CHAPTER

46

INFORMATION

SYSTEMS

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IFIS SYSTEM - DESCRIPTION AND OPERATION

1.   Description

The Integrated Flight Information System (IFIS), installed as an option with PA-05 avionics suite, provides supplemental aircraft situational awareness information. This system is not intended as a means for navigation.

The IFIS provides the capability to display Enhanced Map Overlay and Electronic Charts features on a dedicated Multifunction Display (MFD), AFD-3010E Adaptive Flight Display, that is a option necessary for IFIS operations.

The system is powered by +28 Vdc R Avionics Single Feed Bus through a a circuit breaker labeled FILE SERVER UNIT (FSU).

A.   Enhanced Map Overlay

The features displayed with Enhanced Map Overlay functionality are:

· Political Boundaries,

· Geographic Features (Lakes, Rivers and Oceans),

· High and Low Level Airways,

· Restricted, Prohibited and Controlled Airspace.

Enhanced Map Overlay functionality requires a Collins subscription; Enhanced Maps Database shall be updated on a 28 day cycle that is in sync with the FMS Nav Data Base.

B.   Electronic Charts

The Electronic Charts (E-Charts) provide the ability to show on the MFD the charts for arrival, approach, departure, airport and NOTAM. The E-Charts may not be used as basic (hard copy) charts for navigation, that must be carried anyway onboard.

The Electronic Charts function requires a Jeppesen subscription; Jeppesen Charts Database shall be updated on a 14 day cycle.

The IFIS may be used also to upload FMS database (stored in the Flight Management Computer FMC-3000) and to download maintenance data from the Maintenance Diagnostic Computer MDC-3110.

2.   Main Components

The IFIS system consists of the following main components:

Description	Type
File Server Unit	FSU-5010
FSU Mount	MMT-5000
External Compensation Unit	ECU-3000
File Server Application S/W	FSA-5000

Description	Type
Electronic Charts Application Key	ECH-5000
Map Overlays Application Key	OVL-5000
Portable Access Software	CPAS-3000

FSU-5010, ECU-3000 and FSA-5000 items are conformal to TSO C113 "Airborne Multipurpose Electronic Display".

A.   FSU-5010 File Server Unit

The FSU-5010 unit is a file server that provides three major functions:

•File server functionality for features with up to 2 GB of database memory requirements; the storable databases types are:
  - Charts
  - Geographic
  - Political
  - Airspace/Airways
  - Graphical Weather Support Data (option not available)
• A computational platform to process data and convert it to display directives that can be accepted by the MFD.
• An Ethernet function allowing Ethernet communications between components.
The FSU-5010 is designed to be installed in a MMT-5000 Equipment Mount.

B.   MMT-5000 Equipment Mount

The MMT-5000 is designed to be mounted to the aircraft structure and allows for easy installation and removal of the FSU-5010 File Server Unit. The mount contains a fan and the associated circuitry used to provide forced air cooling for the File Server Unit and controlled directly by the FSU. The mount also provides a mounting location for the ECU-3000 External Compensation Unit.

C.   ECU-3000 External Compensation Unit

The ECU-3000 is designed to be remotely mounted or mounted to the MMT-5000. The unit consists of two EEPROM devices used for storage of FSU configuration data.

D.   FSA-5000 File Server Application S/W

The FSA-5000 is designed for use in the FSU-5010 File Server Unit. This software provides the basic operating system for the FSU-5010.

This software also provides the electronic chart, graphical weather (option not yet available at the moment), and enhanced map overlay features, however these functions need to be enabled by Encrypted Application Keys (EAKs) before they can be used by the pilot.

The FSA-5000 selected for the PA-05 Design Change (P/N 810-0001-105) enables the FSU to manage the XM Weather as provider for graphical weather functionality (option not yet available) through satellite datalink. Another version of this Operating System, P/N 810-0001-005, is available for Universal Weather provider (via ground station datalink) for graphical weather functionality.

E. ECH-5000 Electronic Charts EAK

The ECH-5000 EAK is designed to enable the electronic charts function in the FSU-5010 File Server Unit. This allows E-Charts to be shown on the Multifunction Display.

F. OVL-5000 Enhanced Map Overlays EAK

The OVL-5000 EAK is designed to enable the enhanced map overlays function in the FSU-5010 File Server Unit. This allows enhanced map overlays to be shown on the Multifunction Display.

G. CPAS-3000 Portable Access Software

The CPAS-300 data loader is a software to be installed on a laptop computer for providing external media upload and download capabilities to/from Ethernet based FSU. The CPAS-3000 is designed for use on a standard Windows-based PC with Ethernet capability. The software release of the PA-05 CPAS-3000 is Version 2.4.

H. Other Components

An Ethernet connector provides the connection to the laptop computer while a switch (DBU/FSU switch) performs the selection of the uploading source: DBU (basically installed on A/C for FMS database upload) or FSU. This switch, as the connection to the laptop, is operative only on ground.

The switch and the connector are located in the left face of the pedestal.

FSU-5010 FILE SERVER UNIT

EQUIPMENT MOUNT

ECU-3000
EXTERNAL COMPENSATION UNIT
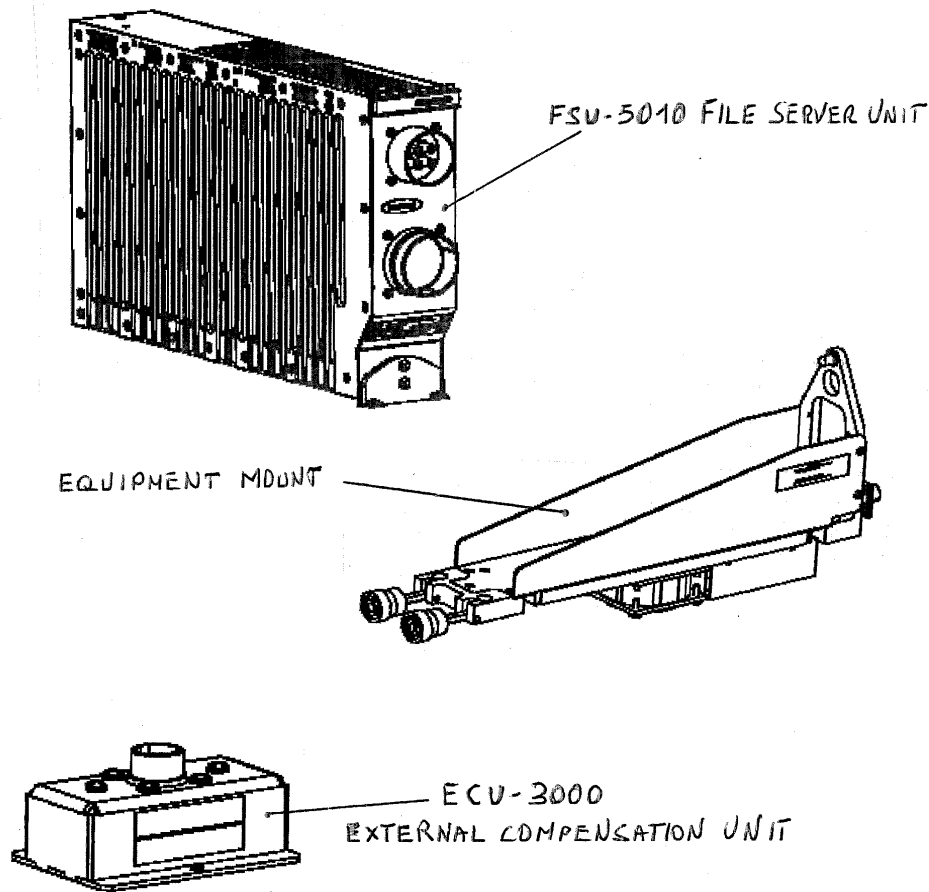
Fig. 1 - IFIS System Components

3. Related Components

A. Ethernet MFD

The Ethernet MFD, consists of an Adaptive Flight Display (AFD) equipped with additional graphics and Ethernet communications capabilities, utilized in conjunction with Integrated Flight Information System (IFIS).

