd System, derived directly from the ADASd input connector and routed to the DTU connector.

6. Configuration File

An MLP data file that contains cellular carrier information for the installed SIM Card and the information for the specific airplane. This file is transmitted to the processor during configuration.

7. System Operation Overview

The Data Transmission Unit (DTU) works as follows:

– When the aircraft lands and the engines are shut down, the DTU will collect data from the aircraft system.
– The DTU will establish a cellular connection. The DTU will utilize an existing GSM/GPRS cellular network for data transmission.
– All information downloaded from the aircraft system will be transmitted to the Internet based data collection management service, TurbineTrackerTM.
– Altair's TurbineTrackerTM website has integrated Pratt & Whitney Canada's webECTM® program, so trend data uploaded is automatically processed and made available for webECTM® analysis.
– The transmission of data can occur after every flight.

System Initialization and Lamp State Description

The Data Transmission Unit (DTU) incorporates a push-to-test dual lamp indicator to provide the operator with information about the system.

DTU status processing involves the display of the DTU status to a user. Two lamps and a button are employed to present and control the DTU status:

– DTU Status Lamp: displays overall system status.
– RF Status Lamp: displays the current state of the Micro Server (MS) power.
– DTU Button: accepts user control of the DTU Status Lamp and DTU Maintenance mode.

8. Data Transmission Unit (DTU) System - Operation

System Initialization And Lamp Status - Description

When power is first applied the Data Transmission Unit initialises and both the DTU Status and RF Status lamps shall illuminate for 3 to 5 seconds while the system performs the self-tests.

At the completion of the DTU processor initialisation, both the lamps will indicate system status as described hereinafter.

System Modes

After initialisation, the processor will enter one of two primary system modes of operation:

– **Run Mode**, or
– **Configuration Mode** (communication with a laptop through download port.

Configuration Mode is entered when download cable is attached with switch set to CONF.
Run Mode is entered when the cable is not attached.

A. DTU RF Status / Fault Lamp

It is a dual lamp and switch that consists of a push-to-test combination switch and lamp, to present and control the DTU status :

– **Fault** Status Lamp: displays overall system status through ON/OFF or flashing
– **RF** Status Lamp: displays the current status of the Micro Server (MS) power
– Push-button: accepts user acknowledge input to clear the DTU Status Lamp and to enter DTU Maintenance mode.

The Fault Lamp and the RF Status Lamp are used to inform a maintenance person of the DTU status by flashing at various rates or being displayed on solid as follows:

– Normal State Off
– Caution State Flash slow (1 Hz)
– Maintenance State Flash slow, hold button for 5 seconds to clear
– Transmitting State Flash fast (2 Hz)
– Fault State or RF Waiting Solid

At power up:

– Fault Lamp comes on solid for about 5 seconds indicating system boot up, then the status of table below shall be displayed.

LAMPS STATUS		FAILURE TYPE	DESCRIPTION
FAULT	RF		
Fault	Off	BIT	Diagnostics error
Maintenance	Off	ACS Connect	Cannot talk to ACS
Off	Maintenance	Data TX Error	Error during up/download
Off	On	RF enable	RF ok, waiting
Off	Transmitting	RF TX	Sending/receiving data
85% - Maintenance 100% - Caution	Off	Memory size	Memory threshold(s) reached
Caution	Off	Data Integrity	Talking with ACS, but had aproblem

Table 1: RF & Fault Lamps Status Indication

B. Antennas

The GSM/GPRS patch antenna guarantees cellular communication for the TRI-Band GSM standard (EGSM900, GSM1800 and GSM1900).
The LAN antenna supports the IEEE 802.11 standards for wireless networking (capability not enabled on P 180).

C. Download Connection

– Download (COMM) Port

The DTU provides a download connector in lieu of the one provided with ADASd installation.

Collected data is accessed through this download serial port by means of the dedicated link program MLP (used also to upload system configuration files) with RS485 serial protocol.

Monitor Link Program

Altair's Monitor Link Program (MLP) is the multipurpose communication tool designed to allow the operator to quickly retrieve and transfer engine operational data, and to configure, calibrate and troubleshoot the DTU and, through the DTU, the ADASd monitoring system.
MLP allows a connection to the ADASd through the DTU when installed.
As a configuration tool, MLP enables the operator to set up the DTU for the particular aircraft and customer/provider data.
The latest version on MLP is available for download in the appropriate section of Turbine Tracker Internet Web Site, along with a dedicated User's Guide.
MLP includes a feature for synchronising aircraft installation and Turbine Tracker data (bi-directional sync). This feature allows data log retrieval and configuration files update.

