COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

FLIGHT ATTENDANT PANEL

Z147H060070A

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INTRODUCTION

1. GENERAL

This manual has been compiled entirely from an SGML source in accordance with the requirements set out in the specification ATA iSpec 2200. It provides data as necessary for operator's personnel to restore an unserviceable FLIGHT ATTENDANT PANEL (FAP) to a serviceable condition. The manual provides component maintenance instructions with Illustrated Parts List for the FAP.

2. MANUFACTURING

The FAP is manufactured and product supported by:

AIRBUS Operations GmbH (FSCM C9072)
Cabin Electronics
Lueneburger Schanze 30
21614 Buxtehude
Germany
Phone: +49 40 743 74632
Fax: +49 40 743 71680
Internet: www.airbus.com
E-Mail: ruediger.jansen@airbus.com

3. APPROVED REPAIR STATIONS

The FAP is repairable and testable by the manufacturer and the following approved repair stations.

AIRBUS Operations GmbH (FSCM C9072)
Cabin Electronics
Spares Services
Lueneburger Schanze 30
21614 Buxtehude
Germany
Phone: +49 40 743 80846
Fax: +49 40 743 77351
Internet: www.airbus.com
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Fax: +86 108048 6784
E-Mail: hong.liu@eltra.net.cn

4. LAYOUT OF THE MANUAL

This manual contains a general description and operation followed by data for testing, cleaning, check and repair of the FAP. Also an Illustrated Parts List is included.

5. REVISION SERVICE

This manual will be updated as required by revisions. Service Bulletins (SBs) may be issued separately. Their effect on the manual will, however, be evident by reissuance of the SB as appropriate.

6. SHOP VERIFICATION

The sections within this manual have been verified by the manufacturer, the testing, disassembly, and assembly instructions by actually performing the functions covered in their respective sections.

7. WARNINGS, CAUTIONS, NOTES

A. WARNING

Warnings call attention to use of materials, processes, methods, procedures or limits which must be precisely adhered to in order to avoid injury or death of persons.

B. CAUTION

Cautions call attention to use of materials, processes, methods, procedures or limits which must be precisely adhered to in order to prevent damage of equipment.

C. NOTE

Notes call attention to methods which make the job easier.

8. LIST OF ABBREVIATIONS

A	Ampere
A/C	Aircraft
AISD	Aircraft Integrated Data System
AR	As Required
ASSY	Assembly
ATA	Air Transport Association of America

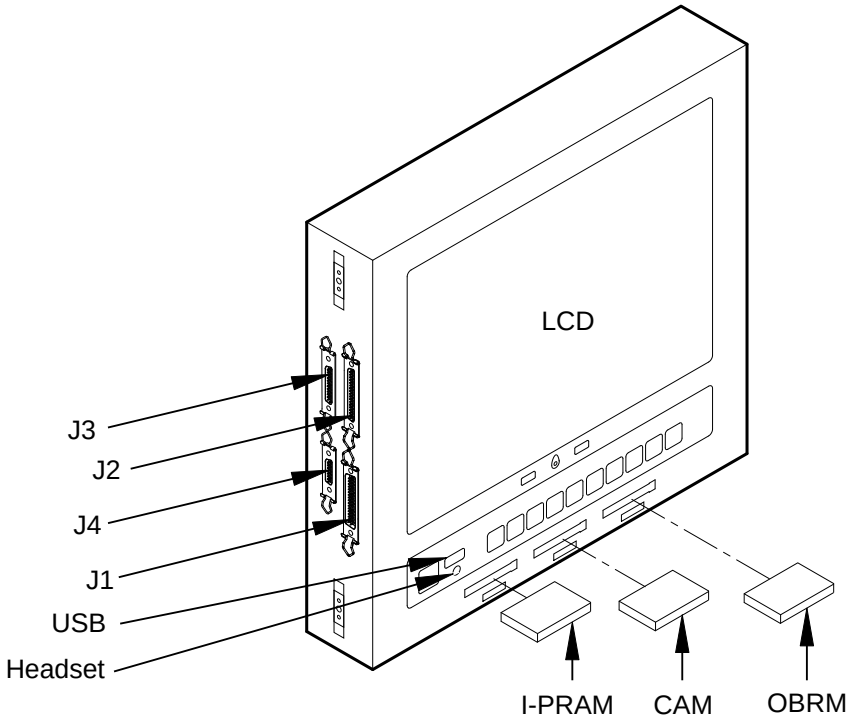
BITE	Built-In Test Equipment
CAM	Cabin Assignment Module
CAN	Controller Area Network
CD	Compact Disc
CD	Class Divider
CDSS	Cockpit Door Surveillance System
CF	Compact Flash
CHE	Check (in PB9000 lists)
CIDS	Cabin Intercommunication Data System
CLE	Cleaning (in PB9000 lists)
CMM	Component Maintenance Manual
CPU	Central Processing Unit
CVMS	Cabin Video Monitoring System
D	Deleted
DC	Direct Current
DEU	Decoder Encoder Unit
DEU-A	Decoder Encoder Unit, Type A
DEU-B	Decoder Encoder Unit, Type B
EFF	Effective / Effectivity
EMER	Emergency
EVAC	Evacuation
FAP	Flight Attendant Panel
FIG.	Figure
FPGA	Field Programmable Gate Array
GND	(Common Signal) Ground
I-PRAM	Integrated Pre-recorded Announcement & Boarding Music
IFE	In-Flight Entertainment System
IPL	Illustrated Parts List
LCD	Liquid Crystal Display

LH	Left Hand
m	Meter
MFAP	Mini FAP
mm	Millimeter
MS	Mobile Station
OBRM	On Board Replaceable Module
OMS	On-Board Maintenance System
PAX	Passenger
PC	Personal Computer
PCB	Printed Circuit Board
PDL	Page Description List
PIESD	Passenger Information and Entertainment Data System
PNR	Part Number
PRAM	Pre-recorded Announcement & Boarding Music
REP	Repair (in PB9000 lists)
RF	Reference
RF	Radio Frequency
RH	Right Hand
s	Second
SB	Service Bulletin
SGML	Standard Generalized Markup Language
SW	Software; Switch
USB	Universal Serial Bus
V	Volt
VCC	Video Control Center
VDC	Volt Direct Current
W	Watt
°C	degree Celsius
°F	degree Fahrenheit

DESCRIPTION AND OPERATION

1. GENERAL

A. The FAP (refer to FIGURE 1) enables the cabin crew to control certain cabin systems and the CIDS parameters. It indicates the status of several cabin systems and provides cabin programming. The FAP is installed in the pressurized area of the cabin. It is possible to connect more FAP via Ethernet. Only the first FAP is connected to the two Directors. The other FAP or MFAP are connected in line (daisy-chain architecture) to the switch/hub of the first FAP. The FAP could be equipped with a different number of PC Modules. A fully equipped FAP contains 3 PC Modules. The PC Modules are named by PC1, PC2 and PC3. The location of the PC Modules is fixed. For an overview of the FAP configuration (refer to TABLE 1).



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VIEW OF THE FAP
FIGURE 1

Part Number Range	includes PC Module	PC Configuration
Z147H06xxxxx	PC1,PC2,PC3	A

CONFIGURATION OF THE FAP PC MODULES
TABLE 1

B. In the front slots of the FAP are installed memory cards (CF-cards) with the following functions:

- On Board Replaceable Module (OBRM)
- Cabin Assignment Module (CAM)
- Integrated Prerecorded Announcement & Boarding Music (I-PRAM)

2. TECHNICAL DATA

CHARACTERISTIC	DATA
Dimensions	Depth: 67 mm (2.64 in.) Height: 360 mm (14.17 in.) Width: 380 mm (14.96 in.)
Weight	Approximately 7 kg (15.43 lb.)
Power Requirements	Input voltage: 28 VDC Stand-by power: 25 Watt Operating power (maximum output): 85 Watt
Data Interfaces	13 x 10/100 Base-T Ethernet 1 x USB
Discrete Input Signals	4 x Open/GND Input, for address coding 1 x Open/GND Input, for ext. reset 2 x Open/28V Input (relays), 3 x Open/GND Input on optional PC/hub
Analog Input	2 x Video
Relay Contacts	2 Relays
Environmental - Humidity - Temperature Altitude	 35% to 65% + 18 °C (64 °F) and +26 °C (79 °F) Normal operation up to 15240 m (50,000 ft.)

TECHNICAL DATA
TABLE 2

3. DESCRIPTION

A. General Description

(1) The FAP is a system that largely consists of:

- maximum 3 PC Modules,
- one common LCD screen with touch screen,
- a touch-key panel,
- 3 network switches, one for each PC,
- a number of USB ports,
- two external video inputs, connected to one video digitizer,
- audio output functionality,
- a reset controller, two relays, an external input, a power supply.

(2) The FAP is controlled by a central FPGA.