This optional MFD, is necessary to activate the IFIS capabilities.

Three major display areas are available on the MFD: EIS (Engine Indicating System) region and upper and lower Multi Function Windows (MFW) below it.

The IFIS features described in this document are not available when the MFD is reverted to a Primary Flight Display (PFD). All IFIS functions are lost when the MFD is in its reversion format.
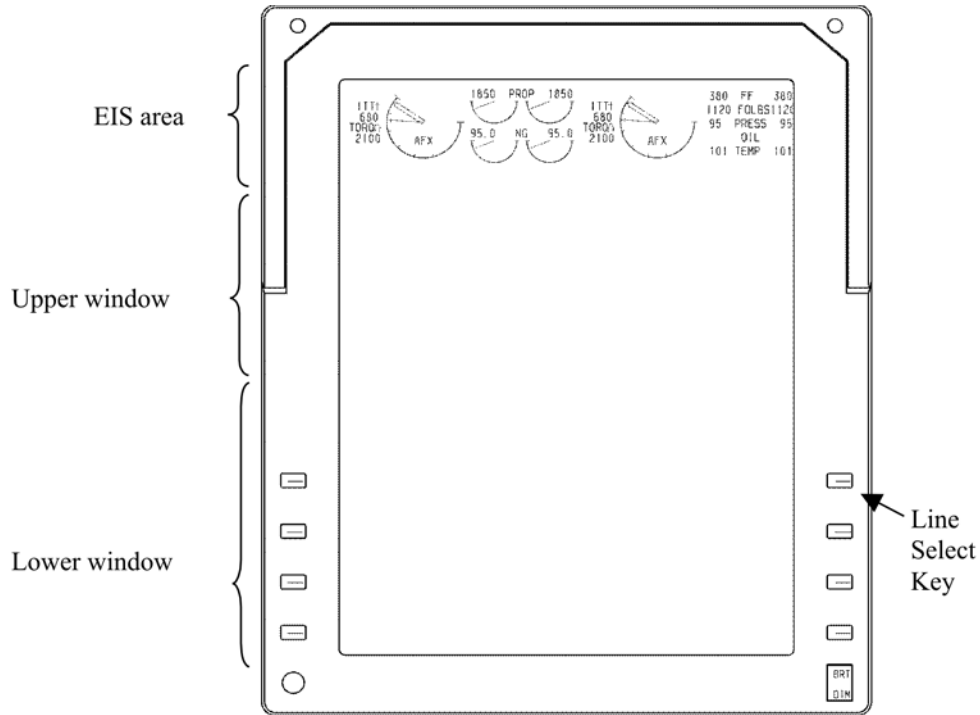
Fig. 2 - Multi Function Display

The content and formats of the MFD windows are typically controlled through the line select keys (LSKs) on the MFD and the function keys on the Cursor Control Panel (CCP) and the Display Control Panel (DCP); the last one is not involved in IFIS functionalities.

E-Charts and Enhanced Map Overlays are displayed on the Multi Function Windows (upper and lower), while the EIS (Engine Indicating System) region is always in view.

Examples of E-Charts and Enhanced Map Overlays display format are shown below.

Fig. 3 - Electronic Chart Format

Fig. 4 - Enhanced Maps Format

B. Cursor Control Panel

The Collins Cursor Control Panel, part of the Basic PA-05 Avionics Suite "PA-05 Baseline Configuration", is installed on the pedestal and provides the interface t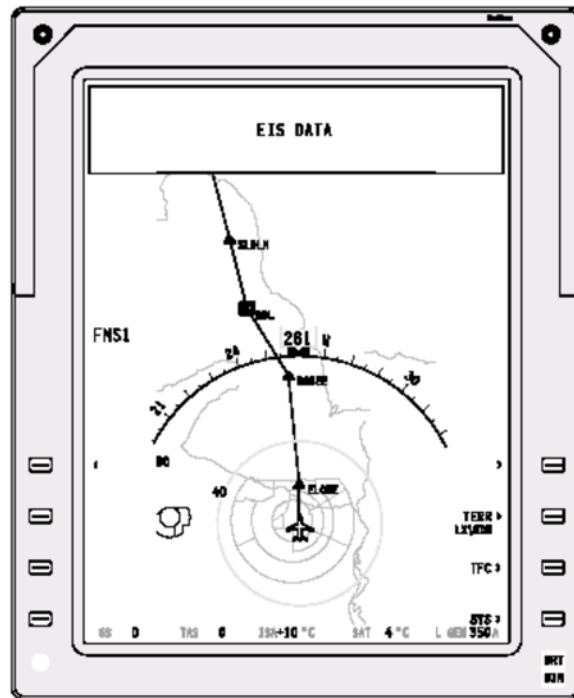o the MFD. This interface has the control capabilities required to support the advanced display and map overlay features. Dedicated controls are provided for chart selection, a joystick for panning and zooming charts, quick MFD format access keys, and MFD menu controls. Three quick access keys are used to store and then recall display format configurations for the MFD.
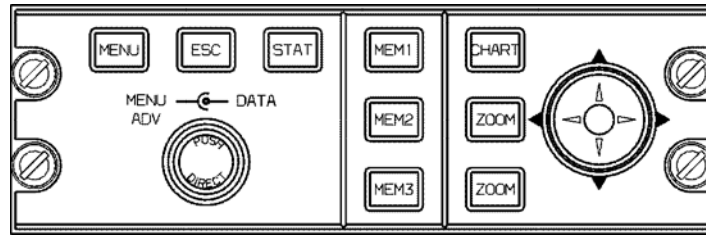

Fig. 5 - Cursor Control Panel

4. Block Diagram

The system utilizes the Multifunction Display AFD-3010E to display the advanced features. The interface with the MFD is accomplished through two Ethernet buses.

The features are controlled via the Cursor Control Panel CCP-3000 and bezel buttons with updated menuing on the MFD.

The configuration data is provided to the FSU by the External Compensation Unit ECU-3000.

The system is also interfaced with the Flight Management Computer FMC-3000 and Maintenance Diagnostic Computer MDC-3110 (integrated into the IAPS) for upload and download functionalities operative only on ground. The upload lines (RS422) to the FMC and the MDC are shared with the Data Base Unit DBU-4100; the uploading from the DBU or from the Portable Access Software CPAS-3000 (installed on a laptop) through the FSU is enabled by means of the "DBU/FSU" switch.

The further ARINC 429 interface with the IAPS through the I/O Concentrator IOC-3100 provides the exchange of multipurpose data and FSU status information.

System block diagram is shown in Figure 6.

