AIRBUS MILITARY	FUNCTIONAL TEST	PFCFA-24-00-01-02/1	Issue	A	Pages	15
	GST & EI Department					
Aircraft	A330 MRTT					

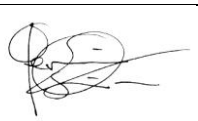
Title:

ATA24 Flight Clearance Tests

Summary:

Prepared by:	Checked by:	Approved by:
Paul Martín León	Javier Fernández Martín	
Signature: 	Signature: 	Signature:: 
Date: 23/11/2012	Date: 23/11/2012	Date: 28/11/2012

REVISIONS RECORD

Issue	Revision Reason	Approved
Date	Chapters, Sections, Affected pages	Signature
A	New Issue	
28/11/2012	All pages	

1 INTRODUCTION

1.1 Object

The aim of this test is to check that the ATA24 systems work properly and they are ready for flight.

1.2 List of acronyms and abbreviations

AMM	Aircraft Maintenance Manual
AWM	Aircraft Wiring Manual
CBMU	Circuit Breaker Monitoring Unit
ECAM	Electronic Centralized Aircraft Monitoring
BCL	Battery Charge Limiter
EIS	Electronic Instrument System
GPU	Ground Power Unit
APU	Auxiliary Power Unit
MRTT	Multi-Role Tanker Transport
GAPCU	Ground Auxiliary Power Control Unit
ECMU	Electrical Contactor Management Unit
TR	Transformer Rectifier

2 APPLICABLE DOCUMENTATION

Ref.AMMTASK45-10-00-860-808	SYSTEM REPORT/TEST ELEC:DC page
Task 24-41-00-861-801	Energize the aircraft electrical circuits from external power A
Task 24-41-00-862-801	De-Energize the aircraft electrical circuits from external power A
Task 31-60-00-860-801	EIS Start procedure
Task 31-60-00-860-802	EIS Stop procedure
TASK 34-10-00-860-802	IR Alignment Procedure

3 REQUIRED EQUIPMENT

N/A

4 DEFINITIONS

N/A

5 PRELIMINARY INSTRUCTIONS

5.1 Test Preparation

The aircraft must be fully operative and the center tank contains at least 4000 Kg of Fuel.

5.2 Safety Instructions

Prior to performing any test, the following requirements must be met:

• Adequate electrical fire, extinguishing equipment shall be available within the aircraft and shall be within calibration / maintenance.

• No other testing shall be executed simultaneously on the aircraft, which might interfere with the correct execution of these tests.

• All Operator Safety hazards shall be identified and appropriate clothing, and or precautions shall be taken.

• Check that all control switches, and selectors of the electrical installation are in the OFF position.

5.3 Preliminary Actions

- All the engines and the APU shall be shut down.
- The wiring continuity tests of the system-under-test shall have been concluded successfully.
- The equipment and components of the system-under-test shall have been properly installed, in accordance with the applicable documentation.

6 TEST EXECUTION

WARNING: **BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.**

NOTE: **All results are to be recorded in the Result Table below.**

6.1 Energize the Aircraft Electrical Circuits from Batteries 1 & 2

6.1.1 Apply procedure 24-41-00-861-801 of AMM. Energize the Aircraft Electrical Circuits from the External Power A.

6.1.2 In the cockpit, on the ELEC control panel 235VU. Check that the voltage of the batteries (1&2&APU) is around 28V.

PASS ☐ **FAIL** ☐ **COMMENT:**

6.1.3 On the ECAM control panel, push the EL/AC key (on the SD, the ELEC AC page comes into view).

6.1.4 On the ELEC control panel 235VU, make sure that the BAT1 and BAT2 pushbutton switches are pushed, and then release the EXT A P/BSW.

6.1.5 Check that the AVAIL legend of the EXT A pushbutton switches come on.

PASS ☐ **FAIL** ☐ **COMMENT:**

6.1.6 On the EWD, hold the ELEC AC page and check that the STAT INV indications come into view (115V, 400Hz)

PASS ☐ **FAIL** ☐ **COMMENT:**

6.1.7 On ELEC DC page, check that the BAT indications come into view

PASS ☐ **FAIL** ☐ **COMMENT:**

6.1.8 On ELEC AC page, check that the green line between the static inverter and the AC ESS busbar indication comes into view.

