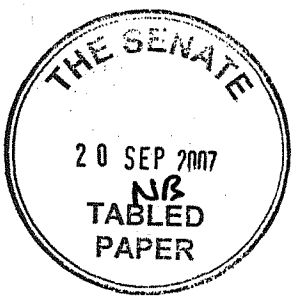

SETTLEMENT AGREEMENT

This Settlement Agreement is made the day of 1993.

BETWEEN: **EASTWEST AIRLINES (OPERATIONS) LIMITED** a corporation organized and existing under the laws of Australia having its offices at 501 Swanston Street, Melbourne, Victoria, Australia ("EWA")

AND **ANSETT TRANSPORT INDUSTRIES (OPERATIONS) PTY LIMITED** a corporation organized and existing under the laws of Australia having its offices at 501 Swanston Street, Melbourne, Victoria, Australia ("Ansett").

AND **AVCO CORPORATION** a corporation organized and existing under the laws of the State of Delaware, by and through its **TEXTRON LYCOMING TURBINE ENGINE DIVISION**, having its offices at 550 Main Street, Stratford, Connecticut 06497 ("Textron Lycoming").

WHEREAS, Ansett and EWA are the operators of certain BAe 146 Aircraft powered by ALF502 gas turbine engines manufactured by Textron Lycoming (the "Engines"); and

WHEREAS, Ansett and EWA have alleged that they experienced engine bleed air problems between the date of purchase of the aircraft in 1989 and early 1993 (the "incidents") and that their experience with the Engines has shown that various deficiencies and inadequacies exist in the Engines, and that such deficiencies and inadequacies have resulted in economic loss to Ansett and EWA, (the "Loss"); and

WHEREAS, Textron Lycoming has denied that there exist any such deficiencies or inadequacies in the Engines, or that Ansett and EWA or either of them have suffered economic loss due thereto; and

WHEREAS, Textron Lycoming and Ansett and EWA desire to settle and terminate immediately all disputes, differences and claims between them in relation to the Loss and to avoid future controversy and expense with respect to the foregoing:

NOW, THEREFORE, in consideration of the mutual covenants and promises herein contained, and other good and valuable consideration, the receipt and sufficiency of

which is hereby acknowledged by each party to the other, Ansett and EWA and Textron Lycoming hereby agree as follows:

1. PURPOSE. The parties acknowledge and agree that this Settlement Agreement is entered into for the purposes of settlement of the claims of the parties in relation to the Loss only and that nothing contained herein, nor any performance hereunder, shall be construed as an admission of liability on the part of Textron Lycoming.

2. CASH PAYMENT. Textron Lycoming agrees to pay to EWA the cash sum of ONE HUNDRED FIFTY THOUSAND DOLLARS (U.S.) (U.S. $150,000.00) within thirty days of the Signing hereof.

3. PARTS CREDIT. In addition to the foregoing, Textron Lycoming agrees to provide to Ansett and EWA a total credit of ONE HUNDRED THOUSAND DOLLARS (U.S) (US$100,000), to be used by each or either of Ansett and EWA but otherwise to be non-transferable. This credit is to be used against accounts receivable due from Ansett or EWA to Textron Lycoming relating to the purchase of new spare parts and/or new parts used during repair. The amount of credit applied to each such purchase will be the list or otherwise applicable price of the said new spare parts and/or new parts used during repair. The Parts Credit is not to be applied until after the date of signing this Settlement Agreement and is to be utilised in full on or before 31 December 1994. The existing accounts receivable to which the Parts Credit is to be applied are listed at the Schedule hereto. A credit instalment of US$34,000 is to be applied immediately upon the execution of this Settlement Agreement towards the invoices listed. A second instalment of credit of US$33,000 is to be applied to outstanding accounts receivable listed in the Schedule hereto as at 1 April 1994. A final credit instalment of US$33,000 is to be applied to outstanding accounts receivable listed in the Schedule hereto as at 1 August 1994. Any amounts still outstanding from the accounts receivable listed at the Schedule after the application of the Parts Credit will be paid to Textron Lycoming by Ansett or EWA after 1 August 1994.