Fig. 6 - IFIS Block Diagram
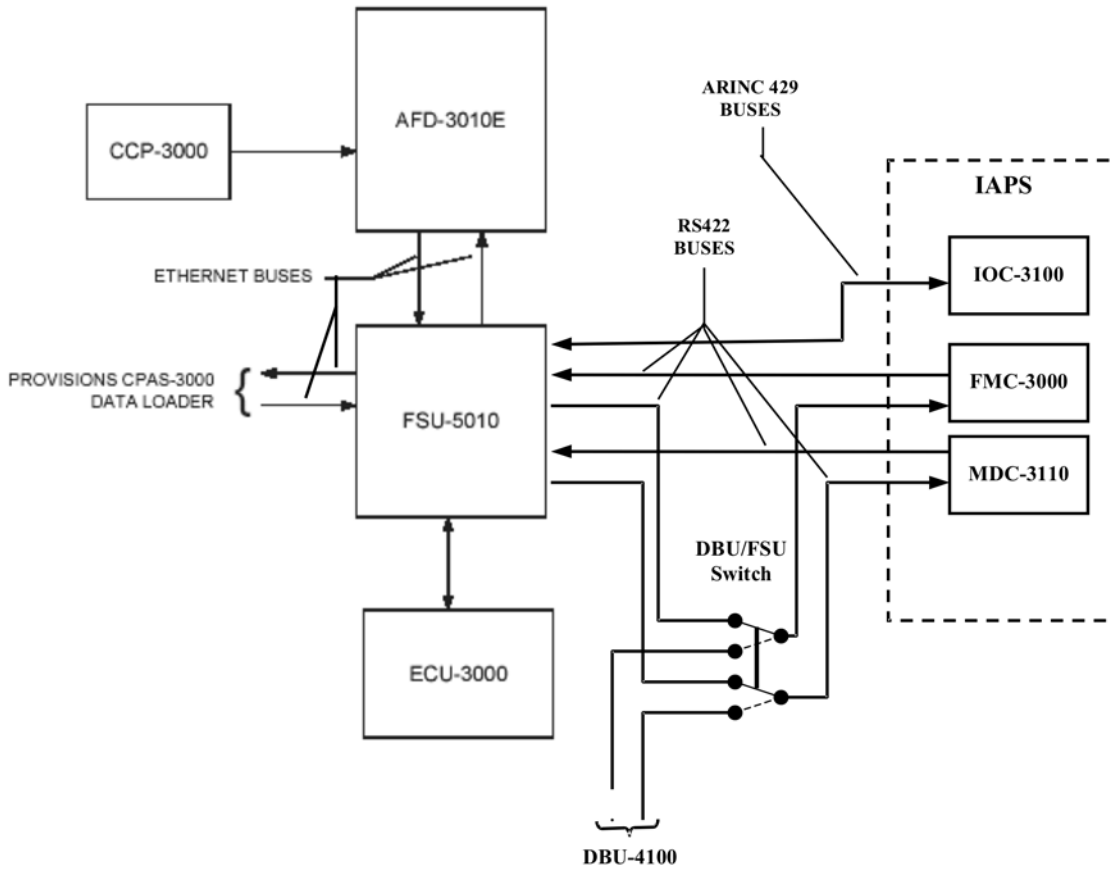
5.   Operations

For the operation refer to Integrated Flight Information System IFIS-5000 Operator's Guide, document number 523-0806347, dated 07 June 05, or later revision. When using such document the IFIS version to consider is the 4.X; in addition the system installed allows the depiction of the aircraft symbol in any Electronic Chart that is World Geodetic System 1984 (WGS84) compliant.

IFIS SYSTEM - MAINTENANCE PRACTICIES

1. General

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

   A. This topic provides the following IFIS Maintenance Practices:
       –   File Server Unit (FSU - 5010) - Removal/Installation
       –   FSU Application Software (FSA-5000) - Upload
       –   Enhanced Map Data Base - Upload
       –   Electronic Chart Data Base - Upload
       –   Validity Check Process
       –   External Compensation Unit - Removal/Installation
       –   ECU - 3000 Application Keys - Insertion

   The main IFIS components, FSU-5010 and ECU-3000, are installed in the avionics bay
   as shown in Figure 201.

MM_462000-201

EXTERNAL COMPENSATION UNIT
ECU - 3000
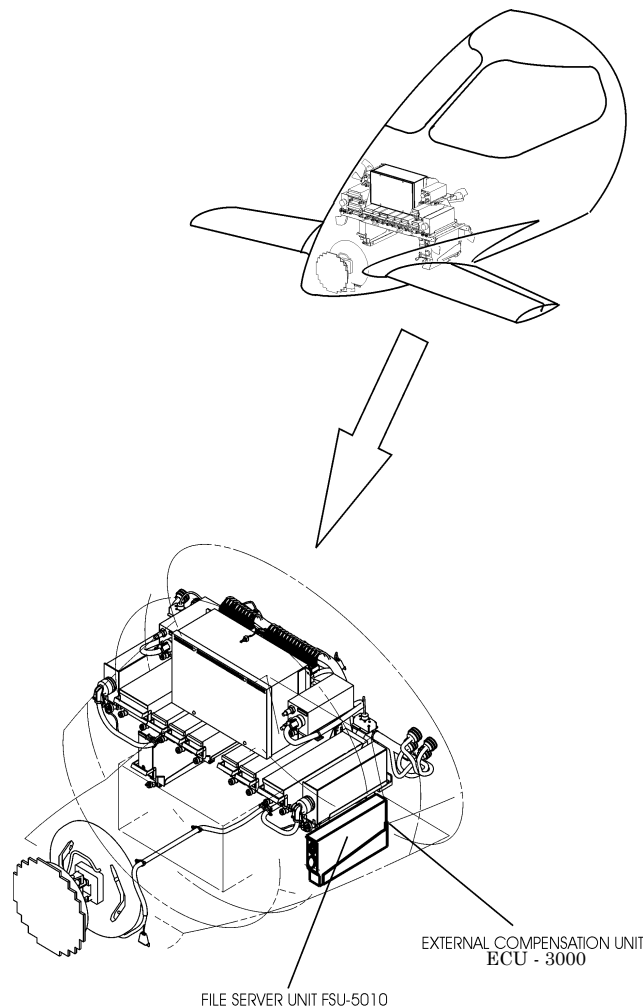
FILE SERVER UNIT FSU-5010

Fig. 201 - FSU-5010 and ECU-3000 - Location

2. <u>File Server Unit (FSU) - Removal</u>(Ref. Fig. 202)

    A. Fixtures, Test and Support Equipment

    Blanking caps   Not specified
    Warning notices   Not specified

    B. Referenced Information

    Maintenance Manual Chapter 24-00-00
    Maintenance Manual Chapter 53-10-00
    Maintenance Manual Chapter 34-42-00
    Maintenance Manual Chapter 34-21-00

    C. Procedure
    (1) Remove the electrical power (Refer to 24-00-00).
    (2) Remove the radome/nosecone (Refer to 53-10-00).
    (3) Remove the Radio Altimeter Transceiver (Refer to 34-42-00).
    (4) Remove the Attitude Heading Computer (AHC) (Refer to 34-21-00).
    (5) Remove the Radio Altimeter Transceiver and the AHC supports.
    (6) Disconnect the two electrical connector (1 ,2) from the FSU (3).
    (7) Loosen the knurled knobs on front of mount and disengage the FSU.
    (8) Slowly bring up and remove the FSU.

3. <u>File Server Unit - Installation</u>   (Ref. Fig. 202)

    A. Fixtures, Test and Support Equipment

    Blanking caps   Not specified
    Warning notices
    Laptop Computer with installed CPAS - 3000   OPSB 0059-06 Collins.

    B. Referenced Information

    Maintenance Manual Chapter 24-00-00
    Maintenance Manual Chapter 53-10-00
    Maintenance Manual Chapter 34-42-00
    Maintenance Manual Chapter 34-21-00

    C. Procedure
    (1)   Make sure, as necessary that:
        –   There is no electrical power on the airplane
        –   The warning notices are in position
        –   Access is available

(2) Slide the FSU into mount until fully engaged.

(3) Position knurled knobs on front of mount to engage unit mounting projection and tighten knurled knobs.

(4) Connect the two electrical connector (1, 2) to the FSU front.

(5) Install the Radio Altimeter Transceiver and the AHC supports.

(6) Install the Attitude Heading Computer (AHC) (Refer to 34-21-00).

(7) Install the Radio Altimeter Transceiver (Refer to 34-42-00).

(8) Upload the FSU Operating System as described in this section.

(9) Upload the Enhanced Maps as described in this section.

(10) Upload the Electronic Charts as described in this section.

(11) Perform a Validity Check Process of the IFIS System as described in this section.

(12) Install the radome/nosecone (Refer to 53-10-00).