PASS ☐ **FAIL** ☐ **COMMENT:**

6.1.9 On ELEC AC page, check that the SHED indication comes into view near the AC ESS busbar.

PASS ☐ **FAIL** ☐ **COMMENT:**

6.1.10 On the SD, on the ELEC DC page, check that the SHED indication come into view near the DC ESS busbar indication.

PASS ☐ **FAIL** ☐ **COMMENT:**

6.1.11 Release the BAT1 and BAT2 pushbutton switches and check that the aircraft is de-energized.

6.2 Ground Service Configuration

6.2.1 On the control panel 5001VE (*Figure 1*), set the GND SELEC CTL switch to ON.

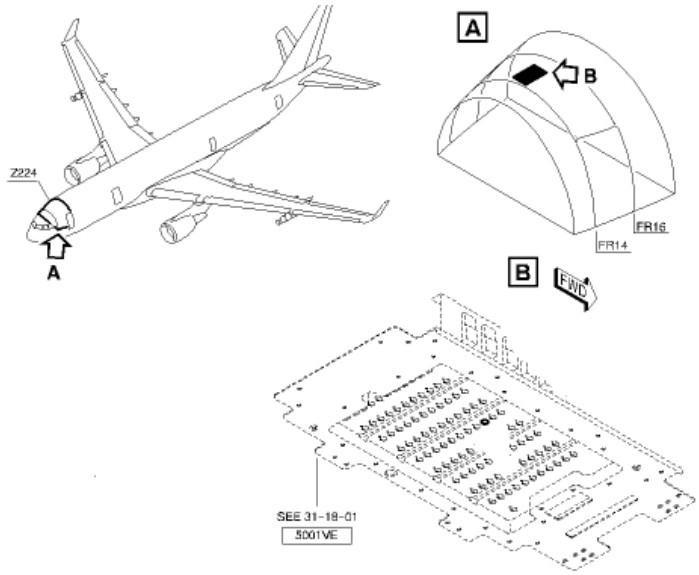


Figure 1. *Panel Location*.

6.2.2 On the avionics compartment, check that the DOME lights operates or view that RCCBs 1XX, 2XX, 3XX and 4XX are closed.

PASS ☐ **FAIL** ☐ **COMMENT:**

6.2.3 On the control panel 5001VE (*Figure 1*), set the GND SELEC CTL switch to OFF.

6.3 Switching of DC Main Generation

6.3.1 Apply procedure 45-10-00-860-808 of AMM. On the MCDU, get the SYSTEM REPORT/TEST ELEC: DC page. Push the MCDU MENU mode key. Push the line key adjacent to the CMS indication. Push the line key adjacent to the SYSTEM REPORT/TEST indication.

6.3.2 On the panel 715VU, open C.B. 3PU1 (J55).

6.3.3 On the SD, on the ELEC DC page, check that the TR2 energizes the DC1, DC2 and DC BAT busbars.

PASS ☐ **FAIL** ☐ **COMMENT:**

6.3.4 On the EWD, check that the TR1 FAULT warning comes into view.

PASS ☐ **FAIL** ☐ **COMMENT:**

6.3.5 On the panel 715VU, close C.B. 3PU1 (J55).

6.3.6 On the MCDU, on the ELEC DC page, push the line key adjacent to the TR1 indication and then push the line key adjacent to the TR1 RESET indication.

6.3.7 On the EWD, check that the TR1 FAULT warnings goes out of view.
PASS☐ **FAIL**☐ **COMMENT:**

6.3.8 On the SD, on the ELEC DC page, check that the normal configuration comes into view.
PASS☐ **FAIL**☐ **COMMENT:**

6.3.9 On the panel 715VU, open the C.B. 3PU2 (W56).

6.3.10 On the SD, on the ELEC DC page, check that the TR1 energizes the DC1, DC2 and DC BAT busbars.
PASS☐ **FAIL**☐ **COMMENT:**

6.3.11 On the EWD, check that the TR2 FAULT warning comes into view.
PASS☐ **FAIL**☐ **COMMENT:**

6.3.12 On the panel 715VU, close the C.B. 3PU2 (W56).

6.3.13 On the MCDU, on the ELEC DC page, push the line key adjacent to the TR2 indication and then push the line key adjacent to the TR2 RESET indication.