SCHEDULE

Invoice Number	Date	US$
S000031885	300993	50659.99
1000269845	100993	1621.23
1000270912	240993	6323.91
1000271124	280993	4502.80
1000271164	280993	762.48
100027336	291063	1193.22
1000271415	011093	2668.58

1000271419	011093	1399.44
1000271447	011093	9378.58
100027448	011093	812.08
1000271462	011093	2429.08
1000271510	021093	1804.58
1000271581	021093	1804.23
1000271607	021093	1804.23
100271608	021093	703.23
1000271611	021093	1804.23
1000271612	021093	1804.23
1000271613	021093	6523.16
1000271614	021093	1804.23
1000271704	111093	884.33
		$100,687.84

4. RELEASE. Ansett and EWA and both of them have remised, released and forever discharged, and by these presents, do for themselves and their successors and assigns, remise, release and forever discharge Textron Lycoming and Textron Lycoming's parent, related or affiliated corporations, and their officers, directors, employees and representatives, predecessors, successors, administrators and assigns (collectively "Releasees") of and from all, and all manner of action and actions, cause and causes of actions, suits, claims and demands whatsoever, in law or in equity, which against said Releasees, Ansett or EWA or either of them ever had, now have or which Ansett's or EWA's successors or assigns hereafter can, shall, or may have for, upon or by reason of any matter, cause or thing whatsoever from the beginning of the world to the date hereof.

Ansett and EWA warrant that there has been no assignment or other transfer of any interest to any claim relating to the Loss which they may have had against Releasees, and Ansett and EWA and both of them shall indemnify, hold harmless and defend Releasees from any claim or liability which may be asserted by anyone or any entity claiming such an assignment or transfer, or any other claim relating to the incidents.

5. MISCELLANEOUS. This Settlement Agreement embodies the entire agreement and understanding between Ansett and EWA and Textron Lycoming and supersedes all prior agreements and understandings relating to the subject matter hereof, and this Settlement Agreement may not be modified or amended or any term or provision hereof waived or discharged except in writing signed by the party against whom such amendment, modification, waiver or discharge is sought to be enforced. All of the terms of this Settlement Agreement, whether so expressed or not, shall be binding upon the respective successors and assigns of the parties hereto and shall inure to the benefit of, and shall be enforceable by, the parties hereto and their respective successors and assigns, except that the cash payment identified in Paragraph 2 and the parts credit set forth in Paragraph 3 hereinabove shall not be transferable to any party except as provided

in paragraph 3 including, but not limited to Ansett's and EWA's successors and assigns. This Settlement Agreement shall be construed and enforced in accordance with, and governed by, the laws of the State of Connecticut, excluding that State's conflict or choice of law rules. The headings in this Settlement Agreement are for reference only and shall not affect in any way the meaning and interpretation of this Settlement Agreement.

No failure or delay on the part of any party hereto in exercising any right hereunder shall operate as a waiver thereof; nor shall any single or partial exercise of any right or the exercise of any other right hereunder preclude any other or further exercise thereof or the exercise of any other right. No right or remedy provided for herein is intended to be exclusive of any other right or remedy, and every right and remedy shall, to the extent permitted by law, be cumulative and in addition to every other right or remedy given hereunder or now or hereafter existing at law or in equity or otherwise, and shall not prevent the concurrent assertion or employment of any other appropriate right or remedy.

Except as specifically agreed to otherwise in writing in advance by Textron Lycoming and Ansett and EWA and both of them agree to maintain the existence and all terms of this Settlement Agreement in strictest confidence and to disclose any terms hereof or information relating hereto only to its employees and legal or other professional advisors. Disclosure to such advisors however may only be made if they agree to be bound to the confidentiality requirement set forth herein on a "need-to-know" basis.