FILE SERVER UNIT FSU-5010

2.ELECTRICAL CONNECTOR

3.FILE SERVER UNIT

MM_462000-202

FSU MOUNT

1.ELECTRICAL CONNECTOR
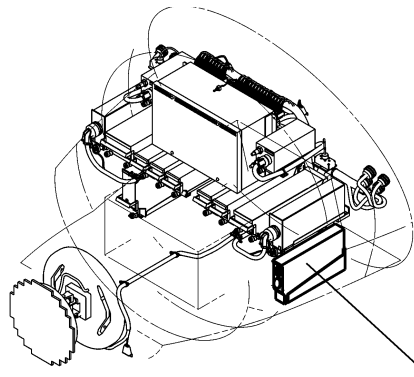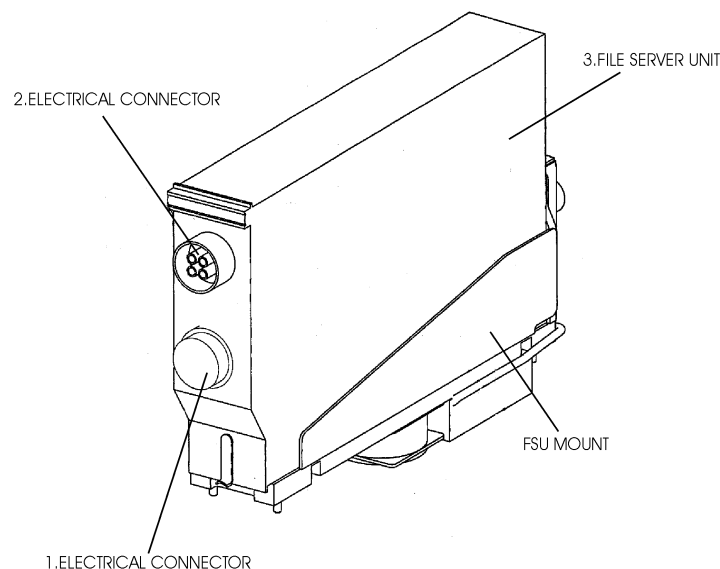
Fig. 202 - File Server Unit - Removal / Installation

4.   FSU APPLICATION SOFTWARE (FSA - 5000) - Upload

   A.   UPLOAD

   The FSA 5000 is a field loadable software.

   CPAS Ethernet Connector and the FSU/DBU Switch are installed on the left side of the central pedestal as shown in the following Figure 203.

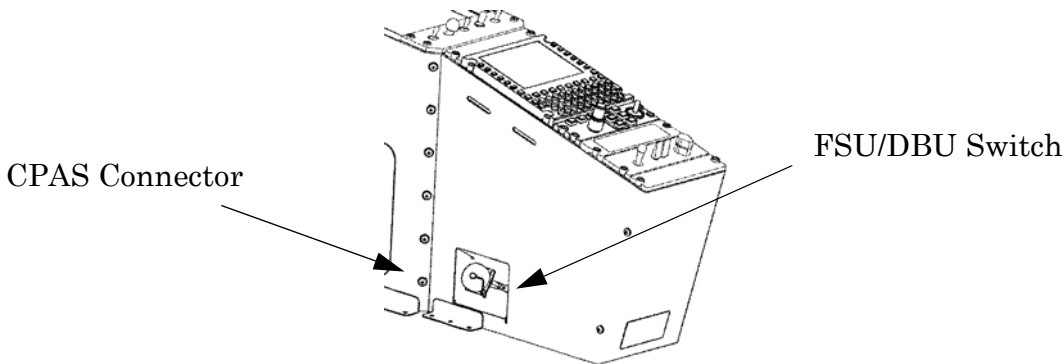CPAS Connector

FSU/DBU Switch

Fig. 203 - CPAS Connector and Switch

   Following the installation of the FSU-5010 LRU the operating software has to be installed using the following steps.

   (1) Verify aircraft is in On-Ground configuration
   (2) Connect the Laptop to the CPAS connector (Ethernet connection).
   (3) Select the FSU/DBU Switch in FSU position

   NOTE: The following steps must be performed using the Laptop Computer.

   (4) Double-click LAUNCH PAD icon.
   (5) In the Launch Pad, single-click the DATA LOAD icon.
   (6) Wait for REFRESH TARGETS button to not be grayed-out.
   (7) Click the pull-down triangle to expand the Select TARGET/LRU TO BE UPDATED window. Verify this pull-down window is filled with at least, "FSU" and "NODE". If not, click on the REFRESH TARGETS button.
   (8) Wait for "429-Based LRU" to appear in the Select Target/LRU to be Uploaded window. This, along with the Refresh Targets button not grayed-out, is an indication that the FSU is in Data Load Mode.
   (9) Select "NODE" as Target/LRU to be Updated (Click the pull-down triangle to expand window, if necessary).
   (10) Highlight the "NODE" and left-click.
   (11) Click LOAD FROM HARD DRIVE button to view the files previously installed in the CPAS program
   (12) Select the corresponding "Node" file.
   (13) Click the pull-down triangle to expand window.
   (14) Highlight selection, left-click.
   (15) Click the BEGIN LOAD button.

(16) Monitor the CPAS DATA LOAD STATUS.

> **NOTE:** A status tab is created for each load that is started by clicking on the BEGIN LOAD button. Each load status tab in the Status area contains the selected target type name and position, the selected data/ software items part number or name, the overall percentage of the load completed, and an icon indicating the current state of the load process.

> **NOTE:** There are three load state icons. A periodically rotating circle indicates the load is currently in progress. A check-mark indicates the load has successfully completed. An exclamation point indicates the load has encountered an error.

(17) Monitor the OVERALL PROGRESS and FILE PROGRESS bars. The OVERALL PROGRESS bar shows the progress on the number of files, not on the combined size of the files. Progress may also be monitored in the text scrolling in the STATUS WINDOW.

(18) Wait for a Green Check-mark to indicate a successful load.

(19) The OVERALL PROGRESS bar and the STATUS WINDOW show 100% COMPLETE before the software load process is complete. These bars only indicate that the file transfer is complete.

(20) Make sure the CANCEL UPLOAD button has changed to CLOSE STATUS.

(21) Execute steps 9 to 20 performed for "Node" processor also for the FSU processor (select the corresponding FSA file and follow the same sequence).

(22) Restart FSU. The reboot process takes some minutes.

(23) Push the STAT button and then the MENU button, on the Cursor Control Panel (CCP), to show the STATUS MENU on the MFD.
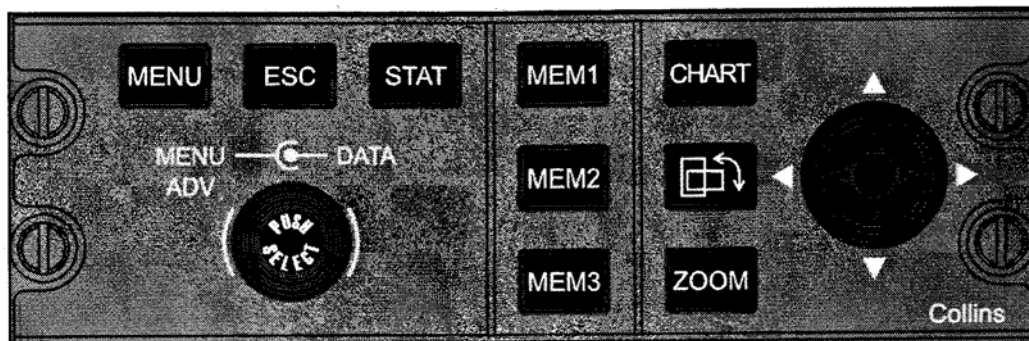

Fig. 204 - Cursor Control Panel

(24) Turn the MENU ADV knob, on the CCP, to position the focus indicator around the FILE SERVER CONFIGURATION line.

(25) Push the PUSH SELECT button to show the FILE SERVER CONFIGURATION page on the MFD.

(26) Make sure the data on the FILE SERVER CONFIGURATION page is correct (Ref. Fig. 211) and the FSA PART NO (CPN of the File Server Application

software), Cyclic Redundancy Code (CRC) and ECU Serial Number are shown on the MFD.

NOTE: The display of CPN and serial number information on the page indicates that the FSU-5010

5. Enhanced Map Data Base - Upload

NOTE: Perform the following procedure if OVL - 3000 has status ENABLED in the File Server Configuration Page (see fig. 211).

A. ACQUISITION

The Enhanced Maps are downloaded from the same page as the previous FMS database using the same method shown in Chapter 34-61-00 para 7 "FMS Database Acquisition". It is a single file including all the previously presented databases (Airspace, Airways, Geographic and Political).

