



AVIATION DESIGN
ENGINEERING CONSULTANTS

MODIFICATION SUMMARY SHEET

MODIFICATION No.

MOD-11193-00001

Sheet 1 of 20.
Issue 2

Title BAe 146-200 - VIP Cabin Interior.

Aircraft Type

BAe 146

Effectivity :

Registration
See paragraph 4

Serial No

See paragraph 4

Mod Class

Major

Job No

11193

ATA Chapters

25

STC No

10027954

Reason for Modification

This modification introduces a new VIP Cabin Interior on to the subject aircraft to meet the operational requirements of its operator, Queenco.

Flight Test Required

No

E.T.O.P.S Affected

No

Interchange ability affected

No

Electrical Load Change

See paragraph 8

Weight Change

See paragraph 7

Moment Change

See paragraph 7

Stress Analysis ref.

SR1073.

CERTIFICATE OF DESIGN

I hereby certify that this Modification defines all changes associated with this certificate. The technical information contained within or associated with this document has been approved under the authority of EASA Part 21 Design Organisation Approval EASA.21J.016.

I further hereby declare that, including the exceptions listed below, this modification or repair complies with the airworthiness and environmental protection requirements applicable to the subject aircraft or component

EXCEPTIONS

Should this EASA approval be provided for a non EASA certified aircraft, then acceptance is at the discretion of the National Aviation Authority of the State of Registry. The installer must determine compatibility of this data with the aircraft configuration.

Head of Design (or Nominee) Approved

Date: 26 November 2009

Compiled by

Name: Martin Long

Signature

Date 24/11/09

Checked by

Name: Q. Simpson

Signature

Date 25/11/09

Verified by

Name: Richard Micklefield

Signature

Date 26 Nov. 09

FOR DETAILS RELEVANT TO RAISED ISSUE SEE SHEET 2

2

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3 Documents Affected

Document	Document number / Action	
Aircraft Flight Manual	See paragraph 3.1	No
Aircraft Maintenance Manual	See paragraph 3.2	Yes
Illustrated Parts Catalogue	See paragraph 3.3	Yes
Wiring Diagram Manual	See paragraph 3.4	Yes
Maintenance Schedule	See paragraph 3.5, 9.4	No
Minimum Equipment List	See paragraph 3.6	No
Flight Operation Manual	See paragraph 3.7	No
Overhaul Manual	See paragraph 3.8	No
Repair Manual	See paragraph 3.9	No
Crew Manual	See paragraph 3.10	Yes
Weight & Balance Schedule	See paragraph 7	Yes
Electrical Load Analysis	See paragraph 8	Yes
Aircraft Modification Record	See paragraph 13.1	Yes

3.1 Aircraft Flight Manual

3.1.1 The Aircraft Flight Manual is not affected by the embodiment of this modification.

3.2 Aircraft Maintenance Manual

3.2.1 Information that is required for the update of the AMM is contained in section 10 of this document and is provided to the operator to enable the compilation of a supplement to the existing AMM. Supplements produced for the AMM must be provided to ATL for verification and approval prior to issue into the manual. Pending the availability of the supplementary data, this document may be placed into the AMM as an appendix until the manual is updated.

3.2.2 Illustrated Parts Catalogue

3.2.3 Information that is required for the update of the IPC is contained in paragraph 5.2, to allow the operator to compile a supplement to this manual. Any supplementary information produced must be supplied to ATL for verification and approval. Alternatively, this document may be placed into the IPC as an appendix until the document is updated.

3.3 Wiring Diagram Manual

3.3.1 Wiring diagrams called up by this modification action to be inserted in Aircraft Wiring diagram Manual.

3.4 Maintenance Schedule

3.4.1 Information that is required for the update of the Maintenance Schedule is contained in paragraph 10. A revision to the existing Maintenance Schedule shall be produced by the operator. Alternatively this document may be placed into the Maintenance Schedule as an appendix until the document is updated.