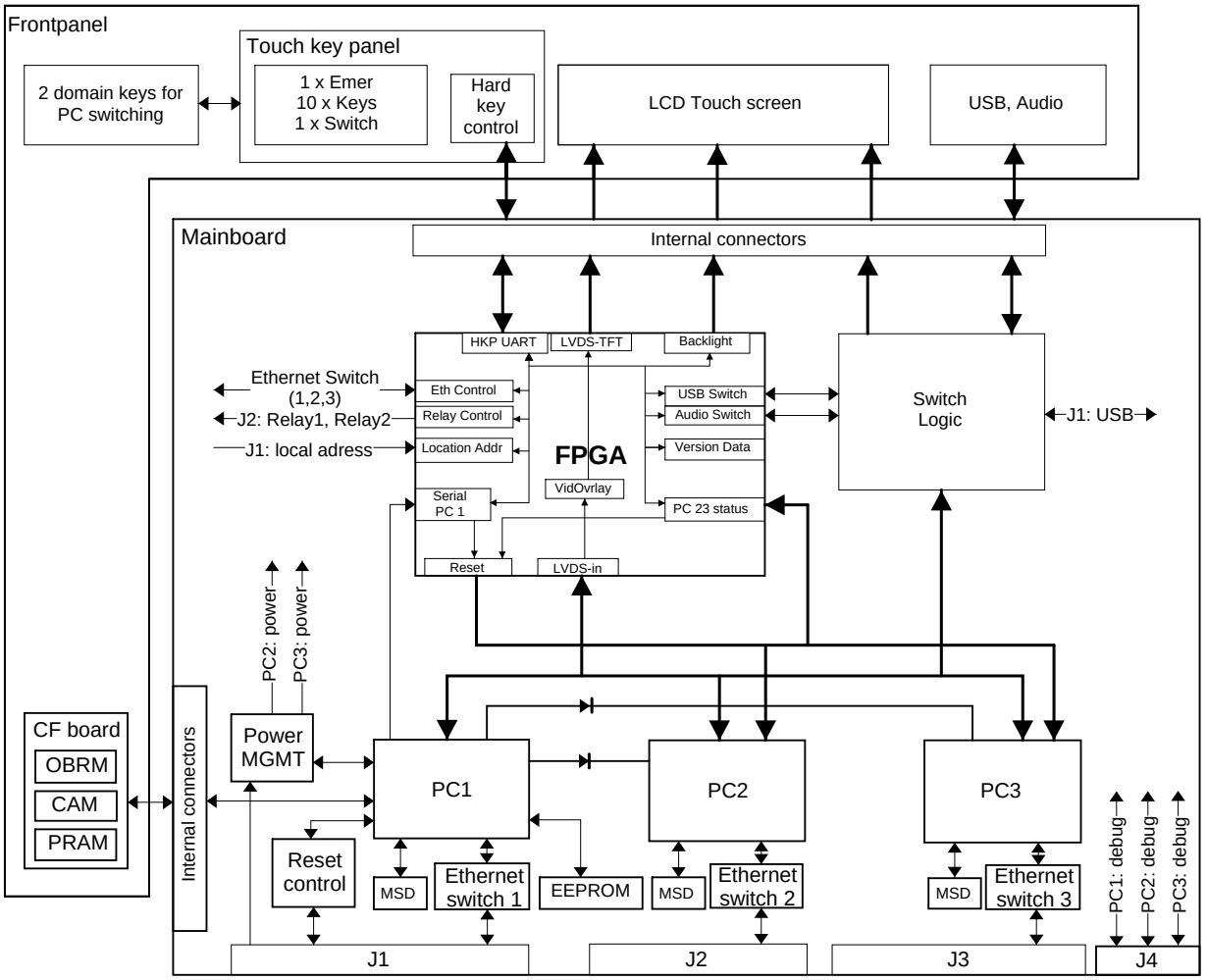
(3) The main function of the FAP is to enable PC1 to switch the LCD screen (including its backlight), touch screen, USB ports and audio outputs between the three PC's. Second, it facilitates to overlay the display of PC3 with the display of one of the external video inputs.

(4) Furthermore it facilitates for PC1 to configure the Ethernet controllers, set and reset the relays, communicate with the keyboard, read out the BITE and suspend status of PC2 and PC3 and read out the external input, which indicates the FAP address.

B. Mechanical Description

(1) A fully equipped FAP has:

- a front panel with protection cover,
- connectors for USB and headphone
- a touch-key panel (refer to TABLE 2001 for the configurations),
- a touchscreen and display unit,
- a rear casing with connectors (J1, J2, J3, J4),
- printed circuit boards (PCBs),
- 4 external connectors,
- 3 PC Modules,
- a CIDS push button switch,
- a MENU push button switch,
- a EMER button,
- a PAX SYS button.



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GENERAL BLOCK DIAGRAM OF THE FAP
FIGURE 2

C. Electrical Description

(1) The following interfaces of the FAP are connected to cabin systems refer to: FIGURE 3 thru FIGURE 6.

- 13 x Ethernet interfaces (10/100 Base-T)
- 1 x USB interface (on front panel)
- 1 x audio output for headphone on front panel
- 2 x video inputs
- 1 x reset signal from Director or other external sources
- 1 x independent discrete emergency switch, in- and output
- 1 x independent discrete guard switch, in- and output (optional)
- 2 x relay ports
- 1 x RS232 port

(2) Connectors of the FAP

PIN	SIGNAL TYPE	CONNECTED TO:
J1-1	Ethernet 10/100BaseT Input 1 Hi	CIDS Director 1 or previous FAP
J1-2	Ethernet 10/100BaseT Input 1 Lo	CIDS Director 1 or previous FAP
J1-3	Ethernet 10/100BaseT Output 1 Hi	CIDS Director 1 or previous FAP
J1-4	Ethernet 10/100BaseT Output 1 Lo	CIDS Director 1 or previous FAP
J1-5	Ethernet 10/100BaseT Input 2 Hi	CIDS Director 2
J1-6	Ethernet 10/100BaseT Input 2 Lo	CIDS Director 2
J1-7	Ethernet 10/100BaseT Output 2 Hi	CIDS Director 2

CONNECTOR J1
TABLE 3 (continued on next page)

PIN	SIGNAL TYPE	CONNECTED TO:
J1-8	Ethernet 10/100BaseT Output 2 Lo	CIDS Director 2
J1-9	Ethernet 10/100BaseT Input 3 Hi	Next FAP or MFAP
J1-10	Ethernet 10/100BaseT Input 3 Lo	Next FAP or MFAP
J1-11	Ethernet 10/100BaseT Output 3 Hi	Next FAP or MFAP
J1-12	Ethernet 10/100BaseT Output 3 Lo	Next FAP or MFAP
J1-13	Ethernet 10/100BaseT Input 5 Hi	Next FAP or MFAP
J1-14	Ethernet 10/100BaseT Input 5 Lo	Next FAP or MFAP
J1-15	Emer Lt On Out	Emergency Light System
J1-16	Emer Lt IND 28 VDC In	Emergency Light System
J1-17	Chassis GND Input	A/C Ground CIDS Director or FAP/ MFAP
J1-18	28 VDC Input	Essential Power
J1-19	28 VDC Input	Emergency Power
J1-20	DC GND Input	DC Ground
J1-21	Chassis GND Input	Ground

CONNECTOR J1
TABLE 3 (continued on next page)

PIN	SIGNAL TYPE	CONNECTED TO:
J1-22	Chassis GND Input	Ground
J1-23	Chassis GND Input	Ground
J1-24	Chassis GND Output	CDSS/ CVMS FAP/ FAP
J1-25	Ethernet 10/100BaseT Input 4 Hi	CDSS/ CVMS
J1-26	Ethernet 10/100BaseT Input 4 Lo	CDSS/ CVMS
J1-27	Ethernet 10/100BaseT Output 4 Hi	CDSS/ CVMS
J1-28	Ethernet 10/100BaseT Output 4 Lo	CDSS/ CVMS
J1-29	Guarded Switch out	Provision PAX SYS
J1-30	Guarded Switch IN 28VDC	Provision PAX SYS
J1-31	Guarded Switch out	Provision PAX SYS
J1-32	Ethernet 10/100BaseT Output 5 Hi	Next FAP/ MFAP
J1-33	Emer Lt IND Out	Emergency Light System
J1-34	Location Addr 0 in	Address Coding
J1-35	DC GND in	Address Coding
J1-36	Location Addr 1 in	Address Coding
J1-37	DC GND	Address Coding
J1-38	Location Addr 2 in	Address Coding
J1-39	DC GND in	Address Coding
J1-40	Location Addr 3 in	Address Coding
J1-41	DC GND	Address Coding
J1-42	Ethernet 10/100BaseT Output 5 Lo	Next FAP/ MFAP
J1-43	Chassis GND	Output A/C Ground Mini FAP
J1-44	Chassis GND Output	A/C Ground USB
J1-45	Data Port Hi	USB
J1-46	Data Port Lo	USB
J1-47	USB VCC	USB

CONNECTOR J1
TABLE 3 (continued on next page)

PIN	SIGNAL TYPE	CONNECTED TO:
J1-48	USB GND	USB
J1-49	Reset Output	CDSS/ CVMS
J1-50	Reset Input	CIDS Director 1, 2 or previous FAP

