LOGANAIR OPERATIONS MANUAL SHORTS SD3-60 FLYING

Part 9

9.5.0 AIRCRAFT CHECKLISTS 9.5.4 First Flight Checks

ALL PROP FUNCTION CHECKS MUST BE CARRIED OUT INTO WIND ± 45°.

Auto-Feather Test	CHECKED
Power Levers	Flight Idle
Prop Levers	Taxi
Auto Feather	Test and hold

Check Auto Feather EI's L & R on and Anti-Ice Vanes running:
Prop RPM decrease significantly and hunt.

Auto Feather Release

Check conditions revert to pre-test.

Note: If torque too high, select Air Conditioning to achieve test.

Figure 1 Checklists – First Flight Checks – Autofeather Test

After Start	
Hydraulics	Check
Start master	Normal
Ignition	Off
Electrical Master	Internal
Generators	On
Shedding Bus L & R	Normal
External Supply	Removed
EI's	Vertical
EHSI CB's	Internal
Emergency Light Switch	Arm
Avionics Master	On
Flaps	Set & Checked
De-Ice Boots	Check
Warning Lights	Control & Pitot
Altimeters	Check, Set QNH
GPU	Clear

Taxi	
Emergency Brake	Off
Taxi Light	On
Brakes	Check
Trims	Set
Flaps	Set
Fuel	Check
Electrics	Check
Anti-Icing	On
Reserve Power	Arm
Oil T's & P's	Check
Harnesses	Locked
Flight Instruments	Checked
Flight Systems	Set
Bug Speeds	Set
Take Off Brief	Review
Cabin Attd's Report	Received
Engine Checks	As Required
ATC Clearance	Received
Transponder	Set

Entering Runway	
Attendant's Call	Press Twice
Air Conditioning	Off
Flying Controls	Unlock
FDR	DDI
Strobes	On

Take Off (From Memory)	
Landing Lights	On
Power Levers	Flight Idle
Prop Levers	Max
Fuel levers	Flight
Stop Watch	Run
Igniters	A/R

After Take Off/Go Around	
Gear	Up
Flaps	Up
Stall Warning Heaters	On
Reserve Power	Off
Igniters	Off
Landing & Taxi Light	Off
Cabin Signs	As Required
Air Conditioning	As Required

Figure 2 Checklists - After Start to After Take Off Checks

SHORTS SD360 PRE DEPARTURE AND SERVICE INSPECTION

SECTION	NO.	DESCRIPTION
F. L/H POWERPLANT INCLUDING NACELLE	*1	Inspect power plant cowlings for general condition and damage. Special attention to:-
	*2	Security of latches
	*3	Air intakes - blanks removed
	*4	Fire bottle thermal discharge indicators - check that four green pressure relief discs have not been expelled
	*5	Excessive fluid leakage
	*6	Pan drains for fluid leakage
	*7	Freedom from snow/frost - deice as required annotate tech. log page

SECTION	NO	DESCRIPTION
L. R/H POWER PLANT INCLUDING NACELLES	*1	Inspect power plant cowlings for general condition and damage. Special attention to:-
	*2	Security of latches
	*3	Air intakes - blanks removed
	*4	Fire bottle thermal discharge indicators. Check that four green pressure relief discs have not been expelled
	5	Excessive fluid leakage
	*6	Pan drains for fluid leakage
	*7	Freedom from snow/frost - deice as required annotate tech log page.

Figure 3 Checklists – Pre Departure and Service Inspection

APPENDIX 1

PARKING

When parked, the aircraft will require protection against prevailing weather and climatic conditions. The extent of the protection required will depend on the duration of parking and local conditions, but the following instructions must be carried out.

A. Parking Procedure

(1) Position the aircraft and centralise the nosewheel.
(2) Fit all three ground locking (Gear) Pins. (See Fig 1).

Note: Main gear pins must be removed before the aircraft is loaded (pax or freight) as compression of the suspension causes the mainwheel tyre to obstruct the pin removal.

(3) Chock the main wheels, fore and aft.
(4) Ensure the flight control gust lock is engaged.
(5) Apply the parking and emergency brakes.
(6) Fit and secure propeller strops. (See Figure 5).