3.5 Minimum Equipment List

3.5.1 The aircraft MEL is not affected by the embodiment of this modification.

- 3.6 Flight Operation Manual
 - 3.6.1 The Flight Operations Manual is not affected by this modification.
- 3.7 Overhaul Manual
 - 3.7.1 This modification has no affect on the aircraft Overhaul Manual.
- 3.8 Repair Manual
 - 3.8.1 This modification has no affect on the aircraft Structural Repair Manual.
- 3.9 Crew Manual
 - 3.9.1 The Operator's Cabin Crew Manual is to be amended to reflect the operational requirements associated with the introduction of the VIP Cabin configuration. This amendment shall include reference to the new seating configuration and also identify the locations of the emergency equipment installed on the aircraft.
 - 3.9.2 The crew manual will also include instructions to ensure all passenger tables are in their lowered position for take-off and landing. Instructions will also ensure that the headrest on aft facing C2C seats are fully raised for take-off and landing.
- 3.10 It is the operator's responsibility to ensure that aircraft manuals affected by this modification are amended as appropriate.
- 3.11 All approved manual amendments/changes made as a result of data contained in this modification must be verified by ATL.

4 Aircraft Effectivity

Registration	Model	S/No	Effectivity
G-MIMA	BAe 146-200	E2079	

5 Modification Details

- 5.1 Introduction
 - 5.1.1 This modification introduces a new 34 passenger VIP Cabin Interior configuration on the subject BAe 146-200 aircraft, which replaces the existing 92 passenger economy class seating configuration installed under J & C Engineering modification JC/MOD/182. This new configuration comprises the following elements:
 - 5.1.1.1 With the exception of the first overhead bin on the left hand side of the cabin, the existing overhead stowage bins, PSU's and PSU mounting structure is removed from the cabin. The remaining overhead bin on the left hand side of the cabin is however modified to reduce it in length. Following removal of the overhead bins, the mounting brackets, which remain in situ, are modified to permit the installation of new sculpted transition or coving panels.
 - 5.1.1.2 Drop down oxygen masks and other passenger services for the number of passengers accommodated in the revised cabin configuration are recovered from those previously removed, and re-installed on the new coving panels.
 - 5.1.1.3 The existing ceiling, sidewall and dado panels are refurbished and recovered with new leather material or carpet on the dado panels.

- 5.1.1.4 In the forward vestibule, Toilet 1L is to be refurbished with the installation of new tedlar covers on the ceiling, sidewalls and door. The rear toilet is also refurbished in a similar manner.
- 5.1.1.5 Also in the forward vestibule, the existing Atlas cart stowage is removed from Galley 2R and replaced with a new module containing a fridge, microwave oven and stowage compartment. This then also involves changes to the galley wiring and the installation of drain piping for the fridge. At the rear of this galley, a new half height partition is added, with the whole of the rear face of the galley being covered with a wood laminate decorative finish. The aisle side of the galley is recovered with a leather material. The new partition also includes structural provision for the mounting of an IFE Screen under Tenencia Ltd Modification 584.
- 5.1.1.6 A new seat track mounted underbin stowage closet is installed in the front of the cabin on the left hand side. Immediately behind this stowage closet, a new full height partition bulkhead is installed, the rear face of which is covered with a wood laminate decorative finish. This partition also includes structural provision for the mounting of an IFE Screen under Tenencia Ltd Modification 584.
- 5.1.1.7 The forward part of the cabin is to be equipped with four Aircraft Modular Products track and swivel seats which are arranged in pairs with a Specialist Aviation Ltd table between them on both sides of the cabin. The seats will be mounted on individual seat track mounted pallets and are to be re-upholstered prior to installation. The tables are also mounted on individual seat track mounted pallets.
- 5.1.1.8 Two, three seat sideward facing divans are installed in the mid cabin with hi-lo tables in front of them. The left hand divan is an Aircraft Modular Products model, whilst the right hand divan is a Dettmers Industries 3 seat berthing divan. Both divans are being re-upholstered prior to installation. The divans and tables are pallet mounted on to the cabin seat tracks.
- 5.1.1.9 Immediately aft of the divans are left and right hand 'Club 4' arrangements made up of forward and rearward facing European Skybus C2C Series business class double seats and the same Specialist Aviation Ltd tables as installed in the forward cabin. The seats are again completely re-upholstered prior to installation
- 5.1.1.10 The remainder of the cabin is then fitted out with business class seating for 16 passengers, using a combination of the European Skybus C2C Series Business Class double seats and Contour single executive class seats. All of these seats are completely re-upholstered prior to installation. A stowage box is installed on the cabin seat tracks behind the rearmost seat on both sides of the cabin.
- 5.1.2 In conjunction with this modification, the following additional modifications are also installed:
- 5.1.2.1 ATL Modification MOD-11352-00001 – C2C Business Class Double Seat Modifications.
- 5.1.2.2 Tenencia Ltd Modification 584 – IFE / SATCOM Installation.
- 5.1.2.3 Tenencia Ltd Modification 592 – Photoluminescent Emergency Floor Path Lighting Installation.
- 5.1.3 The technical content of this document is approved under the authority of DOA N° EASA.21J.016.
- 5.2 Major Parts Required Per Aircraft