CONNECTOR J1
TABLE 3

PIN	SIGNAL TYPE	CONNECTED TO:
J2-1	Ethernet 10/100BaseT Input 1 Hi	previous FAP (AISD)
J2-2	Ethernet 10/100BaseT Input 1 Lo	previous FAP (AISD)
J2-3	Ethernet 10/100BaseT Output 1 Hi	previous FAP (AISD)
J2-4	Ethernet 10/100BaseT Output 1 Lo	previous FAP (AISD)
J2-5	Chassis GND Ethernet 5	A/C Ground
J2-6	Ethernet 10/100BaseT Input 2 Hi	next FAP (AISD)
J2-7	Ethernet 10/100BaseT Input 2 Lo	next FAP (AISD)
J2-8	Ethernet 10/100BaseT Output 2 Hi	next FAP (AISD)
J2-9	Ethernet 10/100BaseT Output 2 Lo	next FAP (AISD)
J2-10	Chassis GND Ethernet 3	A/C Ground
J2-11	Ethernet 10/100BaseT Input 3 Hi	AISD
J2-12	Ethernet 10/100BaseT Input 3 Lo	AISD
J2-13	Ethernet 10/100BaseT Output 3 Hi	AISD
J2-14	Ethernet 10/100BaseT Output 3 Lo	AISD
J2-15	Chassis GND Ethernet 4	A/C Ground
J2-16	Ethernet 10/100BaseT Input 4 Hi	AISD
J2-17	Ethernet 10/100BaseT Input 4 Lo	AISD
J2-18	Ethernet 10/100BaseT Output 4 Hi	AISD
J2-19	Ethernet 10/100BaseT Output 4 Lo	AISD
J2-20	Chassis GND Ethernet 1	A/C Ground
J2-21	Ethernet 10/100BaseT Input 5 Hi	AISD
J2-22	Ethernet 10/100BaseT Input 5 Lo	AISD

CONNECTOR J2
TABLE 4 (continued on next page)

PIN	SIGNAL TYPE	CONNECTED TO:
J2-23	Ethernet 10/100BaseT Output 5 Hi	AISD
J2-24	Ethernet 10/100BaseT Output 5 Lo	AISD
J2-25	Chassis GND	A/C Ground
J2-26	Analog Video 1 In	Spare Video
J2-27	Analog Video 2 In	Spare Video
J2-28	Chassis GND Ethernet 2	A/C Ground
J2-29	Relay 1 Input	Spare
J2-30	Relay 1 Output 1	Spare
J2-31	Relay 1 Output 2	Spare
J2-32	Spare Analog Audio in Left	Spare
J2-33	Spare Analog Audio in Right	Spare
J2-34	Chassis GND for Audio IN	Spare
J2-35	Relay 2 Input	Spare
J2-36	Relay 2 Output 1	Spare
J2-37	Relay 2 Output 2	Spare

CONNECTOR J2
TABLE 4

PIN	SIGNAL TYPE	CONNECTED TO:
J3-1	Ethernet 10/100BaseT Output 1 Hi	Previous FAP (PIESD)
J3-2	Ethernet 10/100BaseT Input 1 Hi	Previous FAP (PIESD)
J3-3	Chassis GND for Ethernet 1	A/C Ground
J3-4	Ethernet 10/100BaseT Output 2 Hi	Next FAP (PIESD)
J3-5	Ethernet 10/100BaseT Input 2 Hi	Next FAP (PIESD)
J3-6	Ethernet 10/100BaseT Output 3 Hi	PIESD

CONNECTOR J3
TABLE 5 (continued on next page)

PIN	SIGNAL TYPE	CONNECTED TO:
J3-7	Ethernet 10/100BaseT Input 3 Hi	PIESD
J3-8	Chassis GND for Ethernet 3	A/C Ground
J3-9	Ethernet 10/100BaseT Output 4 Hi	PIESD
J3-10	Ethernet 10/100BaseT Input 4 Hi	PIESD
J3-11	Chassis GND for Ethernet 5	A/C Ground
J3-12	Ethernet 10/100BaseT Output 5 Hi	PIESD
J3-13	Ethernet 10/100BaseT Input 5 Hi	PIESD
J3-14	Ethernet 10/100BaseT Input 1 Lo	Previous FAP (PIESD)
J3-15	Ethernet 10/100BaseT Output 1 Lo	Previous FAP (PIESD)
J3-16	Chassis GND for Ethernet 2	A/C Ground
J3-17	Ethernet 10/100BaseT Input 2 Lo	Next FAP (PIESD)
J3-18	Ethernet 10/100BaseT Output 2 Lo	Next FAP (PIESD)
J3-19	Ethernet 10/100BaseT Input 3 Lo	PIESD
J3-20	Ethernet 10/100BaseT Output 3 Lo	PIESD
J3-21	Chassis GND for Ethernet 4	A/C Ground
J3-22	Ethernet 10/100BaseT Input 4 Lo	PIESD
J3-23	Ethernet 10/100BaseT Output 4 Lo	PIESD

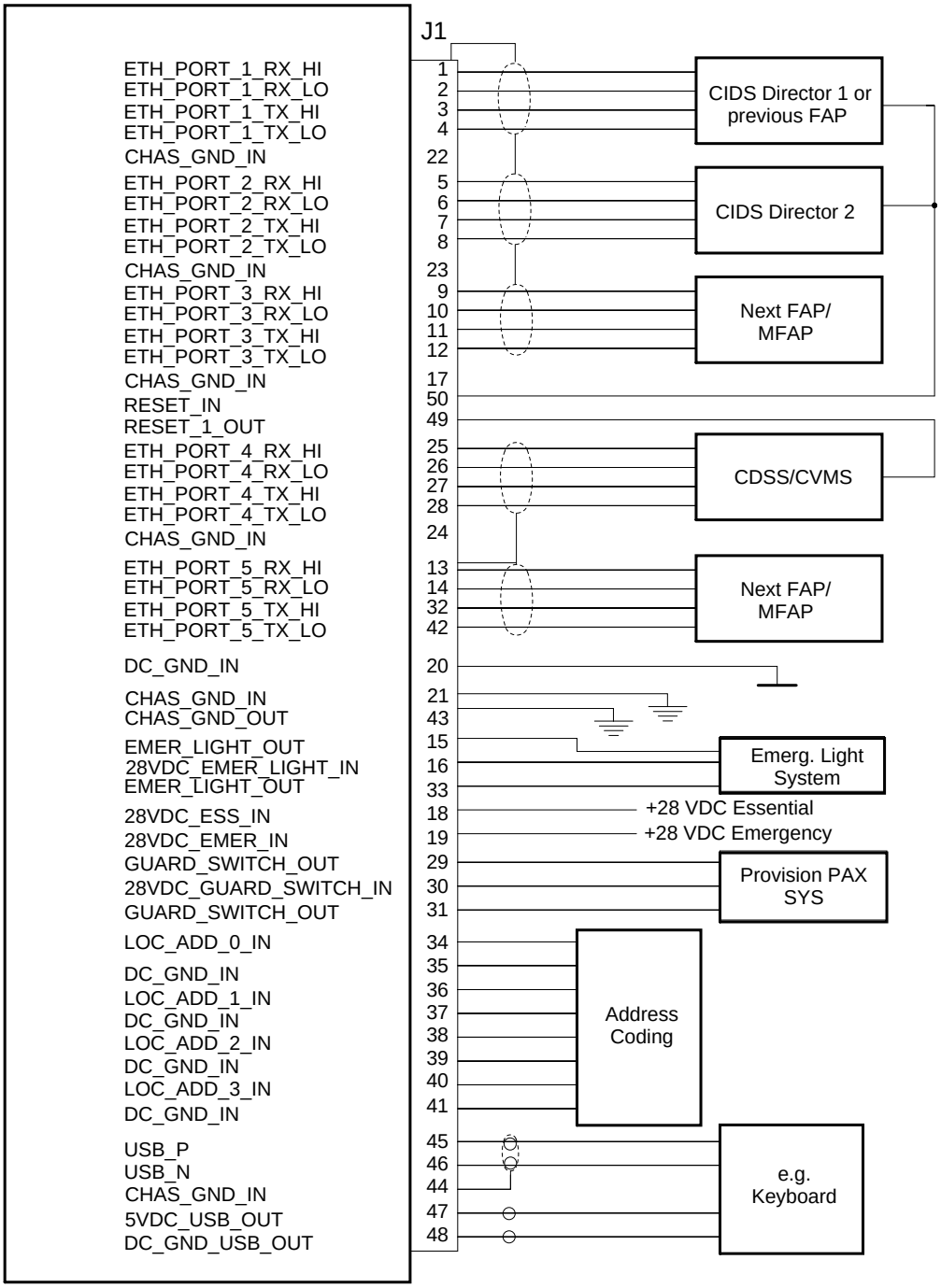
CONNECTOR J3
TABLE 5 (continued on next page)

PIN	SIGNAL TYPE	CONNECTED TO:
J3-24	Ethernet 10/100BaseT Input 5 Lo	PIESD
J3-25	Ethernet 10/100BaseT Output 5 Lo	PIESD