Name of the file

- (IFIS) E-Maps-CPAS (Ref. Fig. 205)

and has to be uploaded using CPAS-3000 program

B. INSTALLATION

This file is used for database upload using the CPAS-3000 kit and the following procedure may be performed only on the laptop that includes the CPAS-3000 software.

The E-Maps-CPAS file has to be run and is self extracted in the DATA/ SOFTWARE INSTALLED ON CPAS list box as in Figure 205.
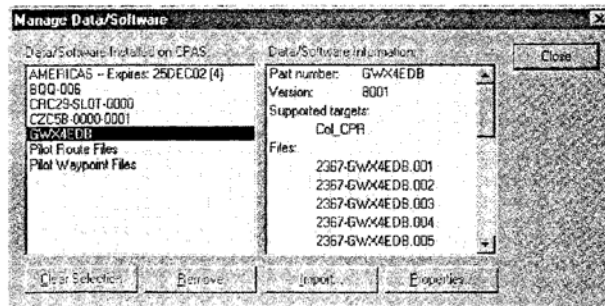

Fig. 205 - E-Maps-CPAS File

C. UPLOAD

Enhanced Maps upload is done using the CPAS-3000 program.

NOTE: - The FSA-5000 operating system must be installed before FMS database upload

- The FMS Charts data base should be loaded first, followed by Enhanced Maps, and finally the Electronic Charts.

(1) Execute steps 1 to 14 described in Chapter 34-61-00 Para 9 step C "CPAS -3000 UPLOAD Procedure" regarding the upload of the FMS database using CPAS-3000 program.

(2) Select FSU as Target/LRU to be Updated.

(3) Click the pull-down triangle to expand window, if necessary.

(4) Highlight the FSU and left-click.

(5) Click the LOAD FROM HARD DRIVE button.

(6) Select DATA/SOFTWARE to be Updated.

(7) Click the pull-down triangle to expand window.

(8) Select Enhanced Maps software.

(9) Highlight selection, left-click.

(10) Click the BEGIN LOAD button.

(11) Monitor the CPAS Data Load Status.

NOTE: A status tab is created for each load that is started by clicking on the BEGIN LOAD button. Each load status tab in the Status area contains the selected target type name and position, the selected data/software items part number or name, the overall percentage of the load completed, and an icon indicating the current state of the load process.

NOTE: There are three load state icons. A periodically rotating circle indicates the load is currently in progress. A check-mark indicates the load has successfully completed. An exclamation point indicates the load has encountered an error.

(12) Monitor the OVERALL PROGRESS and File progress bars. The OVERALL PROGRESS bar shows the progress on the number of files, not on the combined size of the files. Progress may also be monitored in the text scrolling in the Status Window.

(13) Wait for a Green Check-mark to indicate a successful load.

(14) The OVERALL PROGRESS bar and the STATUS WINDOW show 100% COMPLETE before the data load process is complete. These bars only indicate that the file transfer is complete. The FSU must complete a CRC (Cyclic Redundancy Check) of the data transferred. The FSU compares the CRC results against those included in the file set and reports success back to the CPAS before the process is complete.

(15) When the FSU indicates the CRC values of the data transferred are valid, CPAS shows the Green Check-mark icon.

(16) Make sure the CANCEL UPLOAD button has changed to CLOSE STATUS.

(17) Click the CLOSE STATUS button to close the status window.

(18) Close the CPAS if no other database has to be uploaded.

(19) Make sure the operation of IFIS is correct

6.   Electronic Chart Data Base - Upload

> **NOTE:** Perform the following procedure if ECH - 3000 has status ENABLED in the File Server Configuration Page (see fig. 211).

–   ACQUISITION

A.   ELECTRONIC CHARTS LICENSE

Electronic Charts are included in the Jeppesen JeppView product that has both hard copy and software components. The JeppView package includes databases (on hard copy and in ProLine21 dedicated electronic format) and extra crew training software (but with no role in the aircraft database management). Each JeppView package has its own subscription number and can be used on a single production aircraft.

The CD to be used onboard P180 is identified

   •·   JeppView Electronic Charts for Collins ProLine 21, Disc NN-YYYY, Issue DD_MMM_YYYY

B.   RECEIVING OF UPDATES

JeppView updates are received by mail both for paper and software at a 14 days cycle. The CD to be uploaded is identified in the same way as above.

Piaggio has two JeppView EURO1 free licenses to be used only for ground and flight tests (must be removed before a production aircraft delivery if installed on). For each free license updates are received by the Quality Control Department at Piaggio Genoa Plant.

–   INSTALLATION

There are two ways to upload the Electronic Charts onboard P.180, both using CPAS-3000 program. Whatever the used method, first must be uploaded the CD belonging to the license kit (license number is associated with the database on the license CD) followed by the writing of the SUBSCRIPTION NUMBER; only after installed it the last update CD (if any) may be uploaded:

   (a) Uploading from the laptop Hard Drive (a database previously installed on Hard Drive)
   (b) Uploading directly from the laptop CD Drive

C.   INSTALLATION FROM LAPTOP

The Jeppesen update has to be imported in the CPAS-3000 program following the steps:

(1) Double click on the Launch Pad icon.
(2) The MANAGE DATA/SOFTWARE window can be accessed by either clicking on the Manage Data/Software button, or by clicking on the Data Loader button to launch the application and selecting File Manage Data/Software… from the Data Loader menu bar.
(3) In the MANAGE DATA/SOFTWARE window, click on the Import… button.
(4) In the SELECT DATA/SOFTWARE TO IMPORT window, select the CD-ROM drive from the Drives drop-down box.

(5) Double click on a folder under the drive to display the directories contained in that folder (Ref. Fig 206). The data/software contained in the folder will be displayed in the AVAILABLE DATA/SOFTWARE display area. Select the folder containing the desired data/software item.
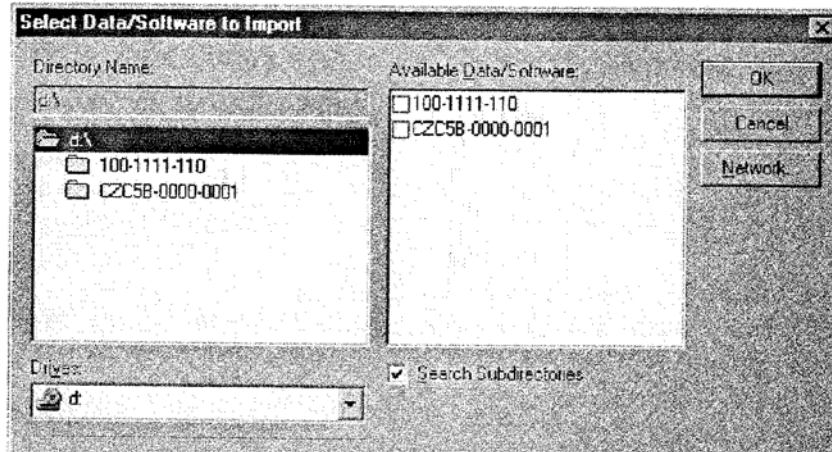

Fig. 206 - Select Data / Software Page

(6) Click on the box next to the desired data/software item in the Available Data/ Software display area.

(7) Click on the OK button to import the data/software item.

Verify the presence of the imported database in the DATA/SOFTWARE INSTALLED ON CPAS list box as in Figure
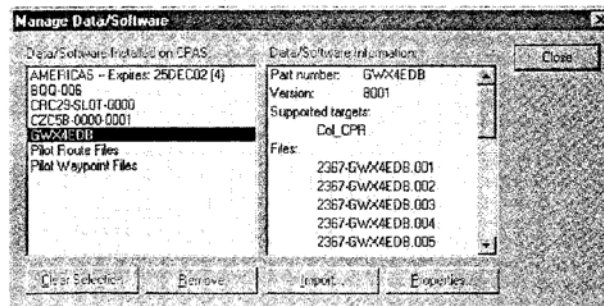

Fig. 207 - Manage Data / Software Page

NOTE: See also paragraph Import included in the Manage Data/Software Window Chapter of the "CPAS-3000 Data Loader Operator's Guide".