DTU Connection & Transparent Mode

MLP is normally set to communicate directly with the engine monitor and shall be set-up to allow correct operation with a DTU installed on the aircraft.

By checking the "DTU Connect" box in the Options Menu and upon restarting MLP, a red "DTU" button shall become available at the top toolbar.
The DTU shall be then configured, before the engine monitor (Refer to 45-70-00 Page Block 200).
After DTU configuration, ADASd can be accessed entering the "Transparent" mode by clicking the red "DTU" button.
Once the DTU establishes the connection to the ADASd (a few seconds) the RED DTU button at the top of the MLP Page will turn GREEN ("Transparent" mode set and communication with ADASd properly established).
Transparent Mode must be stopped before closing MLP by clicking the GREEN DTU button and waiting for it to turn RED (DTU out of transparent mode).
Closing MLP without exiting transparent mode will cause the DTU to remain in transparent mode until the power to the aircraft is cycled.

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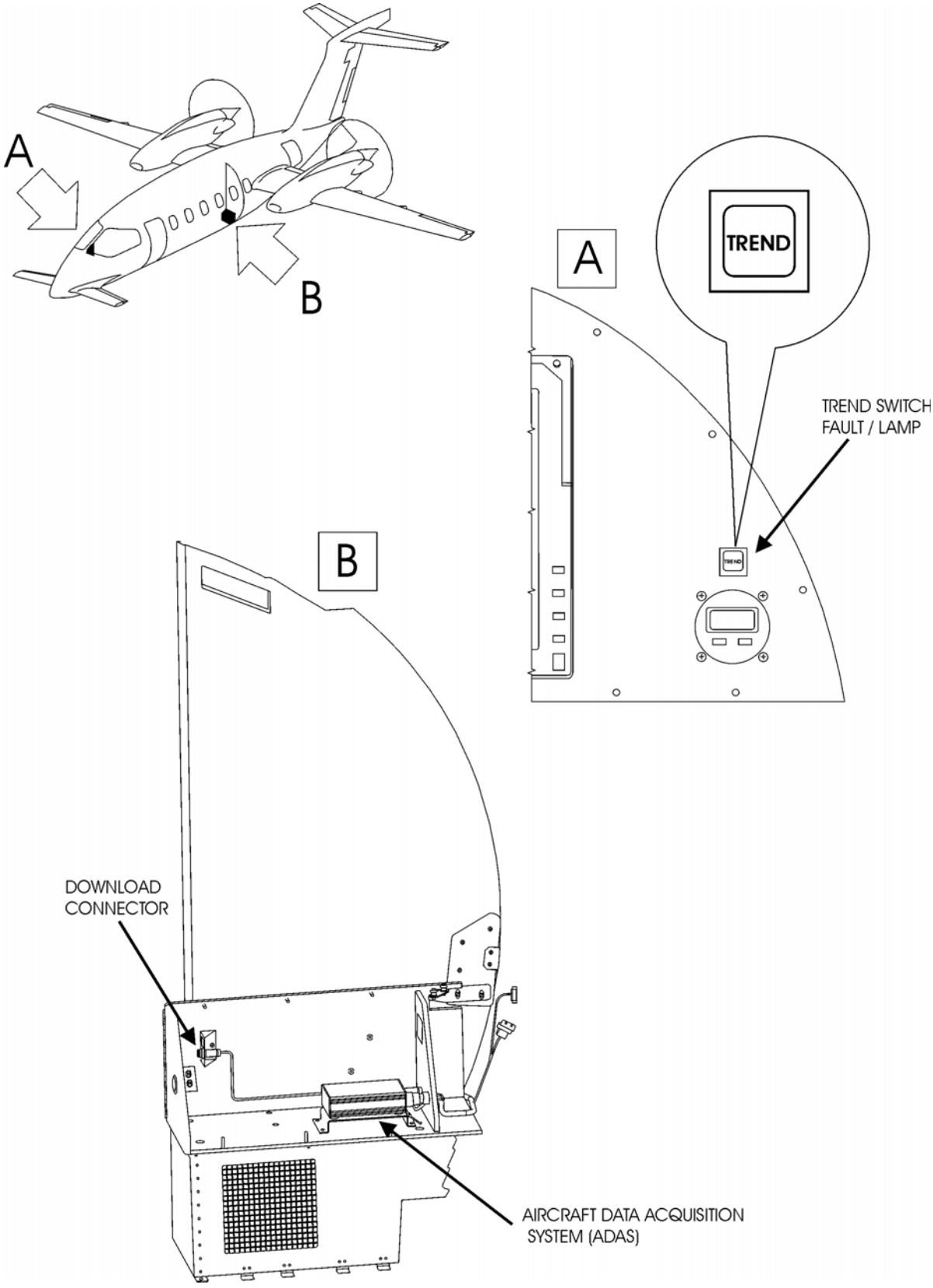