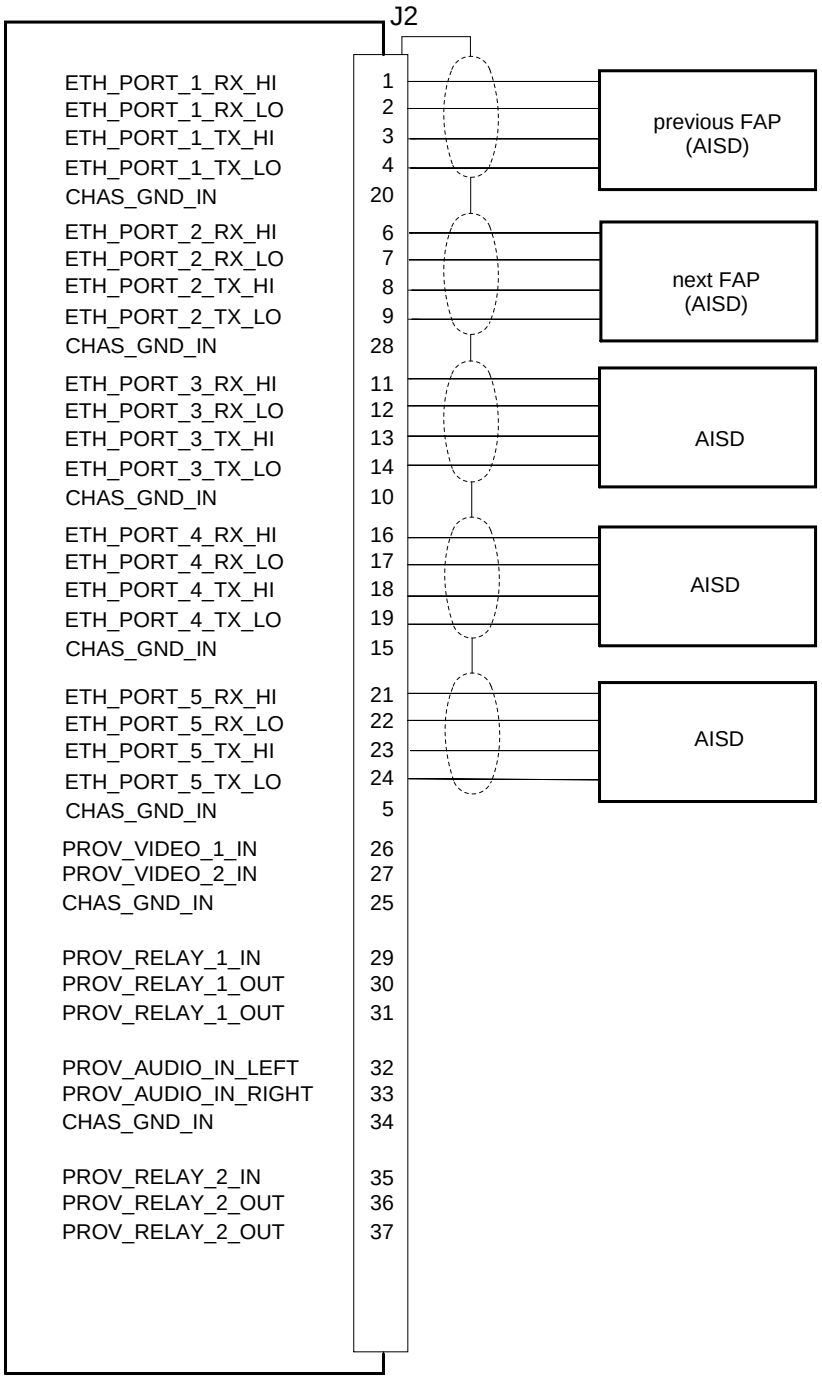
CONNECTOR J3
TABLE 5

PIN	SIGNAL TYPE	CONNECTED TO:
J4-1	RS232_Out_TX	Service/Maintenance for PC1
J4-2	RS232_In_RX	Service/Maintenance for PC1
J4-3	RS232_Out_TX	Service/Maintenance for PC2
J4-4	RS232_In_RX	Service/Maintenance for PC2
J4-5	RS232_Out_TX	Service/Maintenance for PC3
J4-6	RS232_In_RX	Service/Maintenance for PC3
J4-7	Chassis GND for RS232	D/C Ground
J4-8	Spare	Spare
J4-9	Spare	Spare
J4-10	Spare	Spare
J4-11	Spare	Spare
J4-12	Spare	Spare
J4-13	Spare	Spare
J4-14	Spare	Spare
J4-15	Spare	Spare

CONNECTOR J4
TABLE 6

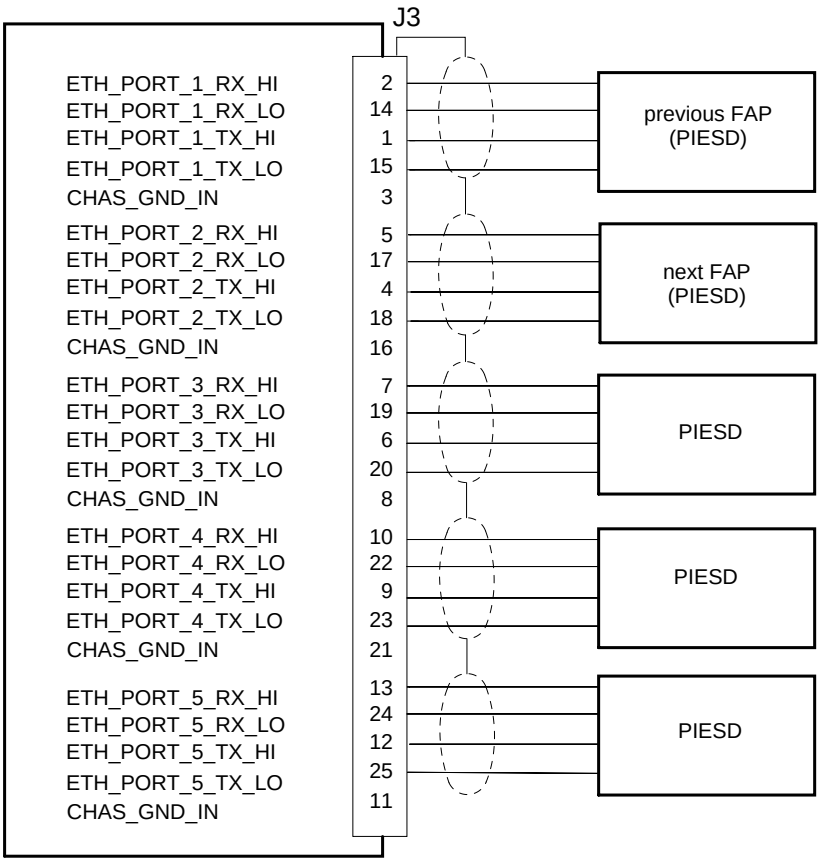


CONNECTED SYSTEMS, CONNECTOR J1
FIGURE 3



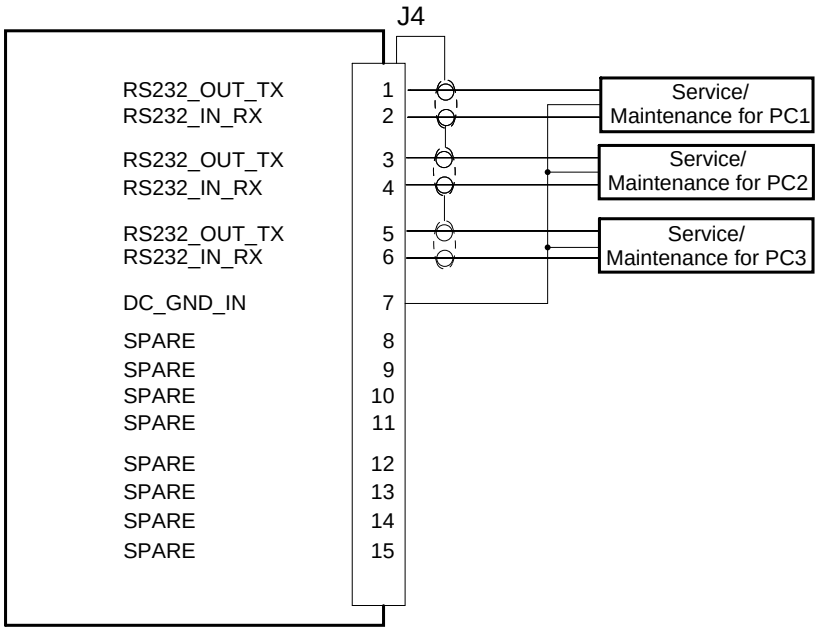
C9072_C441112_DOP04_R00.cgm

CONNECTED SYSTEMS, CONNECTOR J2
FIGURE 4



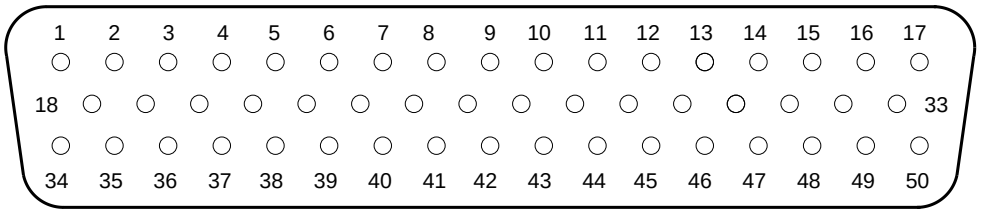
C9072_C441112_DOP05_R00.cgm

CONNECTED SYSTEMS, CONNECTOR J3
FIGURE 5

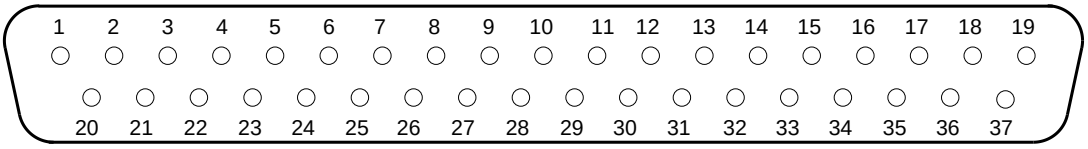


C9072_C441112_DOP06_R00.cgm

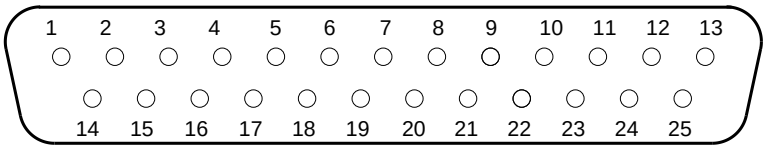
CONNECTED SYSTEMS, CONNECTOR J4
FIGURE 6