Part No.	Description	Qty	Remarks/manufacturer
950522-1	Swivel Seat	1	AMP
950522-2	Swivel Seat	1	AMP
950522-3	Swivel Seat	1	AMP
950522-4	Swivel Seat	1	AMP

MODIFICATION SUMMARY CONTINUATION SHEET

ATL11352-007-05	C2C, LH Aft Facing	1	European Skybus
ATL11352-007-06	C2C, RH Aft Facing	1	European Skybus
ATL11352-007-01	C2C, LH Fwd Facing	2	European Skybus
ATL11352-007-02	C2C, RH Fwd Facing	3	European Skybus
ATL11352-007-03	C2C, LH Fwd Facing	2	European Skybus
ATL11352-007-04	C2C, RH Fwd Facing	1	European Skybus
0950-01-035	Seat, Single LH	1	Contour
0950-01-035	Seat, Single RH	1	Contour
ATL11193-011	Divan, 3 seater	1	AMP
ATL11193-013	Divan, 3 seater	1	Dettmers
ATL11193-087	Hi-Lo Table Assembly, 60"	2	
ATL11193-089	Hi-Lo Table Assembly, 41"	2	
ATL11193-501	Hi-Lo Table Assembly, 50"	2	
ATL11193-069	Transition Panel Assy No.1	1	
ATL11193-070	Transition Panel Assy No.1	1	
ATL11193-071	Transition Panel Assy No.2	1	
ATL11193-072	Transition Panel Assy No.2	1	
ATL11193-073	Transition Panel Assy No.3	1	
ATL11193-074	Transition Panel Assy No.3	1	
ATL11193-075	Transition Panel Assy No.4	1	
ATL11193-076	Transition Panel Assy No.4	1	
ATL11193-159	Transition Panel Assy No.5	1	
ATL11193-160	Transition Panel Assy No.5	1	
ATL11193-085	Transition Panel Assy No.6	1	
ATL11193-086	Transition Panel Assy No.6	1	
ATL11193-007	Bulkhead Assembly Fwd LH	1	
ATL11193-009	Bulkhead Assembly Fwd RH	1	
ATL11193-033	2R Galley Module	1	
ATL11193-067	Ceiling and Sidewall Panels	1	
ATL11193-019	Divan Pallet assembly	1	
ATL11193-023	Amp Seat Pallet	2	
ATL11193-535	Décor Panel Assy LH Fwd	1	
ATL11193-537	Décor Panel Assy RH Fwd	1	
ATL11193-539	Rear Décor Panel Assy	1	
ATL11193-559	Curtain	1	
ATL11193-563	Fwd Curtain Header	1	
BA003019	Air Larder	1	Driessen

AL-EX15-200E-29	Espresso Maker	1	Aerolux
ATL11193-035	Galley Module	1	
400-1409-010L	Microwave Oven	1	
AL-RF65-520-7	Refrigerator	1	Aerolux
2532000-1	Stowage Unit	1	MacCarthy Interiors

5.3 Documents and Drawings

5.3.1 Refer to Master Document List MDL-11193-00001.

5.4 Instructions

5.4.1 Remove existing passenger seating, in accordance with the Aircraft Maintenance Manual (AMM), label seats and return to stores.