6.3.14 On the EWD, check that the TR2 FAULT warnings goes out of view.
PASS☐ **FAIL**☐ **COMMENT:**

6.3.15 On the SD, on the ELEC DC page, check that the normal configuration comes into view.
PASS☐ **FAIL**☐ **COMMENT:**

6.3.16 On the AC/DC emergency power center 742VU, open the C.B. 4PE (R76).

6.3.17 On the SD, on the ELEC DC page, check that the DC ESS busbar is supplied by DC BAT.
PASS☐ **FAIL**☐ **COMMENT:**

6.3.18 On the EWD, check that the TR ESS FAULT warning comes into view.
PASS☐ **FAIL**☐ **COMMENT:**

6.3.19 On the AC/DC emergency power center 740VU, close the C.B. 4PE (R76).

6.3.20 On the MCDU, on the ELEC DC page, push the line key adjacent to the TR ESS indication and then push the line key adjacent to the TR ESS RESET indication.

6.3.21 On the EWD, check that the TR ESS FAULT warning goes out of view.
PASS☐ **FAIL**☐ **COMMENT:**

6.3.22 On the SD, check that the normal configuration comes into view.
PASS☐ **FAIL**☐ **COMMENT:**

6.4 New TRs Failure Test

6.4.1 On refuelling console, press MSTR 1 & 2 pbs/w to energize the console.

6.4.2 On the panel 715VU, open the C.B. A6PU (coordinate J54)

6.4.3 On the EWD, The TR3 FAULT indication is displayed

PASS ☐ **FAIL** ☐ **COMMENT:**

6.4.4 On the SD, TR3 no longer supplies the DC M1 and DC M3 busbars

PASS ☐ **FAIL** ☐ **COMMENT:**

6.4.5 On SD, DC M3 and DC M4 busbars are supplied by the TR4, and DC M1 and DC M2 busbars are supplied by the TR1 and TR2 respectively.

PASS ☐ **FAIL** ☐ **COMMENT:**

6.4.6 On the panel 715VU, close the C.B. A6PU (coordinate J54)

6.4.7 Reset TR3 from the MFCD. On the MFCD press **WCA/AMS/SYSTEM REPORT TEST/TR.**

6.4.8 The system returns to its original configuration.

PASS ☐ **FAIL** ☐ **COMMENT:**

6.4.9 On the panel 715VU, open the C.B. A2PU (coordinate W57)

6.4.10 On the EWD, The TR4 FAULT indication is displayed

PASS ☐ **FAIL** ☐ **COMMENT:**

6.4.11 On the SD, TR4 no longer supplies the DC M2 and DC M4 busbars

PASS ☐ **FAIL** ☐ **COMMENT:**

6.4.12 On SD, DC M3 and DC M4 busbars are supplied by TR3, and DC M1 and DC M2 busbars are supplied by TR1 and TR2 respectively.

PASS ☐ **FAIL** ☐ **COMMENT:**

6.4.13 On the panel 715VU, close the C.B. A2PU (coordinate W57)

6.4.14 Reset TR4 from the MFCD. On the MFCD press **WCA/AMS/SYSTEM REPORT TEST/TR.**

6.4.15 The system returns to its original configuration.

PASS ☐ **FAIL** ☐ **COMMENT:**

6.5 Generator Failure Test

6.5.1 Do an alignment of the IR: TASK 34-10-00-860-802

6.5.2 On FUEL/HYD panel 245VU make sure that Tanker Mode Rotary switch is in G TKR position, and make sure that at least one of the AAR PUMP (1 to 6) is armed.

6.5.3 On the panel A955VU, press MSTR L POD and MSTR R POD.

6.5.4 Open CB A37XN (J19), panel 721VU.

6.5.5 Check that GEN FAILURE Warning is displayed on the MFCD.

PASS ☐ **FAIL** ☐ **COMMENT:**

6.5.6 Close CB A37XN (J19), panel 721VU.

6.5.7 Check that the GEN FAILURE Warning is not displayed anymore On the MFCD.

PASS ☐ **FAIL** ☐ **COMMENT:**

6.5.8 On the panel A955VU, press MSTR L POD and MSTR R POD.

6.5.9 On FUEL/HYD panel 245VU make sure that Tanker Mode Rotary switch is in OFF position, and make sure that at least one of the AAR PUMP (1 to 6) is disarmed.