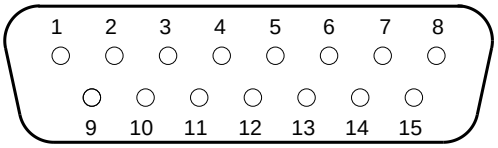
J1



J2



J3



J4

C9072_C441112_DOP07_R00.cgm

EXTERNAL FAP CONNECTORS
FIGURE 7

4. OPERATION

A. General Information

(1) The FAP is used to control various cabin systems and the CIDS, to indicate the status of different systems, and for on-board changes of the CAM data (e.g. cabin layout and no smoking zones).

(2) Functions

(a) The following functions are performed by the FAP:

(b) Transmission of:

- Data at assigned intervals via the data bus,
- received data (daisy chain),
- BITE results to Director.

(c) Comparison of received address (Ethernet or location addresses).

(d) Processing of addressed commands and controls (also for optional PC).

(e) Processing of inputs from:

- Touch-key panel,
- touchscreen (also for optional PC),
- optional inputs (e.g. USB),
- cabin systems.

(f) Conversion of inputs from optional Ethernet inputs (e.g. IFE).

(g) Adaptation of received data bus, USB, and cabin system interface signals (USB signals also for optional PC).

(h) Short circuit protection of discrete outputs.

(i) Ethernet interface to both Directors (direct connection or via previous FAP) and to next FAP.

(j) Data transfer from OBRM SW, CAM, I-PRAM to Director.

(k) Data storage from Director into CAM.

(l) Discrete interface to:

- Emergency lighting system,
- additional systems (e.g. "PAX SYS"),
- CIDS Director for FAP reset,
- next FAP for FAP reset.

(3) Interfaces

(a) To provide the operational interface for CIDS applications, the FAP has an interface (Ethernet 10/100 Base-T) to the CIDS Directors 1 to 2. It is possible to install more FAPs. Only the first FAP is connected to the Directors. The other FAP are connected in line to the first FAP. The respective system menus are

displayed on the touchscreen display unit. The FAP SW is stored in an internal CF card, the complete CIDS SW (e.g. Director, FAP, DEU-A, DEU-B, etc.) is stored in a file system in the CF card.

(b) The FAP has data interfaces to:

- Director 1 (Ethernet),
- Director 2 (Ethernet),
- Previous FAP (Ethernet),
- Next FAP (Ethernet),
- CDSS/ CVMS (Ethernet),
- Mini FAP (Ethernet),
- Service/Maintenance for PC1 (RS232),
- Service/Maintenance for PC2 (RS232),
- Service/Maintenance for PC3 (RS232),
- Data Port (USB).

(c) The FAP has discrete interfaces to/for:

- Emergency Lighting System,
- Director 1,
- Director 2,
- discrete output to next FAP for FAP reset,
- PAX SYS.

(d) Optionally, the FAP is extended with additional hub and PC functions to provide Ethernet capability to further servers.

(4) Externally accessible memory cards

(a) In the front panel of the FAP are slots for three memory (compact flash) cards. The compact flash cards provide sufficient memory space for future extensions. The flash cards are hot-plugable, which means the flash cards can be changed during operation without resetting or restarting the FAP. These cards are:

1 On Board Replaceable Module (OBRM): The OBRM is a removable memory card which contains the system software. Major changes of the CIDS functions are done by the replacement of the OBRM.

2 Cabin Assignment Module (CAM): The CAM is the second plug-in memory card which defines many of the system properties and all cabin layout and zoning information (e.g. if chimes accompany a PAX announcement and if a loudspeaker is used for an attendant or for a PAX announcement). Minor CAM data are changed by replacement of the CAM with a reprogrammed CAM.

3 Integrated Prerecorded Announcement & Boarding Music (I-PRAM): The third removable memory card is the integrated PRAM which is a freely programmable storage medium for prerecorded messages/announcements and boarding music audio data.

(b) The compact flash cards and the respective slots in the FAP front panel are color-coded to prevent insertion of a card in the wrong slot. In case of a wrongly inserted card, a respective failure message is displayed on the touchscreen display.

(5) Solid State Drive

The internal Solid State Drive, contain the operating software of the 3 PC Moduls.

(6) FPGA

(a) The main function of the FPGA is to enable PC1 to switch the LCD screen (including it's backlight), touch screen, USB ports and audio outputs between the three PCs. Second, it facilitates to overlay the display of PC3 with the display of one of the external video inputs.

(b) Furthermore it facilitates PC1 to configure the Ethernet controllers, set and reset the relays, communicate with the keyboard, read out the BITE and suspend status of PC2 and PC3 and read out the external input, which indicates the FAP's address.

B. Power Supply

(1) The FAP is supplied from two independent 28 VDC power sources. Firstly from 28 VDC normal bus bar and secondly from 28 VDC essential bus bar.

(2) In case of emergency mode, the processing module switches the FAP and connected systems (internal, not external) to minimum power consumption. EVAC and SMOKE related push-buttons located on the FAP hard-key panel are supplied and backlit with essential power. The emergency light switch is supplied from its own 28 VDC source, via discrete input. The spare switch on the hard-key panel is supplied from an external source.

(3) Normal and essential power is used for the internal CIDS hub/repeater to ensure reliable FAP communication.

C. Touchscreen interface

(1) The FAP is equipped with a graphic color LC display with touchscreen panel. This panel indicates all information. It is used to select functions (like cabin illumination) and the cabin programming. The system response time on manual inputs is less than 200 ms.

(2) Graphical symbols, keys, alphanumeric, and special characters are stored in the internal and CAM CF-cards, the layout of the FAP pages is defined by a Page Description List (PDL), which is stored in the internal CF-card. Customized graphical symbols, pictograms, etc. for FAP pages are stored in a separate part of the CAM module. The OBRM CF-card is used for SW-loading only.

(3) The FAP includes a loudspeaker for acoustical feedback of touch events. The loudspeaker volume level is adjustable and it is possible to reset the adjusted volume level to a default value.

(4) The data for the activation of the display elements, graphics, etc. are received from the PDL. The parameters (e.g. actual temperature value) are received from the CIDS Directors.

(5) The Director supports standard server functionality and transmits the FAP pages (parameters and page contents) to the FAP display unit. The update of a displayed page is also initiated from the Director if necessary (fault condition or parameter update).

(6) A separate window on the touchscreen is provided for standard PC functions and standard browser applications. The window size is 800x600 pt. (approx. 11 in.). The content of the browser window is under control of the external server source.

D. Ethernet interface via bridge

(1) This interface buffers all incoming information (from "Director" and from "next FAP") and transfers selected data via the Ethernet bus to the processing unit. To provide the operational interface for IFE, OMS and future applications the FAP has 2 spare Ethernet interface(s).

(2) Outgoing packets fetched from the processing module (FAP display unit and FAP hardkey panel inputs) or from previous FAP are transmitted on the Ethernet bus according to control information to/from the Director. The data received from the "Director/previous FAP" are transmitted to the "next FAP/Director".

(3) The number of installed FAPs is customized. Up to ten FAPs can be connected to build an FAP network. In that case the "next FAP" Ethernet interface is used to build this FAP network line.

E. USB-, Keyboard-, and Pushbutton functions

(1) The keyboard contains the hard-keys and push-buttons (for special functions like "EMER LIGHT", "LAVATORY SMOKE" etc.), an USB interface (for CIDS module and PC module to provide SW-controlled interfaces for keyboard, mouse, printer, card reader, CD drive, etc.), and a headphone-socket.

(2) The touch-keys and interfaces located on the FAP sub panel are guarded by a cover plate. The touch-keys are located on the touch-key panel. In addition to customized defined "Panel CMD" (programmable control functions) max. 10 touch-keys can be customized (refer to TABLE 2001 for the different configurations). The functions and positions of the keys on the touch-key panel are defined via CAM assignment. Examples:

- EVAC command
- EVAC reset
- LAV maintenance
- Main on/off (lights)
- Smoke reset
- Screen 30 sec. lock

(3) One push-button switch is located on the FAP sub panel on the left hand side ("EMER" light switch).

(4) The headphone volume level is adjustable, and the adjusted volume level can be reset to a default value.

(5) Two domain pushbutton switches are directly under the LCD-screen.