5.4.2 Remove all of the overhead stowage bins with the exception of the fwd left hand bin, in accordance with the AMM. Install. Remove PSU's and modify in accordance with drawing ATL11193-529.

5.4.3 Modify profile of overhead stowage bins in accordance with drawing ATL11193-027 to match new transition panels.

5.4.4 Reduce the length of the fwd left hand overhead stowage bin in accordance with drawing ATL11193-589.

5.4.5 Install transition panels in accordance with drawing ATL11193-093 using existing attachment positions. Install and connect modified PSU, Oxygen Boxes & speakers in accordance with the AMM and IPC chapters 23 & 25. Attach bonding lead to each oxygen box using existing airframe stud.

5.4.6 Ensure all redundant gasper oxygen supply outlets are capped. Existing cable harnesses to be re-used and re-routed for the new locations of the reading lights, attendant call, annunciator signs and speakers. Harnesses not being re-used are to be capped and stowed.

5.4.7 Remove all redundant oxygen drop out boxes in accordance with AMM Chapter 35-20-24, label and return to stores.

5.4.8 Modify the Cabin temperature sensor to match the new profile of the transition panels in accordance with drawing ATL11193-587.

5.4.9 Remove ceiling and sidewall panels in the passenger cabin accordance with the AMM, re-cover panels in accordance with drawing ATL11193-067, re-install panels in accordance with the AMM.

5.4.10 Replace existing coffee maker in, install larder and re-cover larder door in Galley R1, in accordance with drawing ATL11193-057.

5.4.11 In galley 2R replace Atlas carts with new galley module, ATL11193-033, which has a replacement microwave oven and new refrigerator, in accordance with drawing ATL11193-031.

5.4.12 Install drain tube for the refrigerator, replace existing oven harness assembly and modify galley circuit breakers in accordance with drawing ATL11193-033 and aircraft standard wiring practices.

5.4.13 Install new décor panel, part number ATL11193-537 & RH Bulkhead assembly part number ATL11193-009 to the RH to the RH galley in accordance with drawing ATL11193-525.

- 5.4.14 Install new décor panels to the aft face of the RH & LH bulkhead panels in accordance with drawing ATL11193-527.
- 5.4.15 Install new decorative panel assemblies to the fwd face of the RH & LH bulkhead panels in accordance with drawing ATL11193-533.
- 5.4.16 Re-cover existing LH bulkhead in accordance with drawing ATL11193-541.
- 5.4.17 Paint and re-cover fwd and aft toilets in accordance with drawings ATL11193-043 (FWD) & ATL11193-591 (AFT).
- 5.4.18 Install close-out panels between the LH FWD Stowage and LH FWD bulkhead/fwd O/H bin, in accordance with drawing ATL11193-555.
- 5.4.19 Remove door seals and recover with leather in accordance with drawing ATL11193-531, reinstall door seals using existing fasteners in accordance with the AMM.
- 5.4.20 Install curtains in the fwd section of the cabin between the fwd bulkheads and in the rear section between the rear bulkheads in accordance with drawing ATL11193- 557.
- 5.4.21 Replace existing exit signs decal with dual English/Greek decal, re-position exit sign from the forward bulkhead to the forward curtain header using existing cables.
- 5.4.22 Install carpet to cabin floor in accordance with drawing ATL11193-037.
- 5.4.23 Install seats, divans and tables in accordance with 34 PAX LOPA drawing ATL11193-003, and the relevant CMM.
- 5.4.24 Install emergency equipment in accordance with drawing ATL11193-005, ensure stowage locations are suitable identified.
- 5.4.25 Perform a foreign object inspection in the modification working areas and check for integrity of disturbed units', wires and panels.
- 5.4.26 Prepare the aircraft to perform operational checks in accordance with paragraph 6.