Fig. 1 - Digital Aircraft Data Acquisition System (ADASd) - Components Location

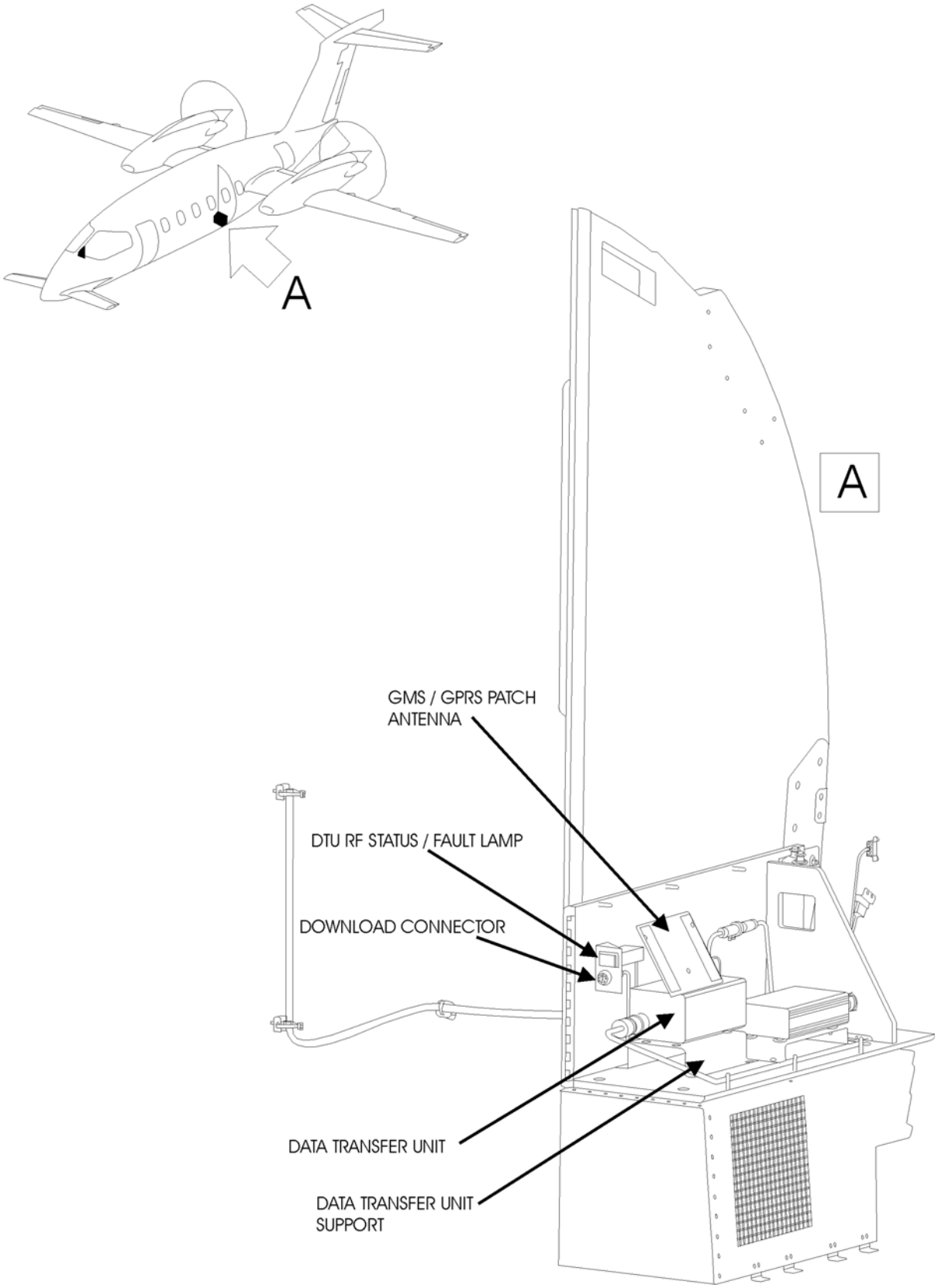

Fig. 2 - Data Transmission Unit (DTU) System - Components Location

CENTRAL MAINTENANCE SYSTEM - MAINTENANCE PRACTICIES

1. General

WARNING: OBEY THE SAFETY PRECAUTIONS GIVEN IN 20-00-00.