- The two buttons make it possible to switch between the CIDS graphical user interface (GUI) and a menu page with buttons for other external systems.
- PC1 (CIDS part) controls the switch for LCD etc. and decides based on front cover hard key input which page has to be shown on the screen.
- The left button refers directly to the CIDS GUI, the right button displays a menu page.
- On the menu page the buttons to select the external systems are shown.
- Both pages and the corresponding buttons at the front cover are controlled by the CIDS application (PC1).
- At this menu page all external systems are selectable independently. A button is shown which the user can select to switch to the corresponding external system, then he can navigate through the menu of this selected system.
- If he wants to go back to the menu page of all connected systems he has to press the right button at the front cover of the FAP again and can select another external system.
- If he wants to go back to the CIDS GUI he has to press the left button at the front cover of the FAP and can operate the CIDS system.
- It is possible to set the color of the LEDs of a domain key to amber or green by a reset signal of the FPGA.

F. BITE

(1) The FAP BITE function is incorporated into the FPGA. The BITE of the FAP is able to distinguish between internal faults and system faults (i.e. faults of the data bus or connected systems).

(2) The BITE test comprises:

- FAP BITE boot status for all PCs
- Voltage test for all PCs
- CPU temperature test for all PCs
- Capacitor Bank Voltage Monitoring
- Voltage value of the CapV

(3) The fault information is transmitted via the CIDS data bus to the Director. The BITE results of all FAPs are collected in the Director for transmission to the central fault monitoring systems. The BITE results are also stored in the Director's BITE memory and can be read out with the appropriate troubleshooting SW.

G. Abnormal operation

(1) Director-FAP Reset

(a) In case of Director H/W reset, the Director initiates an FAP H/W reset, via direct FAP reset input (valid for CIDS module and PC module).

(b) In case of Director power-up reset, this discrete interface performs also an FAP reset, to guarantee Director and FAP synchronization (only for master-FAP).

(2) Architecture Redundancy and Reduced Operation

(a) The system interface of the FAP allows a fail-safe position for each cabin system output in case of FAP failure. Any malfunction of the connected cabin system components (e.g. short-circuit) does not affect the function of the FAP and the control of the other cabin system components.

(b) In case of failure of the data bus coupling module (CIDS hub/switch), the Director, or the data bus itself, the FAP maintains the status of the discrete cabin system outputs for approx. 3 minutes. After this delay, the discrete cabin system outputs switch to the defined fallback position.

(c) In case of redundant FAP installations (two or more), the failed components of one FAP do not affect the operation capabilities of further connected FAPs.

(d) The FAP operates with normal 28 VDC supply power as long as this supply is available. In the event of DC normal power failure, the FAP circuitry automatically switches to the DC essential power bus with reduced FAP functions. A short-circuit in the FAP power supply does not disturb the power input lines and does not cause a short circuit. In this case the following touch-keys located on FAP touch-key panel remain operating and backlit:

- EVAC CMD
- EVAC RESET
- SMOKE RESET

TESTING AND FAULT ISOLATION

1. REPAIR AND TESTING

A. The FLIGHT ATTENDANT PANEL is only repairable and testable by the manufacturer for now:

For information of the manufacturer address refer to MANUFACTURING.

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1. HARD-KEY PANEL CONFIGURATIONS

A. The ten touch-keys for the FAP have the following button label configurations:

TOUCH-KEY PANEL, CONFIGURATION
TABLE 2001

FAP-PNR	Key 1	Key 2	Key 3	Key 4	Key 5	Key 6	Key 7	Key 8	Key 9	Key 10
Z147H060070A	[not used]	LIGHTS MAIN ON/OFF	LAV MAINT	SCREEN 30 sec. LOCK	[not used]	[not used]	EVAC CMD	EVAC RESET	SMOKE RESET	[not used]

DISASSEMBLY

NOT APPLICABLE

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CLEANING

1. GENERAL

WARNING: DO NOT GET CLEANING AGENT ON YOUR SKIN, IN YOUR EYES, OR NEAR A FLAME. DO NOT BREATHE THE FUMES. ONLY USE CLEANING AGENTS IN AN AREA WITH A GOOD FLOW OF AIR. CLEANING AGENTS ARE POISONOUS AND FLAMMABLE.

WARNING: USE THE AIRJET CAREFULLY TO DRY COMPONENTS. WEAR GOGGLES TO PROTECT YOUR EYES. DIRT AND CLEANING AGENT CAN DAMAGE YOUR EYES.

CAUTION: YOU MUST GROUND YOURSELF WITH APPROVED ANTISTATIC EQUIPMENT BEFORE YOU TOUCH THE ELECTRONIC PARTS OF THE UNIT. THE UNIT CONTAINS COMPONENTS WHICH ARE EASILY DAMAGED BY A DISCHARGE OF STATIC ELECTRICITY.

CAUTION: ONLY USE SPECIFIED TOOLS AND MATERIALS OR APPROVED ALTERNATIVES. THE USE OF UNAPPROVED TOOLS AND MATERIALS CAN DAMAGE THE COMPONENTS.

CAUTION: USE A LOW PRESSURE AIRJET. A HIGH PRESSURE AIRJET CAN DAMAGE PARTS OF THE UNIT.

A. This section gives information for cleaning the assembled or disassembled FAP.

B. Special warnings, cautions, techniques, and procedures, if necessary, are given in this section.

2. LIST OF STANDARD TOOLS

The standard tools that follow are used in this section.

NOTE: Equivalent alternatives can be used for items in the list.

ITEM	SUPPLIER'S CODE
LOW-PRESSURE AIRJET	LOCALLY AVAILABLE
SOFT BRISTLE BRUSH	LOCALLY AVAILABLE

LIST OF STANDARD TOOLS
TABLE 4001

3. LIST OF MATERIALS

The materials that follow are used in this section.

NOTE: Equivalent alternatives can be used for items in the list.

ITEM	SUPPLIER'S CODE
APPROVED CLEANING AGENT	LOCALLY AVAILABLE
VISIAL (CML 11/020)	LOCALLY AVAILABLE

LIST OF MATERIALS
TABLE 4002

4. PROCEDURE

A. Cleaning of the Casing

Clean the casing with an approved non-metallic soft bristle brush and an approved cleaning agent.

B. Cleaning of the Connectors

(1) Carefully clean the connectors with an approved non-metallic soft bristle brush and an approved cleaning agent.

(2) Carefully dry the connectors with a low-pressure airjet.

C. Cleaning of the Display Unit and the touch-key panel

(1) Carefully clean the display unit and the touch-key panel with an approved non-metallic soft bristle brush and cleaning agent Visial (CML 11/020).

(2) Carefully dry the display unit and the touch-key panel with a low-pressure airjet.

CHECK

1. GENERAL

CAUTION: YOU MUST GROUND YOURSELF WITH APPROVED ANTISTATIC EQUIPMENT BEFORE YOU TOUCH THE ELECTRONIC PARTS OF THE UNIT. THE UNIT CONTAINS COMPONENTS WHICH ARE EASILY DAMAGED BY A DISCHARGE OF STATIC ELECTRICITY.

A. This section gives information for the visual inspection of the FAP.

B. Special warnings, cautions, techniques, and procedures, if necessary, are given in this section.

2. LIST OF STANDARD TOOLS

The standard tools that follow are used in this section.

NOTE: Equivalent alternatives can be used for items in the list.

ITEM	SUPPLIER'S CODE
INSPECTION LAMP	LOCALLY AVAILABLE
MAGNIFYING GLASS	LOCALLY AVAILABLE

LIST OF STANDARD TOOLS
TABLE 5001

3. PROCEDURE

A. Visual Inspection

Refer to TABLE 5002.

Use an inspection lamp and/or a magnifying glass as appropriate.

Visually examine the FAP for:

- Mechanical damage
- Defective parts
- Loose or missing parts
- Unwanted material
- Corrosion
- Heat damage
- Defective insulation
- Loose or broken connections
- Damage to bonded parts
- Scratches
- Broken or bent pins

Possible defect	Casing	Connectors	Display Unit / Touch-key Panel
Mechanical damage	X	X	X
Defective parts	X	X	X
Loose or missing parts	X	X	X
Unwanted material	X	X	X
Corrosion	X	X	X
Heat damage		X	X
Defective insulation		X	X
Loose or broken connectors	X	X	X
Damage to bonded parts	X		X
Scratches	X		X
Broken or bent pins		X	

INSPECTION PLAN
TABLE 5002

REPAIR

1. GENERAL

WARNING: DO NOT GET CLEANING AGENT ON YOUR SKIN, IN YOUR EYES, OR NEAR A FLAME. DO NOT BREATHE THE FUMES. ONLY USE CLEANING AGENTS IN AN AREA WITH A GOOD FLOW OF AIR. CLEANING AGENTS ARE POISONOUS AND FLAMMABLE.

CAUTION: YOU MUST GROUND YOURSELF WITH APPROVED ANTISTATIC EQUIPMENT BEFORE YOU TOUCH THE ELECTRONIC PARTS OF THE UNIT. THE UNIT CONTAINS COMPONENTS WHICH ARE EASILY DAMAGED BY A DISCHARGE OF STATIC ELECTRICITY.

CAUTION: ONLY USE SPECIFIED TOOLS AND MATERIALS OR APPROVED ALTERNATIVES. THE USE OF UNAPPROVED TOOLS AND MATERIALS CAN DAMAGE THE COMPONENTS.