6 Checks

6.1 Ground Checks

- 6.1.1 Ensure that the seats do not interfere with the visibility of the floor proximity emergency escape path marking.
- 6.1.2 Perform PSU function checks on Reading lights, Speakers, Attendant call buttons, No smoking sign, Passenger O2 system, Gasper air outlets and fasten seatbelt sign.
- 6.1.3 Ensure that the oxygen drop down mask locations comply with drawing ATL11193-003, and that oxygen outlet quantity exceeds the number of seats by 10%, and that additional masks are evenly distributed throughout the cabin.
- 6.1.4 Carry out a function test on the PSU's ref AMM 25-23-61. Checks to include reading light operation, reading lights direction and focus, oxygen system, PSU mounted passenger signs, PSU speakers and attendant call lights.
- 6.1.5 Ensure un-obscured visibility of NO SMOKING/FASTEN SEAT BELT signs from all passenger and cabin crew seated positions.

- 6.1.6 Post modification embodiment, ensure that all disturbed systems are function tested in accordance with the applicable chapters of the Aircraft Maintenance Manual.
- 6.1.7 Carry out the checks detailed in Appendix A – Interior Compliance Checklist. The completed checklist must be returned to ATL.
- 6.1.8 Complete EMC checks as required by Appendix B. Note checks to be done with the new microwave oven, refrigerator and coffee maker working individually and at the same time.
- 6.1.9 Prepare the aircraft for return to service.
- 6.2 Flight Checks
- 6.2.1 No flight checks are required following the embodiment of this modification.

7 Weight and Balance

- 7.1 Following the embodiment of this modification, the aircraft is to be weighed to determine the overall change to weight and balance.
- 7.2 It is the responsibility of the operator to ensure that the Aircraft Weight and Balance Schedule is amended to include the changes introduced by this modification.

8 Electrical Load Analysis

- 8.1 Equipment Removed
- 8.1.1 None
- 8.2 Equipment Added

Description	Bus	Load (A)	Remarks
Microwave Oven	115V AC1 3Φ	9.2 (3.05 per phase)	1000W
Refrigerator	115V AC1 3Φ	2.4 (0.80 per phase)	
Totals	115V AC1 3Φ	11.6 (3.85 per phase)	

- 8.3 Load Change
- 8.3.1 The total load change introduced by this modification is:

Bus	Load (A)	Remarks
115V AC1 3Φ	11.6 (3.85 per phase)	Increase

- 8.4 It is the responsibility of the operator to ensure that the Electrical Load Analysis is updated to include the changes introduced by this modification and that the capacity of the aircraft generating system and standby battery is not exceeded.

9 Limitations/Concession

- 9.1 The following limitations apply to the Aft Facing C2C Seats installed by this modification.
 - The headrest must be fully raised for take-off and landing.

9.2 The following limitations apply to the Hi-Lo Tables installed by this modification.

- The tables must be fully lowered for take-off and landing.

10 Continued Airworthiness

10.1 Introduction

10.1.1 The influence of the modification on Airworthiness Directive, Service Bulletin eligibility and other data must be considered and the publications monitored accordingly. The maintenance schedule for the aircraft should include reference to this material in addition to the original design. Coordination is the responsibility of the operator.

10.2 Overview

10.2.1 This section establishes compliance with CS 25.1529, and CS 25 Appendix H (Instructions for Continued Airworthiness) for the introduction of the new VIP Cabin Interior on the subject BAe 146-200 aircraft. The maintenance instructions set out in this section are to be incorporated by the operator into the respective aircraft maintenance manuals, and scheduled maintenance programs.

10.3 Aeroplane maintenance manual

10.3.1 The AMM provides typical instructions for the maintenance, removal and installation of cabin floor panels, ceiling, sidewall and dado panels, overhead lockers, and PSU's. A review of the AMM shows that the existing information covers the removal and re-installation of those items that remain as part of the new cabin configuration introduced by this modification. However, the AMM does need amendment to reflect the various elements associated with the introduction of the new cabin arrangement.

10.3.2 Therefore, the information contained in this document and the associated drawings listed on Master Document List MDL-11193-00001, is to be used by the operator to compile a supplement to the AMM, which shall be supplied to ATL for verification and approval. Prior to the issue of this supplement however, copies of this document and the associated drawings may be inserted into the manual to provide the required information.