AVCO CORPORATION
TEXTRON LYCOMING TURBINE
DIVISION

By: _____

(Name): _____

(Title): _____

WITNESS: _____

ANSETT TRANSPORT INDUSTRIES
(OPERATIONS) PTY LIMITED

By: _____

(Name): _____

(Title): _____

WITNESS: _____

THE COMMON SEAL of ANSETT TRANSPORT INDUSTRIES (OPERATIONS) PROPRIETARY LIMITED was hereunto affixed in the presence of:

_____ Director

_____ Director

_____ Secretary

ANSETT TRANSPORT INDUSTRIES (OPERATIONS) PROPRIETARY LIMITED
A.C.N. 004 209 410
Common Seal

THE COMMON SEAL OF
EASTWEST AIRLINES (OPERATIONS)
LIMITED WAS HEREUNTO AFFIXED
IN THE PRESENCE OF :

By: _____ ~~Director~~

(Name): _____ Secretary

~~(Title):~~ _____

~~WITNESS:~~ _____ DIRECTOR

EASTWEST AIRLINES (OPERATIONS) LIMITED
A.C.N.
000 259 469
Common Seal

>Sujet : Re: [redacted]
>Date : 04/10/00 [redacted]
>From: crmack@rcn.com (carl mackerer)
>To: [redacted]
>
>[redacted]
> Thanks. After listening to this, I conclude that we have not moved
>forward toward solving this problem. Health effects are blamed on oils
>because an odor is present; OP's are lumped together as a group
>although toxicity varies enormously between specific compounds in the
>class; activists continue to stir the pot; and politicians are being
>urged to do something. None of the available toxicity data for the oils
>and their components suggests that toxic effects would be seen in
>animals or humans. In addition, the proposed toxic components have not
>been found to any appreciable degree in the cabins. Of course the oils
>have not received the same amount of testing as a drug would receive
>because they are not meant for high dose long term human exposures and
>are, in effect, overlabelled for the worst possible effects imaginable.
>Compounding the problem is that, despite extensive research, no
>acceptable replacement for TCP has been found that will allow an oil to
>pass the stringent engine tests, and the market for the oil is very
>small for a large company to pursue, however, only a large company with
>existing world wide distribution network can handle such a low volume
>product (internet not withstanding). The profit on this product is not
>high enough to support a very expensive research program by the oil
>manufacturers and little would be lost to a manufacturer by simply
>dropping the product.

From: Richard.Fox@alliedsignal.com --
Date: 04/9/97 3:25 PM
Priority: Normal
TO: Dai Lewis at MKT01
TO: Dan.Sullivan@alliedsignal.com at ANSETT
TO: Robert.Wilson@alliedsignal.com at ANSETT
TO: Dennis.Mauer@alliedsignal.com at ANSETT
TO: Jack.Harmon@alliedsignal.com at ANSETT
TO: Steve.Murphy@alliedsignal.com at ANSETT
TO: donlove@msn.com at ANSETT
CC: George.Durkin@alliedsignal.com at ANSETT
CC: Jim.Hahn@alliedsignal.com at ANSETT
CC: Rob.Mahar@alliedsignal.com at ANSETT
CC: Larry.Casillas@alliedsignal.com at ANSETT
CC: Hunt.Jessup@alliedsignal.com at ANSETT
Subject: Preliminary Trip-Report for Air Quality Testing at Ansett...
---------- Message Contents ----------