Special warnings, cautions, techniques, and procedures are given in this section.

2. LIST OF MATERIALS

The materials that follow are used in this section.

NOTE: Equivalent alternatives can be used for items in the list.

ITEM	SUPPLIER'S CODE
APPROVED ADHESIVE	LOCALLY AVAILABLE
APPROVED CLEANING AGENT	LOCALLY AVAILABLE

LIST OF MATERIALS
TABLE 6001

3. PROCEDURE

A. Replacement of Riveted Case Parts

(1) Use a standard sheet metal repair/riveting procedure if you repair or replace parts of the case.

(2) Use a standard surface protection and painting procedure to repair damaged surface finish.

B. Replacement of Bonded Parts

(1) Clean the mating surface with an approved cleaning agent.

(2) Attach the new component with an approved adhesive.

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SPECIAL TOOLS, FIXTURES, EQUIPMENT AND CONSUMABLES

1. LIST OF STANDARD TOOLS

The standard tools in the list are necessary for the maintenance of the component.

NOTE: Equivalent alternatives can be used for items in the list.

ITEM	SUPPLIER'S CODE	USE	
		CLE	CHE
INSPECTION LAMP	LOCALLY AVAILABLE		X
LOW-PRESSURE AIRJET	LOCALLY AVAILABLE	X	
MAGNIFYING GLASS	LOCALLY AVAILABLE		X
SOFT BRISTLE BRUSH	LOCALLY AVAILABLE	X	

LIST OF STANDARD TOOLS
TABLE 9001

2. LIST OF MATERIALS

The consumables in the list are necessary for the maintenance of the component.

NOTE: Equivalent alternatives can be used for items in the list.

ITEM	SUPPLIER'S CODE	USE	
		CLE	REP
APPROVED ADHESIVE	LOCALLY AVAILABLE		X
APPROVED CLEANING AGENT	LOCALLY AVAILABLE	X	X
VISIAL (CML 11/020)	LOCALLY AVAILABLE	X	

LIST OF MATERIALS
TABLE 9002

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ILLUSTRATED PARTS LIST

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INTRODUCTION

1. IPL INTRODUCTION

A. General Information

This ILLUSTRATED PARTS LIST (IPL) contains the complete listing of all replaceable major assemblies of the FAP.

B. Organization

(1) The IPL is divided into the following sections:

(a) Introduction

The introduction contains all explanatory information for the individual sections as is necessary for using the IPL. The introduction further contains a list of manufacturer codes together with manufacturer names and addresses.

(b) Equipment Designator Index

1 The Equipment Designator Index (if necessary) shows all of the electrical components in the sequence of their reference designators. It identifies each reference designator with a figure and item location (plus a "GEO. LOC.", if applicable).

2 The order of precedence in beginning the equipment designator arrangement at the left-hand (first) position is as follows:

- letters A through Z (except "O" to be considered as zero),
- numerals 0 through 9.

3 For subsequent rows, the order is:

- letters A through Z (except "O" to be considered as zero),
- numerals 0 through 9.

(c) Numerical Index

1 This section contains a listing of part numbers of all items listed in the detailed parts list in alphanumerical sequence with cross-reference to respective Fig./Item Nos. as well as units per assy.

2 The order of precedence in beginning the part number arrangement at the outmost left-hand (first) position is as follows:

- letters A through Z (except "O" to be considered as zero)
- numerals 0 to 9.

3 For subsequent rows, the order is:

- a dash,
- letters A through Z (except "O" to be considered as zero),
- numerals 0 through 9.

(d) Detailed Parts List

1 Column "FIG. / ITEM"

The first number in the first line of a page indicates the number of the figure illustrating the part. The second number indicates the item number by which the part is identified on the illustration. A dash placed before the item number indicates that the part is not illustrated.

2 Column "PART NUMBER"

The part number column contains the original manufacturers' part numbers. When standard part numbers are used, the standard part number is listed in this column.

3 Column "AIRLINE STOCK NO."

This column is left blank for airline internal use.

4 Column "NOMENCLATURE"

a Indenture System

The indenture system used in the Detailed Parts List shows the relationship of parts and assemblies to next higher assemblies as follows:

1234567

Assembly

Attaching Parts for Assembly

* * *

. Detail Parts for Assembly

. . Subassembly

. . Attaching Parts for Subassembly

* * *

. . . Detail Parts for Subassembly

. . . . Sub-Subassembly

. . . . Attaching Parts for Sub-Subassembly

* * *

. . . . . Detail Parts for Sub-Subassembly

b Attaching parts

The attaching parts are shown directly after the assembly or the part thereof. They are listed under the same indenture number

as the item they attach, and are preceded by the words "ATTACHING PARTS" and are followed by three asterisks.

c Vendor Codes

1. Parts manufactured by companies other than AIRBUS Operations GmbH are identified by an appropriate vendor code following the nomenclature.

2. Vendor codes are in accordance with current issues of U.S. Federal Supply Codes for Manufacturer Handbooks H4-1, H4-2 and H4-3 and/or in accordance with applicable European regulations and are preceded by the letter "V". Standard parts such as AN, DIN, MS etc. are not identified by a vendor code. When there is no known vendor code, the abbreviated name of the vendor is listed in lieu of the vendor code.

5 Column "EFF CODE"

Alpha variants A-Z (except I and O) may be assigned to an existing item number in the FIG-ITEM column to show configuration differences, optional parts, etc. Alpha variant items are not shown on the illustration when the appearance and location of the alpha variant are the same as the basic item. In the EFF CODE column, part applicability is indicated with respect to the top assemblies. A part shown with an effectivity code is only used in the top assembly variant which has the same effectivity code. The absence of a code indicates that the part is common to all variants of the top assembly.

6 Column "UNITS PER ASSY"

This column contains the quantity of a specific catalog sequence numbered part required in the build sequence of only one (where more than one exists), next higher sub-sub-assembly, sub-assembly, assembly, or installation level as applicable. For bulk items, the letters "AR" are inserted in the quantity column to indicate "As Required". Whenever items are listed for reference purposes, "RF" is inserted.

C. How to use the IPL

(1) If the part number is known

(a) Find the part number in the numerical index and note figure and item number.

or (if the item is a part on a PCB with equipment designator information)

(b) Find the part in the equipment designator index and note figure and item number (or "GEO. LOC.", if applicable).

(c) Turn to figure.

(d) Locate the part on the illustration and in the parts list by item number (or by "GEO. LOC." in the nomenclature, if applicable).

(2) If the part number is unknown

(a) Refer to Figure 1A and look for the figure item number of the part.

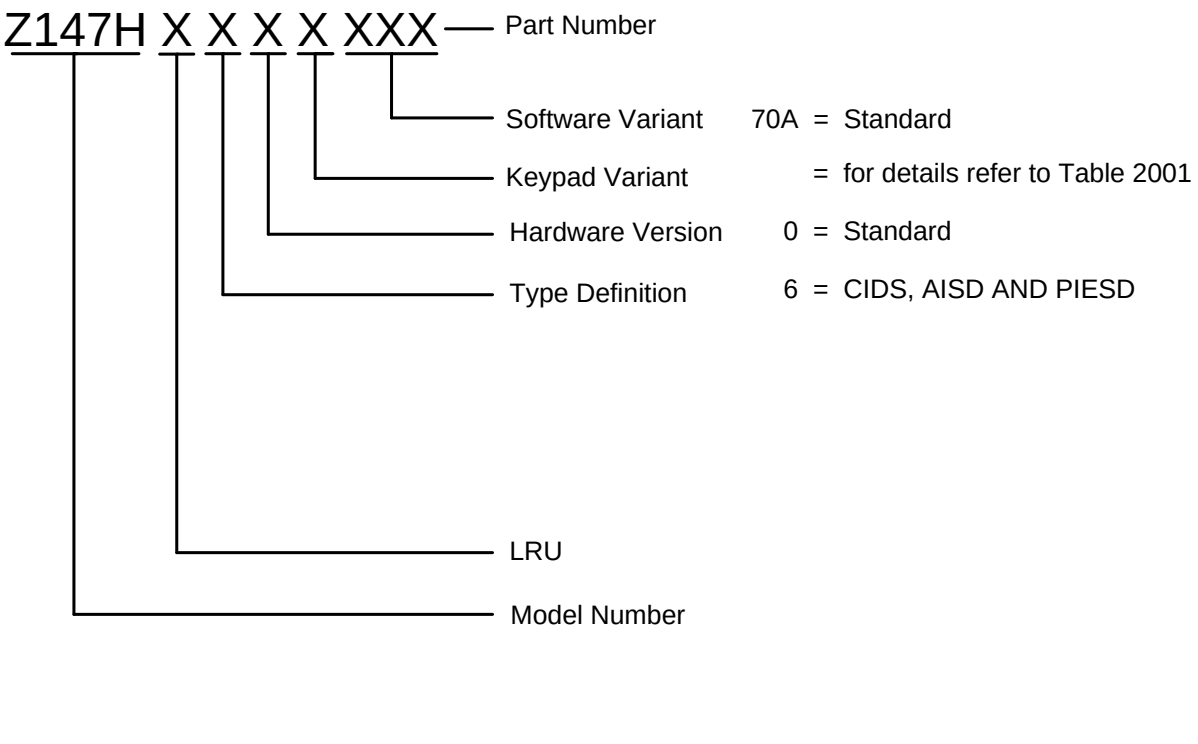
(b) Note the figure item number.