10.3.3 All the necessary information for the continued airworthiness of the seats, divans and tables (i.e; maintenance, repairs, troubleshooting, etc.) as installed by this modification, is contained in the respective seat Component Maintenance Manuals (CMM's) and Illustrated Parts Lists (IPL's).

10.4 Maintenance Instructions

10.4.1 All the necessary maintenance instructions for the seats, divans and tables (i.e; maintenance, repairs, troubleshooting, etc.) as installed by this modification, is contained in the respective seat Component Maintenance Manuals (CMM's) and Illustrated Parts Lists (IPL's).

10.5 Scheduled Inspections

10.5.1 In accordance with the existing periodic inspections specified by the Aircraft Maintenance Schedule, a General Visual Inspection (GVI) is to be undertaken of the new wiring installed for Galley 2R and the forward exit sign by this modification.

10.5.2 A GVI is a visual examination of an interior or exterior area, installation or assembly to detect obvious damage, failure or irregularity. This level of inspection is made from within touching distance unless otherwise specified. A mirror may be necessary to ensure visual access to all surfaces in the inspection area. This level of inspection is made under normally available lighting conditions such as daylight, hangar lighting, flashlight or drop-light and may require removal or opening of access panels or doors. Stands, ladders or platforms may be required to gain proximity to the area being checked.

10.5.3 BAE Systems are scheduled to issue an Electrical Wiring Interconnection System (EWIS) Instructions for Continued Airworthiness (ICA) document in December 2009, for the BAe 146/Avro RJ aircraft as defined in CS 25.1701, and in accordance with CS-25 Appendix H paragraph H25.5 and AMC appendix H25.5 paragraphs 1 and 6. The instructions included in this document will be reviewed by ATL and, should it be determined that revised inspection levels and intervals are required for the wiring changes introduced by this modification, then these will be provided in a separate EWIS ICA document to be issued by ATL.

10.6 Airworthiness Limitations / Concessions

10.6.1 This section sets forth each mandatory replacement time, structural and inspection interval, and related structural inspection procedure approved under CS 25.571, and any mandatory inspection or replacement time of EWIS components as defined in CS 25.1701, where applicable.

10.6.2 The Airworthiness Limitations Section is approved and variations must also be approved.

10.6.3 No variations applied for.

11 Conditions Affecting this Approval

11.1 The compatibility of this modification with other previously approved modifications installed on the particular aircraft must be verified by the installer. Where the potential for interactions between modifications exists, the advice of the Design Organisation, the National Authority or EASA shall be sought.

12 Authorisation for Release to Service

12.1 In addition to the actions required by the procedures for release to service following maintenance or modification, prior to signing the Certificate of Release to Service, all actions and ground test procedures specified by the modification instructions (see paragraphs 5 & 6) must be completed satisfactorily.

13 Post Modification Action

13.1 Record the accomplishment of this modification in the Aircraft Modification Record.



**MODIFICATION SUMMARY
CONTINUATION SHEET**

MODIFICATION No.
MOD-11193-00001
Sheet 13
Issue 1

Appendix A
Interior Compliance Checklist (ATL Form AS562)



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BS EN ISO 9001/2000

Interior Compliance Checklist

Modification Ref. MOD-11193-00001 Title BAe 146 VIP Cabin Configuration

CRITICAL INTERIOR DIMENSIONS			
Dimension Description/Identification	Design Value	Measured Value	Pass/Fail
Ref CS25.815 Check aisle width throughout the passenger cabin below height of 25" above floor level (fwd cabin club 4).	Width to be >15"		
Ref CS25.815 Check aisle width throughout the passenger cabin below height of 25" above floor level (aft cabin seats).	Width to be >15"		
Ref CS25.815 Check aisle width throughout the passenger cabin below height of 25" above floor level (tables between divans).	Width to be >15"		
Ref CS25.815 Check aisle width throughout the passenger cabin above height of 25" above floor level (fwd cabin club 4).	Width to be >20"		
Ref CS25.815 Check aisle width throughout the passenger cabin above height of 25" above floor level (aft cabin seats).	Width to be >20"		
Ref 25.791/ EU-OPS1.721 Check no smoking/fasten seat belt illuminated passenger signs are visible	Sign to be visible		