One ground test and five flight tests were performed while at Ansett Airlines in Brisbane, Australia from August 22 to 25, 1997.
August 22: Pack Burnout/ CO2 test on cargo aircraft.
Test results indicated that pack burnout did not fully remove hydrocarbons from bleed air.
August 23: Ground Test - Aircraft S/N VWI. Main engines had #9 seal mods. APU had ejector mod.
Summa canisters and bleed air contamination monitor analyses were conducted during pack burnout to measure contaminants generated during pack burnout.
Aircraft filters were due to be changed, but left installed for our testing.
Bleed air results showed again that pack burnouts did not remove hydrocarbons completely.
August 24: Non- Revenue Flight Test. Aircraft S/N VWI
Flight test was performed with high time aircraft filters.
Parameters to be measured on this flight included:
Air Flow
Smoke cartridge test
Carbon Dioxide
Carbon Monoxide
Oxygen
Methane
Ozone
DNPH cartridge for post analysis of Aldehydes
Summa Canisters for post analysis of Volatile organic Compounds
In addition, the Queensland Health Scientific Services (equivalent to our NIOSH) performed sample trapping for post analysis and a formaldehyde analysis.
Two flight attendants representing their union safety committee were also present to assist in the sample collection.
The flight was segmented into takeoff-climb, cruise, and descent-landing for the purposes of sample gathering. Odors were detected during takeoff and landing.
Preliminary results from this flight were as follows:
1. airflow on the left hand side of the aircraft is higher than the right side(0.7 M/sec vs. 0.55 M/sec.). The aisle was stagnant. Airflow at the return grills was 0.1 M/ sec.
2. The smoke test indicated that the area between the overhead storage was a dead pocket. Flight attendants work with their heads in this dead air space. The rear galley has no fresh air. It is strictly recirculated. The oven vents are the only exit.
The flight attendants spend up to 55-60% of their time in the aft galley when not servicing passengers.
3. Temperature and humidity:
Temperature was constant within a half of a degree from the beginning to the end of flight. It was constant from the front to the rear of the aircraft. The humidity level started at 33-40% RH and was down to zero in 90 minutes. The cockpit dried out almost immediately after takeoff. The cabin was at 10 % 30 minutes into flight. Air flow was selected to full fresh, which is the common position for all Ansett revenue flights.
4. Carbon Dioxide remained around 400 ppm in all areas except the aft galley, which approached 1000 ppm. No dry ice was present on this flight. No carbon monoxide, methane, or ozone were detected.
5. Cabin altitude reached 24.85 in Hg at altitude.(5000 Ft cabin altitude) Actual aircraft altitude was 22,000 ft at cruise.
6. Formaldehyde, a decomposition product of fuel, oil, and hydraulic

fluid, was detected at the aft galley in levels of 0.05 to 0.1 ppm using a passive dosimeter. The occupational limit of formaldehyde in Australia is 0.2 ppm. This is of concern because the addative effect of this substance must be taken into account with other substances. This assessment will take place during final data analysis.
Preliminary findings are that the aft galley is a confined spaces and requires more ventilation. Don Love of AVRO is looking at ways to modify the rear air supply to put more fresh air into this area and remove more stale air.
August 24-25: 4 revenue flight segments. Aircraft filters changed after non revenue flight. No odors were detected during takeoff and landing. No carbon monoxide or methane were detected. Ozone was not tested since it was not present in the non revenue flight.
During outbound flights, Cabin air was selected for full fresh.
During return flights, cabin air was selected for 40% recirculated air.
All flights were near capacity. (77-80 persons on board)
During full fresh air flights, the cockpit dried out almost instantaneously. The remainder of the cabin dried out in 45 minutes to 3-5% RH. Temperatures were constant throughout the aircraft. Carbon dioxide in the air supplied to the cabin was constantly under 500 ppm . The level in the cabin was around 1000 ppm, as measured in the cabin fan air. Levels of carbon dioxide in the aft galley never fell below 2000 ppm but exceeded 5000 ppm at times. Dry ice was present on all 4 service carts.
During 40% recirculated air flights, the humidity in the cockpit again fell to zero. The humidity in the cabin fell to between 10-20%, depending on the humidity of the outside air. Temperatures were constant. Levels of carbon dioxide in the cabin fan air were around 2500 ppm. Levels in the aft galley were the same as during full fresh air.
Dry ice was present on all four service carts.
Oxygen was stable in all flights at 20.9 %, except for takeoff, when it dipped to 19.8 % momentarily.
I observed before the last flight segment that the punka louvre in the lavatory was closed and opened it before takeoff. Lavatory odors were noted in the rear rows during the last flight, also indicating poor ventilation in the aft galley.