(c) Turn to the figure item list and find the corresponding part number.

(3) AIRBUS Operations GmbH Part Numbering System

Each part, assembly and installation is assigned a "Part" number consisting of the basic engineering drawing number. Supplementary numbers appended to the engineering drawing number identify parts, assemblies or installations which are detailed.

Example:



PART NUMBER SYSTEM
FIGURE 10001

2. LIST OF VENDORS

MFR	VENDOR ADDRESS
C1212	BRADY GMBH BUECHENHOEFE D-63229 ENGELSBACH GERMANY

MFR	VENDOR ADDRESS
C9072	AIRBUS OPERATIONS GMBH CABIN ELECTRONICS LUENEBURGER SCHANZE 30 D-21614 BUXTEHUDE GERMANY

LIST OF VENDORS
TABLE 10001

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NUMERICAL INDEX

PART NUMBER	AIRLINE STOCK NUMBER	FIG.	ITEM	TTL REQ
11834		1A	120A	1
50715018		1A	100A	1
Z020H1200202		1A	80A	1
Z020H1200208		1A	90A	1
Z020H1300213		1A	110A	2
Z020H1301001		1A	10A	1
Z020H1301002		1A	20A	1
Z020H1301003		1A	30A	1
Z020H1301004		1A	40A	1
Z133H1000200		1A	50A	1
Z133H1000201		1A	60A	1
Z133H1000204		1A	70A	1
Z147H060070A		1A	1A	RF

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OPTIONAL VENDOR INDEX

PART NUMBER	VENDOR PART NUMBER	VENDOR CODE

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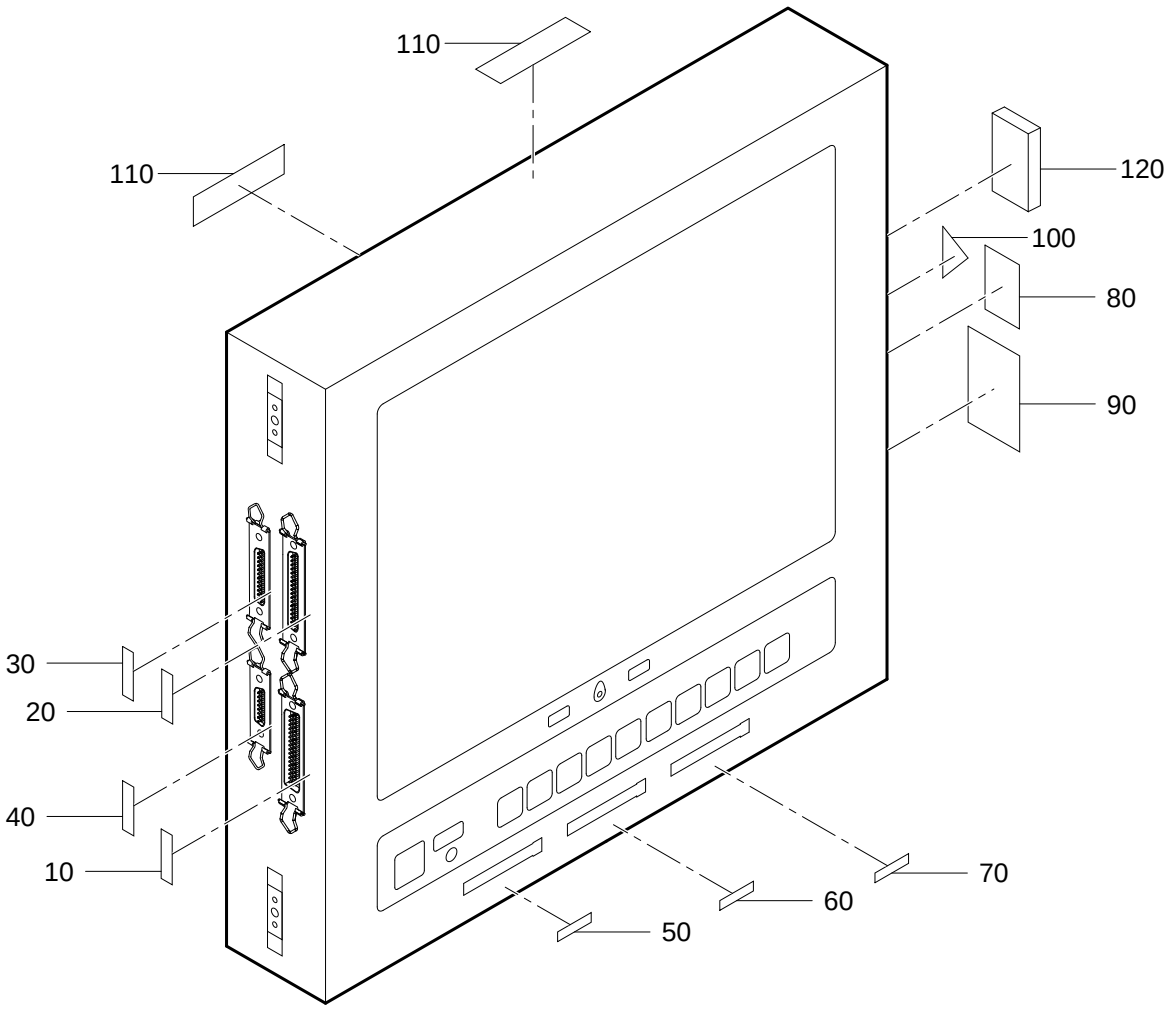
DETAILED PARTS LIST



C9072_C441112_IPLP01A_R00.cgm

FAP
FIGURE 1A

FIG. ITEM	PART NUMBER	AIRL. STOCK NO.	NOMENCLATURE 1234567	EFF CODE	UPA
1A					
- 1A	Z147H060070A		FAP - FLIGHT ATTENDANT PANEL		RF
10A	Z020H1301001		. LABEL, J1		1
20A	Z020H1301002		. LABEL, J2		1
30A	Z020H1301003		. LABEL, J3		1
40A	Z020H1301004		. LABEL, J4		1
50A	Z133H1000200		. LABEL, I-PRAM		1
60A	Z133H1000201		. LABEL, CAM		1
70A	Z133H1000204		. LABEL, OBRM		1
80A	Z020H1200202		. LABEL		1
90A	Z020H1200208		. LABEL ORDER PNR Z020H1300141 FOR HAND WRITABLE LABEL ORDER PNR B428LABEL70X32 FOR THERMAL PRINTABLE LABEL 70 * 32 mm, PNR, DATE, SER		1
100A	50715018		. LABEL, FIELD VC1212 LOADABLE SOFTWARE ORDER OVERLENGTH PNR THTB8423TRI30PRTD		1
110A	Z020H1300213		. LABEL, HIGH TEMPERATURE WARNING 15 * 45 mm, HOT SURFACE		2
120A	11834		. LABEL,RFID		1

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NOT APPLICABLE

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REMOVAL

NOT APPLICABLE

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STORAGE INCLUDING TRANSPORTATION

1. GENERAL

CAUTION: DO NOT KEEP THE STORED UNIT IN THE SAME AREA AS CORROSIVE, FLAMMABLE OR OTHER HAZARDOUS MATERIALS. THESE MATERIALS CAN CAUSE DAMAGE TO THE COMPONENT.

CAUTION: KEEP THE UNIT AWAY FROM SOURCES OF HEAT, SUCH AS RADIATORS.

CAUTION: DO NOT PUT HEAVY OBJECTS ON THE STORED UNIT. TOO MUCH WEIGHT ON THE CONTAINER CAN DAMAGE THE UNIT.

CAUTION: YOU MUST GROUND YOURSELF WITH APPROVED ANTISTATIC EQUIPMENT BEFORE YOU TOUCH THE ELECTRONIC PARTS OF THE UNIT. THE UNIT CONTAINS COMPONENTS WHICH ARE EASILY DAMAGED BY A DISCHARGE OF STATIC ELECTRICITY.

This section gives information for packaging and storage of the component.

2. STORAGE INSTRUCTIONS

A. Preservation

Make sure that you do the preservation procedure before you put the component into its packing.

B. Packing

(1) Put the component in its initial container. Use the initial packing material for the protection of the component.

(2) If the initial container or packaging material is not available:

(a) Refer to DESCRIPTION AND OPERATION for the dimensions and the weight of the component.

(b) Refer to ATA 300 Specification for the approved container. Only use approved materials for the protection of the component.

C. Identification

(1) Attach a certificate to the component. Make sure that you can clearly read the component data on the part number label and the certificate.

(2) The certificate must have all the necessary component data written on it, such as:

- Name and type of the component
- Serial number
- Part number
- Modification status

(3) The component is not approved for installation if it does not have a certificate attached to it.

D. Storage

(1) Keep the component in a clean, dry room with a good supply of air.

(2) Keep the temperature of the room to between + 18 °C (64 °F) and +26 °C (79 °F).

(3) Keep the relative humidity of the room to between 35 % and 65 %.

(4) Put the component in a position so that you can easily read the certificate.

E. Condition check

Examine the condition of the component at the specified times.

REWORK

NOT APPLICABLE

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