**AVIATION DESIGN
ENGINEERING CONSULTANTS**

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to all passengers.			
Ref CS25.812 Check floor path marking is visible throughout passenger cabin	Floor path marking to be visible at 48" above floor level		
Ref CS25.1423 Carry out speaker sound level test in accordance with AMM section 23-31-00.	109dB +/- 5dB.		
Ref CS25.1447/ EU-OPS 1.770 Ensure all oxygen masks are within limits as listed in aircraft AMM	Mask to Seat Ref. Aircraft AMM		
Ref CS25.1541 Ensure all passengers can see "Fasten seat belt while seated/Life jacket under your seat" placards. Special attention to be given to front rows in all cabins.	Placard visible		

Company Organisation Approval Ref.

Inspector..... Signature and Stamp

Date of inspection.....

Equipment used..... Calibration Certificate Ref.

Please email (info@atl.aero) or fax (+44 1202582922) a copy to ATL.

Appendix B
EMC Matrix

1. INTRODUCTION:

This Test Schedule details EMC tests to be carried out on newly installed microwave oven, refrigerator and coffee maker working individually and at the same time.

The tests that follow are:

- a) Exported EMC tests, (New Emitter versus Susceptors) that ensure other aircraft systems are not adversely affected by operation of newly installed system and associated equipment. See Table 1.

2. SAFETY PROCEDURES:

An RF Radiation hazard exists when certain systems are operating, thus a 5 meter exclusion zone should be observed around the aircraft while tests are being carried out.

Observe aircraft and electrical precautions at all times as detailed in the Aircraft Maintenance Manual.

3. EXPORTED EMC TEST:

- a) Before performing these tests all aircraft access panels must be closed and the ground power unit available. Ensure that the aircraft is positioned away from personnel and buildings. Note certain tests will require engine runs.
- b) Carry out this test for the following new emitter:
 - i. microwave oven.
 - ii. Refrigerator
 - iii. coffee maker
 - iv. Items i-iii all operating at the same time.
- c) Enter all results on the relevant test result sheet (Tables 2)

4. HOW TO USE THE EMC MATRICES

1. Follow the setup procedure page at the beginning of each table. Carry out the tests in an order that suits minimal observation, re-tuning/adjusting of test sets and systems.
2. For the newly installed Emitter, complete Table 1 and record the results of the test. Delete all the systems that are not installed in the aircraft under test by inserting "N/A" in the Frequency / Mode column. Add to the table any systems not listed. If necessary seek advice from ATL Design Office as to necessity and operation / frequencies etc.
3. Monitor the system(s) for interference. Insert in table a dash if there is no interference. If there is interference, indicate as precisely as possible the amount of movement of indicators, noise on the audio or corruption of data by recording on a separate sheet.
4. If there is any interference found, contact ATL Design Office for a decision on the acceptability of the specific case.

6. COMPLETION

1. Remove power from the systems and return aircraft to operational status aircraft.
2. A copy of the completed test schedule should be attached to the relevant aircraft documentation.

3. Following satisfactory completion of all tests, return a copy of the test schedule to ATL Design Office.

SETUP PROCEDURE FOR NEW EMITTER VERSUS SUSCEPTORS

Susceptors are here grouped under types for the purpose of defining set-up procedures.

TYPE A SUSCEPTOR

Set-Up Tune system to a free/unused frequency within the required band and select the relevant audio on the pilot's or co-pilot's audio selector panel.

During test disable squelch by either:

- i) Adjusting squelch control
- ii) Pressing test button
- iii) Using an RF signal generator connected to an aerial to lift the squelch.
Set signal level to approx 3dB above squelch threshold.

Monitoring Listen to the audio signal for any interference imposed by the emitter.

TYPE B SUSCEPTOR

Set-Up Tune the system to the frequency required, select all indications on the relevant instruments and if applicable select the relevant audio on the pilot's or co-pilot's audio selector panel.

Energise the system using the relevant test equipment.

Monitoring Monitor all indications and audio for any deviations/interference caused by the emitter.