D. INSTALLATION FROM CD DRIVE

No installation has to be done prior to Electronic Charts upload.

– UPLOAD

Electronic Charts upload is done using the CPAS-3000 program.

NOTE: - The FSA-5000 operating system must be installed before FMS database§
upload
The FMS Charts data base should be loaded first, followed by Enhanced
- Maps, and finally the Electronic Charts.-

(1) Execute steps 1 to 14 described in Chapter 34-61-00 para 9 step C "CPAS -3000
UPLOAD Procedure" regarding the upload of the FMS database using CPAS-
3000 program.
(2) Select FSU as Target/LRU to be Updated.
(3) Click the pull-down triangle to expand window, if necessary.
(4) Highlight the FSU and left-click.
(5) Click the LOAD FROM HARD DRIVER or CD DRIVE (in case upload is done
directly from the received disk) button.
(6) Select DATA/SOFTWARE to be Updated.
(7) Click the pull-down triangle to expand window.
(8) Select Electronic Charts software.
(9) Highlight selection, left-click.
(10) Click the BEGIN LOAD button.
(11) Monitor the CPAS Data Load Status.

NOTE: A status tab is created for each load that is started by clicking on the
BEGIN LOAD button. Each load status tab in the Status area contains the
selected target type name and position, the selected data/software items
part number or name, the overall percentage of the load completed, and an
icon indicating the current state of the load process.

NOTE: There are three load state icons. A periodically rotating circle indicates the
load is currently in progress. A check-mark indicates the load has
successfully completed. An exclamation point indicates the load has
encountered an error.

(12) Monitor the OVERALL PROGRESS and File progress bars. The OVERALL
PROGRESS bar shows the progress on the number of files, not on the combined
size of the files. Progress may also be monitored in the text scrolling in the
Status Window.
(13) Wait for a Green Check-mark to indicate a successful load.
(14) The OVERALL PROGRESS bar and the STATUS WINDOW show 100%
COMPLETE before the data load process is complete. These bars only indicate
that the file transfer is complete. The FSU must complete a CRC (Cyclic
Redundancy Check) of the data transferred. The FSU compares the CRC
results against those included in the file set and reports success back to the
CPAS before the process is complete.
(15) When the FSU indicates the CRC values of the data transferred are valid,
CPAS shows the Green Check-mark icon.
(16) Make sure the CANCEL UPLOAD button has changed to CLOSE STATUS.
(17) Click the CLOSE STATUS button to close the status window.
(18) Close the CPAS if no other database has to be uploaded.

(19) Make sure the operation of IFIS is correct.

Electronic Charts Subscription Number (to be done at once after uploading of the license CD):

(20) Push STAT and MENU buttons to enter CHART SUBSCRIPTION PAGE

(21) Turn MENU ADV knob counter clockwise to select the SUBSCRIPTION NUMBER digits.

(22) Push PUSH SELECT for some seconds until the "0"s become dashes.

(23) Use MENU ADV knob, on the CCP, to select character of the first digit.

(24) Use DATA knob, on the CCP, to pass to the following digit.

(25) Complete the string of the first SUBSCRIPTION NUMBER.

(26) Push the PUSH SELECT button to enter the entire string..

(27) Make sure ACCEPTED SUBSCRIPTION NUMBER is shown and the inserted string is displayed.

(28) Perform Validity Check Process (7).

Electronic Charts Updates upload:

(1) Perform steps 1 to 19 using the update CD.

7. Validity Check Process

(1) Make sure the data on the DATABASE EFFECTIVITY page (Ref. Fig 208) is correct:

(2) Push the STAT button, on the CCP, to show the STATUS MENU on the MFD.

(3) Turn the MENU ADV knob, on the CCP, to position the focus indicator around the DATABASE EFFECTIVITY line.

(4) Push the PUSH SELECT button to show the DATABASE EFFECTIVITY page on the MFD.

(5) Wait one additional minute, from the time a valid File Server Configuration page is displayed until it is ready to transfer file information, for the FSU to initialize. Enhanced Maps, FMS Charts and Electronic Charts functions will not operate during this time. FSU INOP will be displayed.

(6) When the FSU is up and running, make sure the MFD shows each individual data base, each with Begin and End dates (or "N/A") and STATUS.

(7) Make sure the effectivity dates of data bases loaded are as expected.

(8) Make sure the CHART SUBSCRIPTION PAGE (Ref. Fig 209) is properly set.

   NOTE: Following steps are performed if Electronic Charts are installed.

(9) Using the CCP MENU button, select the CHART SUBSCRIPTION page.

(10) Make sure Piaggio electronic charts SUBSCRIPTION NUMBER shows in cyan, and boxed on the MFD.

(11) This subscription number should be resident in the FSU. Changing the FSU or modifications to the FSU (e.g. Service Bulletins) may require re-entry of this subscription number.

(12) Make sure the chart information can be accessed.

(13) Push the CCP CHART button.

(14) Push the CCP MENU button.

(15) Select a chart different than the last chart displayed.

(16) Make sure the new chart shows on the MFD.

(17) Push the CCP CHART button again to show EMAPS.

(18) Select the PLAN format using the line select keys on MFD. It may be necessary to enter "dummy" Flight Plan information into the FMS currently selected on the MFD.

   NOTE: Following steps are performed if Enhanced Maps are installed.

(19) Push the CCP MENU button and then use either the MFD line select buttons or the CCP knobs, make sure the functions that follow show the appropriate displays on the MFD.

(20) Make sure GEO-POL (Geographical and Political boundaries) shows ON and OFF. Check for the addition and removal of state and country boarders and major bodies of water. The MFD range may require adjustment.

(21) Make sure the AIRSPACE shows ON and OFF (range less than 200 on first ring). Check for the addition and removal of controlled airspace, typically around large airports. Prohibited airspace may also be displayed. The MFD range may require adjustment.