A. This topics provides the following Digital Aircraft Data Acquisition System (ADAS) and Data Transmission Unit System (DTU) Maintenance Practices:

- Digital Aircraft Data Acquisition Unit (ADAS) - Removal
- Digital Aircraft Data Acquisition Unit (ADAS) - Installation
- Digital Aircraft Data Acquisition System (ADASd) - Configuration
- Digital Aircraft Data Acquisition System (ADASd) - Data Download
- Data Transmission Unit Unit (DTU) - Removal
- Data Transmission Unit Unit (DTU) - Intallation
- Data Transmission Unit System (DTU) - Configuration
- Data Transmission Unit System (DTU) - Data Download
- GSM / GPRS Patch Antenna - Removal
- GSM / GPRS Patch Antenna - Installation

2. Digital Aircraft Data Acquisition System Unit (ADAS) - Removal (Refer Fig. 201).

A. Fixtures, Test and Support Equipment

Circuit breaker safety clips and tags	Not specified
Blanking caps	Not specified

B. Referenced Information

Maintenance Manual Chapter 25-20-00

C. Procedure

CAUTION: TO AVOID DATA LOST, BEFORE REMOVE THE UNIT, PERFORM THE DATA DOWNLOAD AS DESCRIBED IN THIS SECTION.

(1) Place a Warning Notice in the flight compartment to tell persons not apply electrical power.
(2) Set the battery switch to OFF.
(3) Open, tag and safety these circuit breakers:

Copilot CB Panel:	Main Junction Box
ADAS	ADAS 1

(4) Remove the seat located near the ADAS / DTU Cabinet to gain access to the ADAS / DTU Access Panel (1). (Refer to 25-20-00).

NOTE: The ADAS / DTU Access Panel is fixed to the cabinet with velcro.

(5) Remove the ADAS / DTU Access Panel (1).
(6) Disconnect the Electrical Connectors (2, 3).
(7) Remove the Screws (4), and Washers (5) that secure the ADAS Support (6) to the Honeycomb Panel (7).
(8) Disconnect the Electrical Bonding Jumper (9) from the ADAS Support Screw.
(9) Remove the ADAS Unit (8).
(10) Put caps on the Electrical Connectors.

3. Digital Aircraft Data Acquisition System Unit (ADAS) - Installation (Refer Fig. 201).

A. Referenced Information

Maintenance Manual Chapter 25-20-00

B. Procedure

CAUTION: WHEN REPLACING THE ADASd UNIT, THE APPROPRIATE CONFIGURATION FILE MUST BE LOADED IN THE NEW UNIT.

(1) Remove the caps from Electrical Connectors.
(2) Place the ADAS Unit in proper position.
(3) Connect the Electrical Bonding Jumper (9) to one of ADAS Support Screw.
(4) Install the Screws (4), and Washers (5) that secure the ADAS Support (6) to the Honeycomb Panel (7).
(5) Connect the Electrical Connectors (2, 3).
(6) Install the ADAS / DTU Access Panel (1).
(7) Install the seat. (Refer to 25-20-00).
(8) Remove the safety tags and close the previously opened circuit breakers ADAS and ADAS 1.
(9) If the ADASd Unit is to be replaced, load the appropriate configuration file in the system as described in this section.
(10) Remove the Warning Notice in the flight compartment

4. Digital Aircraft Data Acquisition System (ADASd) - Configuration

A. Procedure

(1) Open the Cabinet Front Access Door to get access to the Download / Setup Connector.
(2) Connect the PC to the Download / Setup Connector.
(3) Configuration file in the ADASd using Altair's Monitor Link Program (Refer to "Establish MLP Connection" and "Load Configuration File" procedures described in the CUST-T-400-1 Operators Handbook last revision / edition).
(4) Check for proper operation.