Observation made from this testing indicate the following:
1. Clean filters are sufficient to remove any ground odors from engines, apu's, and other sources.
2. Pack burns didn't appear to remove all organic material. In fact, Tricresyl phospate is being detected by health and safety measurements during and after pack burns. Levels measured on the bleed air contamination monitor during pack burn were 4 times greater than we allow for engine acceptance in our APU facilities. Pack burns cause premature loading of the activated charcoal on the filter and reduce its effectiveness for trapping lighter hydrocarbons by loading it up with higher molecular weight substances. The test crew is recommending that Ansett look into backflushing the filters with steam and hot air drying on a routine basis and eliminating pack burns. The air system should be kept as cool as possible. This should also increase the life expectance of the packs. The filters should last longer and be more effective. Using a delta P measurement for measuring filter life is not applicable since the primary purpose of the filter is not to trap particulates, but volatile organic material.
It was observed that odors could be caused since the apu bleed air is hotter than the air from the main engines. Pre cooling the apu air may be a way to reduce odor generation from the ECS system.
3. Typically persons on board the aircraft should be able to handle 2500 ppm CO2 as they were exposed to on the flights with recirculated air. Carbon dioxide in the lungs is around 52000 ppm. This may improve comfort perception. It is desirable to have humidity greater than 20 % for comfort.
4. The aft galley is a confined space. Flight attendants should minimize time in the aft galley and trade off working in this area until ventilation is improved.

FACSIMILE

TRANSMISSION

ANSETTAUSTRALIA

Occupational Medicine
Cnr. Grants & Service Road
Melbourne Airport,
Tullamarine
Vic. 3043
E mail
Dai_lewis@ansett.com.au
Tel: Int. 61-3-9373-7800
Dom (03) 9373-7800
Fax: Int. 61-3 9373 7807
Dom (03) 9373 7807

To	Cpt Trevor Jensen GOM	Fax	Auto
From	Dr.Dai Lewis Medical Director	Date	4 December 1997
Re	B Ae 146 certification	Page	1 of 10

Trevor,

I have heard on the grape vone that the Allied Sig report is being presented to you this am

Greg Vaughan has tracked down the CAA Aircraft Certification Requirements that the 146 was supposed to meet

On a quick scan please note:

- Page 2 para 3.2.2 **Ventilation** The 146 fails this!
- Page 3 para 3.3.10 (b) **Carbon Dioxide** The new FAA requirement is no more than 5,000ppm parts per million
- 3.3.10 (d) **Noxious vapours** . Fails
- 3.3.10 (e) **Contamination** Fails
- Page 6 Strength Para 6.3 Fails
- Para7 Tests Doubt if they did?
- Appendix Page1 para 3 does not meet
- Para 4 Doesn't meet .we measure less than 0.3 m/min
  Para 5 Need to check against Allied report Doubt if meets

This is a rush
Regards
Dai

SUB-SECTION D6—EQUIPMENT INSTALLATIONS

CHAPTER D6—11 VENTILATION AND PRESSURIZATION OF CREW AND PASSENGER COMPARTMENTS

Issued, 1st October, 1976

1 APPLICABILITY The requirements of this Chapter D6—11 which apply to pressurization systems are applicable to aeroplanes for which certification for flight at altitudes not greater than 13 700 m (45,000 ft) is desired. In the case of aeroplanes intended for flight at altitudes greater than 13 700 m (45,000 ft) the variation of, and additions to, the requirements shall be decided in consultation with the CAA.

2 PRESSURIZED COMPARTMENTS

2.1 Where means are provided for raising the pressure in a compartment above that of the outside atmosphere, it shall be established that the compartment and the associated equipment are capable of maintaining, and suitable for operation at, differential pressures up to the declared differential pressures at altitudes up to the declared maximum altitude h. The differential pressure is regarded as positive when the internal pressure exceeds the external pressure.