6.6 Commercial Load Shedding

6.6.1 Apply procedure: Operational Test of Commercial Load Shedding (AMM TASK 24-51-00-710-801).

6.7 Green aircraft electrical systems BITE Tests

6.7.1 Perform BITE Test of the BCL1 and BCL2 and APU BCL. (AMM TASK 24-38-00-740-801-A)

PASS ☐ **FAIL** ☐ **COMMENT:**

6.7.2 Perform BITE Test of ECMU1 and ECMU2. (AMM TASK 24-29-00-740-801-A)

PASS ☐ **FAIL** ☐ **COMMENT:**

6.7.3 Perform BITE Test of the GAPCU. (AMM TASK 24-41-00-740-801-B)

PASS ☐ **FAIL** ☐ **COMMENT:**

6.7.4 Perform BITE Test of the CBMU. (AMM TASK 24-53-00-740-801-A)

PASS ☐ **FAIL** ☐ **COMMENT:**

6.7.5 Perform Operational Test of the Emergency Generator Manual Connection (TASK 24-24-00-710-802)

PASS ☐ **FAIL** ☐ **COMMENT:**

6.8 ECAM AC/DC Page Test

6.8.1 On the ECAM Control Panel press the Elec/AC button.

6.8.2 Check that the AC page displays its normal configuration. AC Busbars AC1 & AC2 are supplied by the External Power A and displayed in green. Shed indication, Static inverters and Emergency Generator are not displayed.

PASS ☐ **FAIL** ☐ **COMMENT:**

6.8.3 On the ECAM Control Panel press the Elec/DC button

6.8.4 The DC page displays its normal configuration TR1 supplies DC1 and DC BAT, and TR2 supplies DC2, and TR ESS supplies DC ESS

PASS ☐ **FAIL** ☐ **COMMENT:**

6.8.5 TR3 supplies DC M1 and DC M3, and TR4 supplies DC M2 and DC M4. All the parameters are displayed in green.

PASS ☐ **FAIL** ☐ **COMMENT:**

6.8.6 If no further testing is require, on refuelling console, press MSTR 1 & 2 pbs/w to energize the console

6.8.7 If no further testing is require apply AMM TASK 24-41-00-862-801 De-Energize the Aircraft electrical circuits.

7 TEST RESULTS

Type on the following tables the results of the tests:

7.1 Energize the Aircraft Electrical Circuits from Batteries Results

STEP	STEP RESULT (TICK BOX)				COMMENT (IF FAIL)
6.1.2	the voltage of the batteries (1&2&APU) is around 28V				
	PASS		FAIL		
6.1.5	AVAIL legend of the EXT A pushbutton switches come on				
	PASS		FAIL		
6.1.6	STAT INV indications come into view (115V, 400Hz)				
	PASS		FAIL		
6.1.7	BAT indications come into view				
	PASS		FAIL		
6.1.8	green line between the static inverter and the AC ESS busbar indication comes into view				
	PASS		FAIL		
6.1.9	SHED indication comes into view near the AC ESS busbar				
	PASS		FAIL		
6.1.10	SHED indication come into view near the DC ESS busbar indication				
	PASS		FAIL		

OVERALL TEST RESULT (TICK BOX)		
PASS		
FAIL		COMENTS:

7.2 Ground Service Configuration Results

STEP	STEP RESULT (TICK BOX)				COMMENT (IF FAIL)
6.2.2	DOME lights operates or view that RCCBs 1XX, 2XX, 3XX and 4XX are closed				
	PASS		FAIL		

OVERALL TEST RESULT (TICK BOX)		
PASS		
FAIL		COMENTS:

7.3 Switching of DC Main Generation Results

STEP	STEP RESULT (TICK BOX)				COMMENT (IF FAIL)
6.3.3	TR2 energizes the DC1, DC2 and DC BAT busbars				
	PASS		FAIL		
6.3.4	TR1 FAULT warning comes into view				
	PASS		FAIL		
6.3.7	TR1 FAULT warnings goes out of view				
	PASS		FAIL		
6.3.8	normal configuration comes into view				
	PASS		FAIL		
6.3.10	TR1 energizes the DC1, DC2 and DC BAT busbars				
	PASS		FAIL		
6.3.11	TR2 FAULT warning comes into view				
	PASS		FAIL		
6.3.14	TR2 FAULT warnings goes out of view				
	PASS		FAIL		
6.3.15	normal configuration comes into view				
	PASS		FAIL		
6.3.17	DC ESS busbar is supplied by DC BAT				
	PASS		FAIL		
6.3.18	TR ESS FAULT warning comes into view				
	PASS		FAIL		
6.3.21	TR ESS FAULT warning goes out of view				
	PASS		FAIL		
6.3.22	normal configuration comes into view				
	PASS		FAIL		

OVERALL TEST RESULT (TICK BOX)		
PASS		
FAIL		COMENTS:

7.4 New TRs Failure Test Results

STEP	STEP RESULT (TICK BOX)				COMMENT (IF FAIL)
6.4.3	TR3 FAULT indication is displayed				
	PASS		FAIL		
6.4.4	TR3 no longer supplies the DC M1 and DC M3 busbars				
	PASS		FAIL		

STEP	STEP RESULT (TICK BOX)				COMMENT (IF FAIL)
6.4.5	DC M3 and DC M4 busbars are supplied by the TR4, and DC M1 and DC M2 busbars are supplied by the TR1 and TR2 respectively				
	PASS		FAIL		
6.4.8	The system returns to its original configuration				
	PASS		FAIL		
6.4.10	TR4 FAULT indication is displayed				
	PASS		FAIL		
6.4.11	TR4 no longer supplies the DC M1 and DC M3 busbars				
	PASS		FAIL		
6.4.12	DC M3 and DC M4 busbars are supplied by the TR3, and DC M1 and DC M2 busbars are supplied by the TR1 and TR2 respectively				
	PASS		FAIL		
6.4.15	The system returns to its original configuration				
	PASS		FAIL		
OVERALL TEST RESULT (TICK BOX)					
PASS					
FAIL			COMENTS:		

7.5 Generator Failure Test Results

STEP	STEP RESULT (TICK BOX)				COMMENT (IF FAIL)
6.5.5	GEN FAILURE Warning is displayed on the MFCD				
	PASS		FAIL		
6.5.7	GEN FAILURE Warning is not displayed anymore On the MFCD				
	PASS		FAIL		
OVERALL TEST RESULT (TICK BOX)					
PASS					
FAIL			COMENTS:		

7.6 Green aircraft electrical systems BITE Tests Results

STEP	STEP RESULT (TICK BOX)				COMMENT (IF FAIL)
6.6.1	Test ok				
	PASS		FAIL		
6.6.2	Test ok				
	PASS		FAIL		
6.6.3	Test ok				
	PASS		FAIL		

STEP	STEP RESULT (TICK BOX)				COMMENT (IF FAIL)
6.6.4	Test ok				
	PASS		FAIL		
6.6.5	Test ok				
	PASS		FAIL		
OVERALL TEST RESULT (TICK BOX)					
PASS					
FAIL		COMENTS:			

7.7 Commercial Load Shedding

STEP	STEP RESULT (TICK BOX)				COMMENT (IF FAIL)
6.7.1	Test ok				
	PASS		FAIL		
OVERALL TEST RESULT (TICK BOX)					
PASS					
FAIL		COMENTS:			

7.8 ECAM AC/DC Page Test Results

STEP	STEP RESULT (TICK BOX)				COMMENT (IF FAIL)
6.7.2	AC page displays its normal configuration				
	PASS		FAIL		
6.7.4	DC page displays its normal configuration				
	PASS		FAIL		
6.7.5	TR3 supplies DC M1 and DC M3, and TR4 supplies DC M2 and DC M4				
	PASS		FAIL		
OVERALL TEST RESULT (TICK BOX)					
PASS					
FAIL		COMENTS:			

IMPORTANT NOTE: Any comments or remarks arisen during test execution shall be written down here and send to Engineering Department. Non-conformities shall be processed according to MP-22501.

NOTE: In Case of NCS, write down its number on Table 1

N.C.S. Number	Date

Table 1

NOTE: After this functional test execution, stamp the correspondent operation on the Production Order.

NOTE: Every result sheet must be stamped and attached to Production Order.

STAMP:	
DATE:	