5. Digital Aircraft Data Acquisition System (ADASd) - Data Download

A. Procedure

(1) Open the Cabinet Front Access Door to get access to the Download / Setup Connector.

(2) Connect the PC to the Download / Setup Connector.

(3) Download ADASd data using Altair's Monitor Link Program (Refer to "Establish MLP Connection" and "Retrieve Log Data" procedures described in the CUST-T-400-1 Operators Handbook last revision / edition).

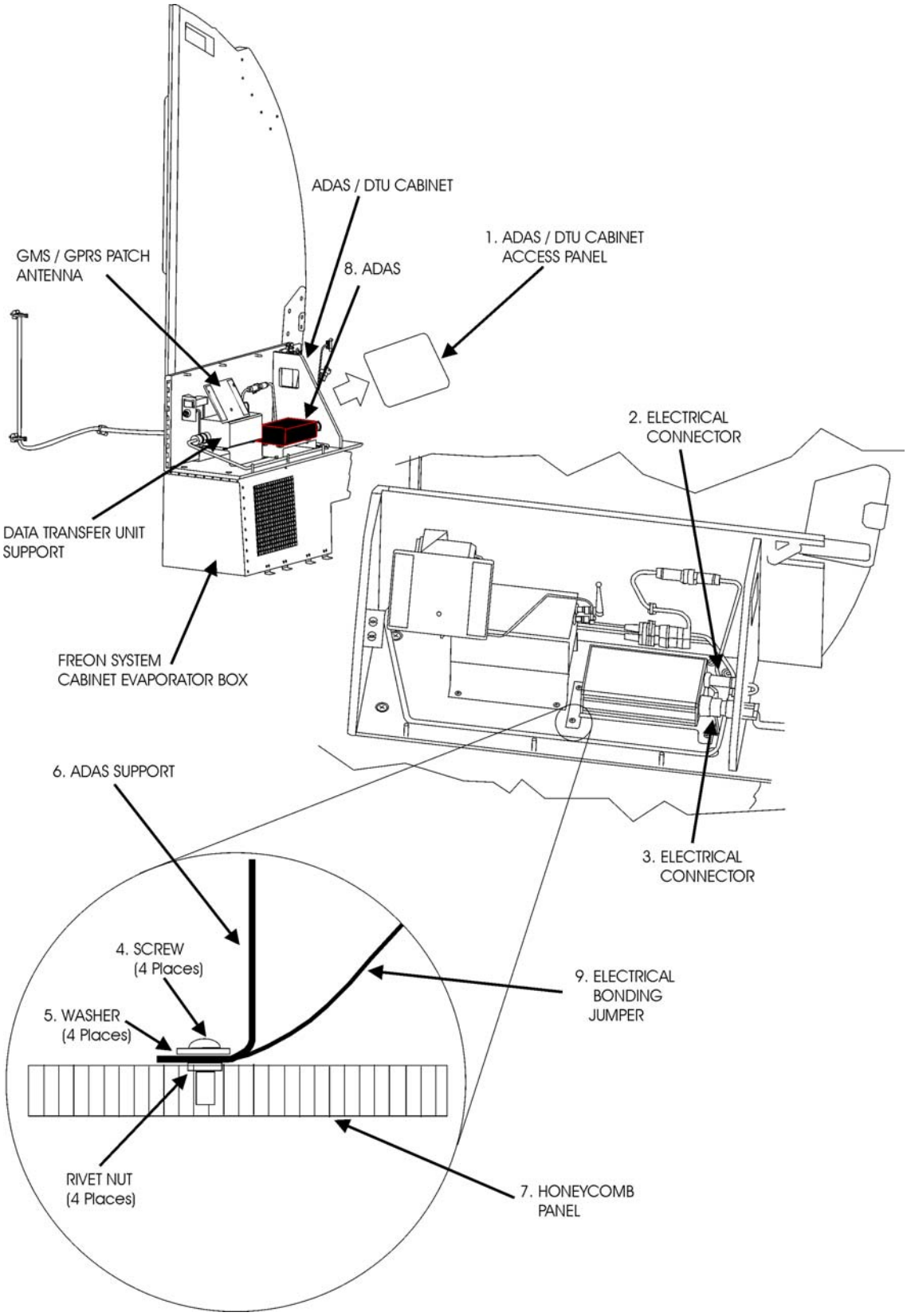

Fig. 201 - Digital Aircraft Data Acquisition Unit (ADAS) - Removal / Installation

6. Data Transmission Unit (DTU) - Removal (Refer Fig. 202).

A. Fixtures, Test and Support Equipment

Circuit breaker safety clips and tags	Not specified
Blanking caps	Not specified

B. Referenced Information

Maintenance Manual Chapter 25-20-00

C. Procedure

CAUTION: TO AVOID DATA LOST, BEFORE REMOVE THE UNIT, PERFORM THE DATA DOWNLOAD AS DESCRIBED IN THIS SECTION.