2.2 The following shall be declared:

(a) The maximum differential pressure Δp_r, which is defined as the highest pressure permitted by the pressure relieving device(s) in the compartment.

(b) The highest normal working differential pressure Δp, which is defined as the maximum differential pressure controlled by the pressure regulator prescribed in 4.1(e).

NOTES: (1) It is permissible to use nominal values rather than the highest pressures, provided that the tolerances are not large.

(2) The Δp of 2.2(b) is the same as that of D3—7, 1.

(c) The maximum aeroplane altitude, h.

These limitations shall be stated in the Flight Manual.

2.3 The declared value of Δp shall be sufficient to ensure an absolute compartment pressure, at the maximum aeroplane altitude, h, equivalent to an altitude not greater than 2500 m (8,000 ft).

NOTE: Where it is desired to operate at altitudes in excess of the declared maximum aeroplane altitude h, on the basis of the provision of a supply of oxygen, the CAA should be consulted.

2.4 The pressurized compartments and associated air supply and pressure control systems shall be so designed that in the event of a Failure and taking account of likely crew actions compliance will be shown with (a) to (c).

(a) No Failure assessed as Reasonably Probable will result in the compartment altitude exceeding 4500 m (15,000 ft).

(b) No Failure assessed as Remote will result in the compartment altitude exceeding 7500 m (25,000 ft).

(c) The probability of conditions hazardous to the occupants shall be Extremely Remote.

NOTE: In showing compliance with 2.4:—

(a) a fault analysis covering the air supply system, the pressure control system, and damage to the pressurized compartment as the result of a Failure in the aeroplane, is required in accordance with D4—1, 6,

(b) consideration will have to be given to 3.3, D6—11 App., 2, 5 and 6.

3 COMPARTMENT ENVIRONMENTAL CONDITIONS (see D6—11 App.)

3.1 General

3.1.1 Compliance shall be shown with the requirements of this paragraph 3 in both pressurized and unpressurized flight. Provision shall also be made to ensure that such ventilation can be provided with the aeroplane on the ground.

NOTES: (1) It is desirable, particularly for the flight crew, to meet this ground case using self-contained equipment in the aeroplane, e.g. an APU.

(2) For combustion heater systems, see D6—5.

3.1.2 Means shall be provided to enable the flight crew adequately to control environmental conditions for the flight-crew compartment. Where separate control is provided for other compartments, this shall not seriously affect the facility for the flight crew to control conditions in the flight-crew compartment.

3.1.3 The temperature in occupied compartments shall be so controlled that conditions hazardous to the occupants are Extremely Remote. The temperature in the flight-crew compartment shall be suitable for safe control of the aeroplane.

3.2 Air Supply

3.2.1 The supply of fresh air, for any period exceeding 5 minutes, shall be not less than:—

(a) 0·0038 kg/s (0·5 lb/min) per person in normal operation.

(b) 0·003 kg/s (0·4 lb/min) per person in the event of the loss of one source of supply; see however, Note (2).

NOTES: (1) The total number of persons will be taken as being equal to the total number of seats quoted in the Flight Manual as available for use by passengers and crew.

(2) Some reductions in the prescribed air flow may be accepted provided adequate control of compartment environment can be maintained to a level acceptable to the CAA.

(3) Where the fresh air supply to meet 3.2.1(b) is a ram air supply, the aeroplane will normally be limited to maximum altitude of 7500 m (25,000 ft) and to any other limitations that might be called for by the ANO Scale K.

3.2.2 Compartments used by passengers and crew shall be so ventilated that there is adequate air distribution to all parts.

3.2.3 Air intakes essential to the operation of the air supply system shall be suitably protected against blockage, e.g. by ice, dirt.

3.3 Contamination (see D6—11 App., 5)

3.3.1 The air supply, pressure control and distribution system shall be arranged so as to provide for the effective evacuation of smoke from any occupied compartment, while complying with 2.4 (see also Section J, Chapter J1—3, 7.6). Acceptable procedures shall be established and demonstrated by test.