(22) Make sure the AIRWAYS shows the HI LO and OFF (range less than 200 on first ring). Check for the addition and removal of both high and low airways. The MFD range may require adjustment.
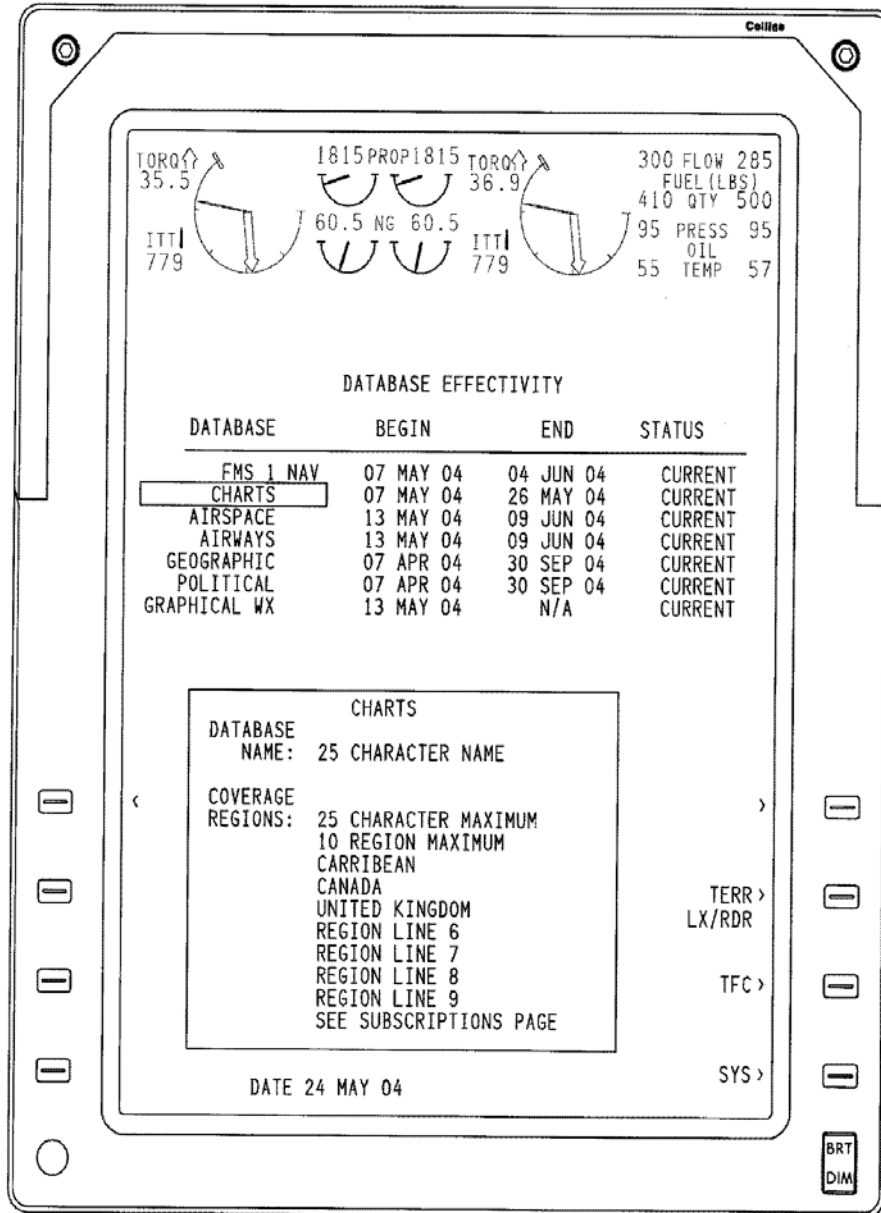
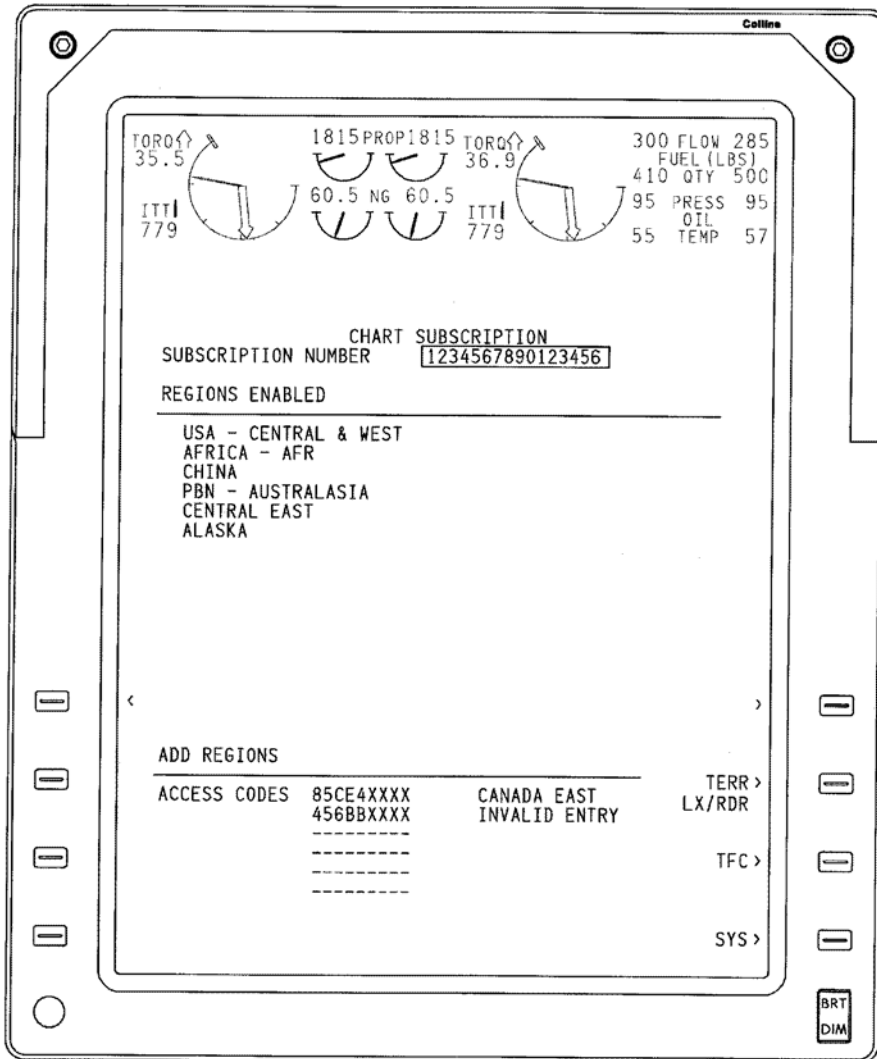Fig. 208 - Database Effectivity Page

Fig. 209 - Chart Subscription Page

8.   External Compensation Unit - Removal(Ref. Fig. 210)

   A.   Fixtures, Test and Support Equipment

   Blanking caps   Not specified
   Warning notices   Not specified

   B.   Referenced Information

   Maintenance Manual Chapter 24-00-00
   Maintenance Manual Chapter 53-10-00
   Maintenance Manual Chapter 34-42-00
   Maintenance Manual Chapter 34-21-00

   C.   Procedure
      (1)   Remove the electrical power (Refer to 24-00-00).
      (2)   Remove the radome/nosecone (Refer to 53-10-00).
      (3)   Remove the FSU as described in this section.
      (4)   Remove the four screws (1) that secure the FSU mount to the airplane
            structure.

            CAUTION: in order to avoid damage to the ECU and the fan connectors pay
                        attention when you bring up the FSU with mount

      (5)   Slowly bring up the FSU mount until is possible disconnect the two electrical
            connectors located to the mount rear side.
      (6)   Disconnect the electrical connectors (2, 3).
      (7)   Slowly bring up and remove the FSU mount with ECU.

9.   External Compensation Unit - Installation   (Ref. Fig. 210)

   A.   Fixtures, Test and Support Equipment

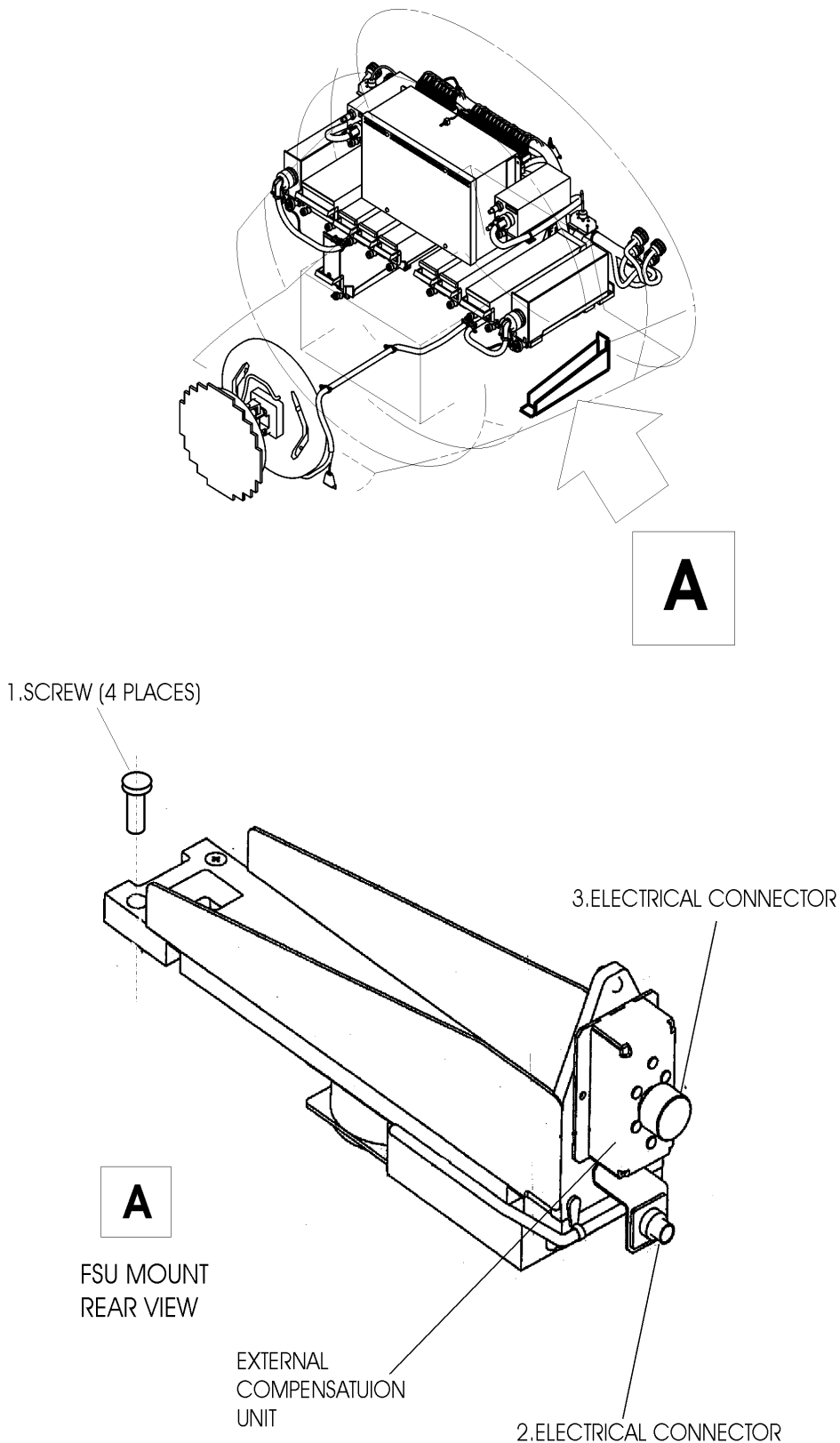   Blanking caps   Not specified
   Warning notices