(1) Place a Warning Notice in the flight compartment to tell persons not apply electrical power.
(2) Set the battery switch to OFF.
(3) Open, tag and safety these circuit breakers:

Copilot CB Panel:	Main Junction Box
ADAS	ADAS 1

(4) Remove the seat located near the ADAS / DTU Cabinet to gain access to the ADAS / DTU Access Panel (1). (Refer to 25-20-00).

NOTE: The ADAS / DTU Access Panel is fixed to the cabinet with velcro.

(5) Remove the ADAS / DTU Access Panel (1).
(6) Open the Cabinet Front Access Door (10).
(7) Disconnect the Electrical Connectors (2, 3).
(8) Remove the Screws (4), and Washers (5) that secure the DTU Support (6) to the Honeycomb Panel (7).
(9) Disconnect the Electrical Bonding Jumper (9) from the DTU Support Screw.
(10) Remove the DTU Unit (8).
(11) Put caps on the Electrical Connectors.

7. Data Transmission Unit (DTU) - Installation (Refer Fig. 201).

A. Referenced Information

Maintenance Manual Chapter 25-20-00

B. Procedureù

CAUTION: WHEN REPLACING THE DTU UNIT, THE APPROPRIATE CONFIGURATION FILE MUST BE LOADED IN THE NEW UNIT.

(1) Remove the caps from Electrical Connectors.
(2) Place the DTU Unit (8) in proper position.

(3) Connect the Electrical Bonding Jumper (9) to one of DTU Support Screw.
(4) Install the Screws (4), and Washers (5) that secure the DTU Support (6) to the Honeycomb Panel (7).
(5) Connect the Electrical Connectors (2, 3).
(6) Install the ADAS / DTU Access Panel (1).
(7) Install the seat. (Refer to 25-20-00).
(8) Close the Cabinet Front Access Door (10).
(9) Remove the safety tags and close the previously opened circuit breakers ADAS and ADAS 1.
(10) Remove the Warning Notice in the flight compartment.

8. Data Transmission Unit System (DTU) - Configuration

A. Procedure

(1) Open the Cabinet Front Access Door to get access to the Download / Setup Connector.
(2) Connect the PC to the ADASd Download / Setup Connector.
(3) Configuration file in the DTU using Altair's Monitor Link Program (Refer to "Establish MLP Connection" and "Load DTU Configuration File" procedures described in the CUST-T-400-1 Operators Handbook last revision / edition).
(4) Check for proper operation.

9. Data Transmission Unit System (DTU) - Data Download

A. Procedure

(1) Open the Cabinet Front Access Door to get access to the Download / Setup Connector.
(2) Connect the PC to the Download / Setup Connector.

NOTE: MLP allows a connection to the ADASd through the DTU.

(3) Download DTU data using Altair's Monitor Link Program (Refer to "Establish MLP Connection" and "Retrieve Log Data" procedures described in the CUST-T-400-1 Operators Handbook last revision / edition).