TYPE C SUSCEPTOR

Set-Up Activate system into normal operational mode and if applicable select the relevant audio on the pilot's or co-pilot's audio selector panel.

Monitoring Monitor all indications and audios for any deviations/interference caused by the emitter.

TYPE D SUSCEPTOR

Set-Up Activate system into normal operational mode.

Monitoring Analyse CVR and FDR recordings for interference.

TYPE E SUSCEPTOR

Set-Up Start main engines and APU, bring generators on-line.

Monitoring Monitor all indications for any deviations caused by the emitter.

NOTES

1) The transmissions frequencies to be used in Table 2 shall be chosen from the following ranges LOW, MID and UPP, as specified in Table 1. A free/unused frequency shall be chosen.

a. Enter the actual frequency used in the FREQ/MODE column.

TABLE 1 – TRANSMISSION FREQUENCY RANGES

TX SYSTEM	LOW	MIDDLE	UPPER
VHF RX	119-121 MHz	126-128 MHz	134-136 MHz
UHF RX	238-242 MHz	306-310 MHz	384-388 MHz
HF RX	3-5 MHz	14-16 MHz	25-27MHz

TABLE 2 - EXPORTED EMC TEST

AIRCRAFT SUSCEPTOR			NEWLY INSTALLED EMITTER(S)			
DESCRIPTION	FREQ/MODE	TYPE	Microwave Oven	Refrigerator	Coffee Maker	All New Inserts Concurrently
VHF1 RX LOW	MHz	A				
VHF1 RX MID	MHz	A				
VHF1 RX UPP	MHz	A				
VHF2 RX LOW	MHz	A				
VHF2 RX MID	MHz	A				
VHF2 RX UPP	MHz	A				
UHF1 RX LOW	MHz	A				
UHF1 RX MID	MHz	A				
UHF1 RX UPP	MHz	A				
FM RX LOW	MHz	A				
FM RX MID	MHz	A				
FM RX UPP	MHz	A				
HF1 RX LOW	MHz	A				
HF1 RX MID	MHz	A				
HF1 RX UPP	MHz	A				
DME 1	109.00 MHz	B				
DME 1	113.10 MHz	B				
DME 1	116.90 MHz	B				
DME 2	109.00 MHz	B				
DME 2	113.10 MHz	B				
DME 2	116.90 MHz	B				

TABLE 2 - EXPORTED EMC TEST

AIRCRAFT SUSCEPTOR			NEWLY INSTALLED EMITTER(S)			
DESCRIPTION	FREQ/MODE	TYPE	Microwave Oven	Refrigerator	Coffee Maker	All New Inserts Concurrently
ATC TXPDR 1	Code	B				
NAV 1 (ILS)	108.30 MHz	B				
NAV 1 (ILS)	109.50 MHz	B				
NAV 1 (ILS)	111.70 MHz	B				
NAV 2 (ILS)	108.30 MHz	B				
NAV 2 (ILS)	109.50 MHz	B				
NAV 2 (ILS)	111.70 MHz	B				
NAV 1 VOR	112.00 MHz	B				
NAV 1 VOR	115.00 MHz	B				
NAV 1 VOR	117.90 MHz	B				
NAV 2 VOR	112.00 MHz	B				
NAV 2 VOR	115.00 MHz	B				
NAV 2 VOR	117.90 MHz	B				
ADF 1	LOW FREQ	C				
ADF 1	MID FREQ	C				
ADF 1	HI FREQ	C				
ADF 2	LOW FREQ	C				
ADF 2	MID FREQ	C				
ADF 2	HI FREQ	C				
MARKER 1	HIGH	B				
MARKER 2	HIGH	B				
PILOT AUDIO	INTERCOM	A				
CoPILOT AUDIO	INTERCOM	A				
CABIN AUDIO	INTERCOM	A				
NO 1 COMPASS	MAG	C				
NO 2 COMPASS	MAG	C				
STANDBY COMP	MAG	C				
FLT DIRECTOR	HEADING	C				
FLT DIRECTOR	VOR	B				
FLT DIRECTOR	LOC/GS	B				
INSTRUMENTS	VARIOUS	C				