   B.   Referenced Information

   Maintenance Manual Chapter 24-00-00
   Maintenance Manual Chapter 53-10-00
   Maintenance Manual Chapter 34-42-00
   Maintenance Manual Chapter 34-21-00

   C.   Procedure
      (1)   Make sure, as necessary that:
            –   There is no electrical power on the airplane

     –   The warning notices are in position

     –   Access is available

(2) Connect the ECU and Fan electrical connectors (2, 3) located on the FSUmount rear side.

(3) Slide the FSU mount in its own position in nose avionics bay.

(4) Install the four screws (1) that secure the FSU mount with ECU to the airplane structure.

(5) Install the FSU as described in this section.

(6) Insert the Encrypted Application Keys as described in this section.

(7) Perform a test of the IFIS System as described in this section.

(8) Install the radome/nosecone (Refer to 53-10-00)..

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1.SCREW (4 PLACES)

3.ELECTRICAL CONNECTOR

MM_462000-210

A

FSU MOUNT
REAR VIEW

EXTERNAL
COMPENSATUION
UNIT

2.ELECTRICAL CONNECTOR

Fig. 210 - External Compensation Unit - Removal / Installation

10. ECU - 3000 Application Keys Insertion

A. APPLICATION KEYS

After uploading the FSA it is necessary to insert the Encrypted Application Keys (EAKs) in order to enable the chosen Integrated Flight Information System functions, if any.

The EAKs provide the information necessary for the system to unlock the associated application software that is already resident in the system. The EAKs are alphanumeric strings (13 digits), related to the serial number of the ECU belonging to the FSU system, that are created externally to the avionics system. Each EAK is generated by RCI to enable a single application on the single aircraft (identified by the serial number of its ECU) for which it was purchased (an EAK generated for one application is saved in the ECU of the FSU so that it is valid on any airplane on which the specific ECU is installed).

The following EAKs may be inserted onboard P180 Avanti II aircraft:

- OVL-5000CPN 810-0003-001enables Enhanced Maps to be displayed

- ECH-5000CPN 810-0002-001enables Electronic Charts to be displayed

The following steps must be performed:

(1) Make sure the a/c is in On-Ground configuration.

(2) Push the STAT button and then the MENU button, on the Cursor Control Panel (CCP), to show the STATUS MENU on the MFD.

(3) Turn the MENU ADV knob, on the CCP, to position the focus indicator around the FILE SERVER CONFIGURATION line.

(4) Push the PUSH SELECT button to show the FILE SERVER CONFIGURATION page on the MFD.

(5) Make sure the data on the FILE SERVER CONFIGURATION page is correct (Ref. Fig. 211) and the FSA PART NO (File Server Application software), Cyclic Redundancy Code (CRC) and ECU Serial Number are shown on the MFD.

(6) Turn the MENU ADV knob, on the CCP, to position the focus indicator around the first ENTER KEYS line.

(7) Push the PUSH SELECT button to select the first digit of the first key line.

(8) Use MENU ADV knob, on the CCP, to select character of the first digit.

(9) Use DATA knob, on the CCP, to pass to the following digit.

(10) Complete the string of the first EAK.

(11) Push the PUSH SELECT button to enter the entire string.

(12) Make sure KEY ACCEPTED message is displayed, and the selected database status becomes ENABLED.

(13) Continue to insert all the EAKs for the databases to be uploaded executing steps 6 to 12.

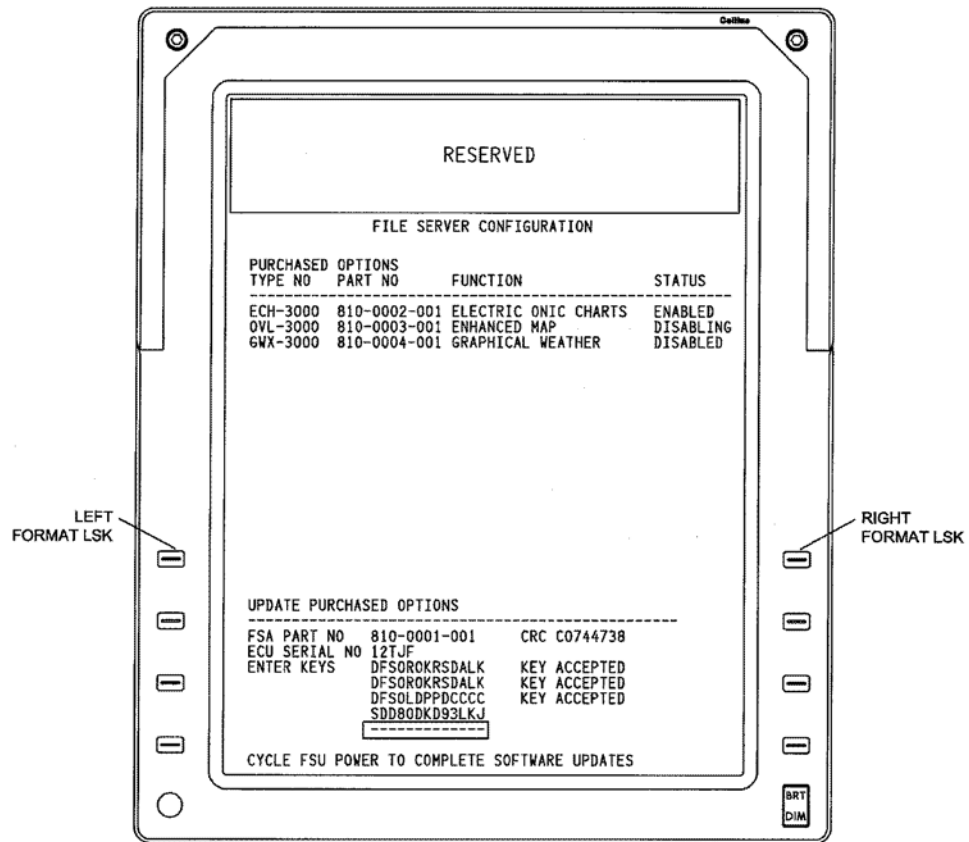(14) Make sure the appropriate functions show in green and the STATUS column indicates ENABLED.

Fig. 211 - File Server Configuration Page

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