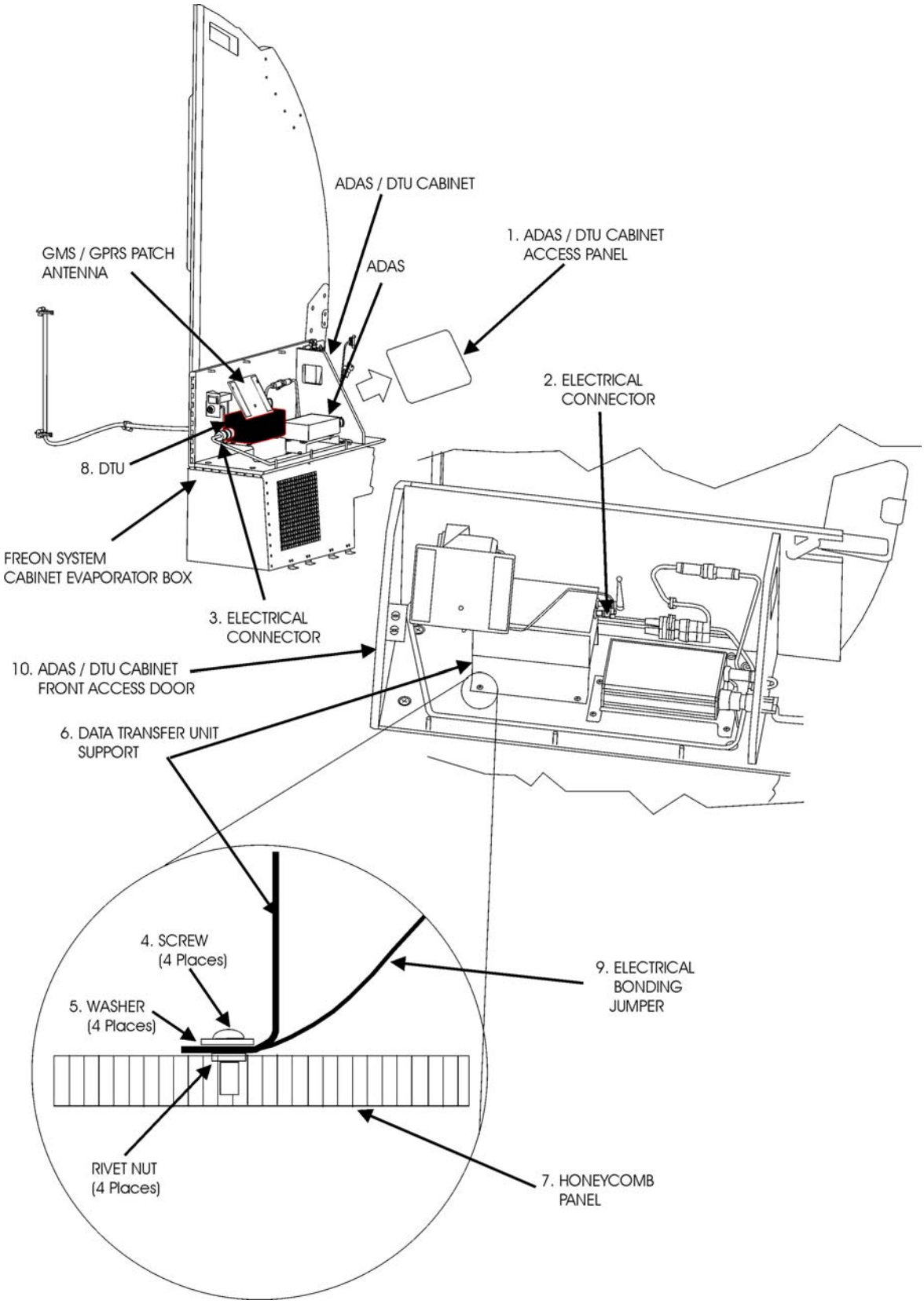

Fig. 201 - Data Transmission Unit (DTU) - Removal / Installation

10. GSM / GPRS Patch Antenna - Removal (Refer to Fig. 201, 202)

A. Procedure

(1) Place a Warning Notice in the flight compartment to tell persons not apply electrical power.
(2) Set the battery switch to OFF.
(3) Open, tag and safety these circuit breakers:

Copilot CB Panel:	Main Junction Box
ADAS	ADAS 1

NOTE: The GSM / GPRS Patch Antenna is fixed with velcro, inside the ADAS / DTU Cabinet.

(4) Open the Cabinet Front Access Door.
(5) Disconnect the Electrical Connector from the Antenna.
(6) Detach the antenna from the internal Cabinet Surface.
(7) Remove the GSM / GPRS Patch Antenna.
(8) Put caps on the Electrical Connectors.

11. GSM / GPRS Patch Antenna - Installation(Refer to Fig. 201, 202)

A. Procedure

(1) Remove the caps from Electrical Connectors.
(2) Attach the GSM / GPRS Patch Antenna in its own position in the internal Cabinet Surface.
(3) Connect the Electrical Connector to the Antenna.
(4) Close the Cabinet Front Access Door (10).
(5) Remove the safety tags and close the previously opened circuit breakers ADAS and ADAS 1.
(6) Remove the Warning Notice in the flight compartment.