3.3.2 In analysing faults which may occur in devices associated with the ventilation and pressurization system, allowance shall be made for the effects of deposits of tobacco tar, and other products of tobacco smoking.

3.3.3 No Failure assessed as Recurrent or Remote shall result in leakage into the air supply (e.g. from a cabin air heat exchanger), which would hazard the aeroplane or its occupants.

3.3.4 In normal operation or after a Failure in the Power-plant, it shall be shown that dangerous concentrations of harmful substances cannot occur in occupied compartments (e.g. where the cabin air supply is obtained from a direct tapping on a turbine engine.

3.3.5 Where hazardous contamination of the air supply or increased fire hazard might otherwise result from a Power-plant fire, those parts of the air supply system installed within a Designated Fire Zone (see D5—8), including the air supply shut-off valve, shall be Fireproof.

3.3.6 The air supply to compartments normally occupied by passengers or crew which passes through compartments inaccessible in flight shall be ducted through such compartments.

3.3.7 The air intake(s) shall be so arranged that in normal or any fault conditions, contaminated air will not be supplied to occupied compartments or to other regions to such an extent as to create a hazard.

NOTE: Either they should not be such as to collect hazardous quantities of ground used de-icing spray or guidance should be given in the Flight Manual regarding which fluids may be used.

3.3.8 Where a recirculating ventilating system could cause hazardous contamination of compartment air in either normal or fault conditions, it shall be possible to stop the recirculating system and still show compliance with 3.2.1 and 3.2.2.

3.3.9 Where the air supply is used for example to cool devices, it shall be free from any contamination which could adversely affect their functioning.

3.3.10 Precautions shall be taken to preclude the contamination of air in occupied compartments resulting from the operation of the aeroplane in normal and emergency conditions. In particular:—

(a) Carbon monoxide concentrations shall not exceed 50 parts per million by volume for any period exceeding 5 minutes.

(b) Carbon dioxide concentrations shall not exceed 30,000 parts per million by volume for any period exceeding 5 minutes.

(c) Hazardous concentrations of fire extinguishing agents shall not be liable to occur either as a result of intentional use of a fire extinguishing system or portable extinguishers, or as a result of any Failure which might lead to unintentional discharge of the extinguishant.

(d) Systems employing fluids liable to give off noxious or toxic vapours or substances (e.g. some de-icing and hydraulic fluids) shall not be installed in such a manner as to risk hazardous contamination of the cabin air either by leakage or by use.

(e) No materials which give off noxious fumes when heated shall be used in such a way that they may become heated in normal or Failure conditions to the extent that the cabin air would become dangerously contaminated. (See also Section J, Chapter J1—3, 7.6.)

6 STRENGTH

6.1 All components, pipes and ducting shall have Proof and Ultimate Factors of not less than 1·33 and 2·0 respectively on the normal maximum local working pressure in the system.

6.2 All components, pipes and ducting shall have Proof and Ultimate Factors of not less than 1·0 and 1·5 respectively on the maximum pressure to which they may be subjected as a result of a Reasonably Probable Failure.

6.3 No Failure of components, pipes and ducting in the air supply system, the probability of occurrence of which is assessed as greater than Extremely Remote, shall result in a Hazardous Effect.

6.4 Additionally further factors shall be applied to cater for the following:—

(a) The maximum local temperature in the system.

(b) The provision of a sufficiently robust construction to withstand normal handling in service.

(c) The provision of a sufficiently robust construction to be free from deleterious shock wave or resonance effects.

NOTE: For scatter factors for castings, see D3—10, and for adequate fatigue life, see D3—1 App., 2.1.3.

7 TESTS Tests shall be conducted to show that all parts of the air supply and pressure control system will function properly up to maximum altitude, h, under all probable conditions of temperature, pressure and humidity for compartment pressures up to Δp_r and for rates of climb and descent up to the maximum practicable for the aeroplane.

7.1 Consideration shall be given to the need for tests which will show that the system is free from deleterious shock wave and/or resonance effects.