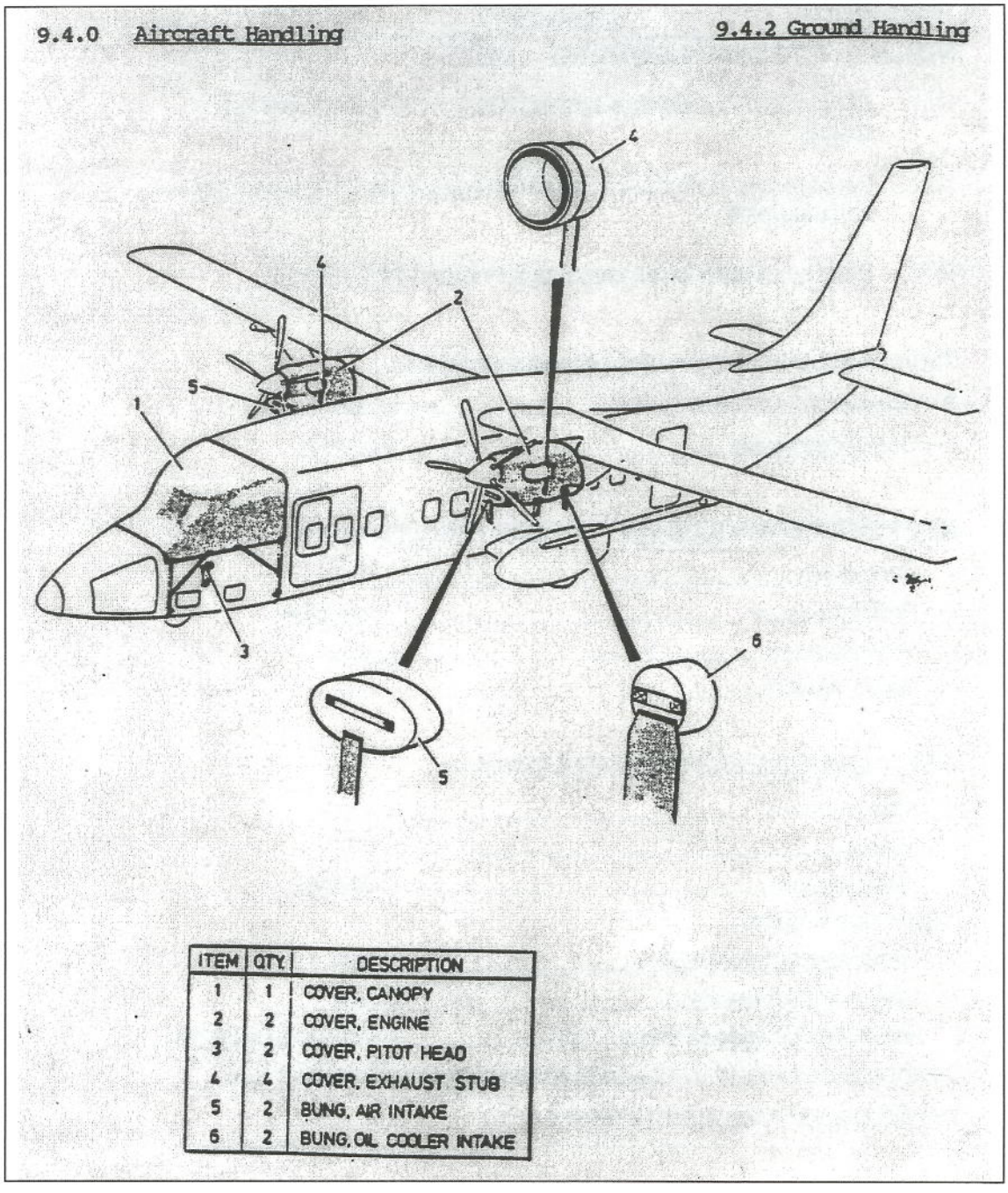
WARNING: On no account are propellers to be moored to ground anchorage.

(7) Close all doors and windows.
(8) Engine covers and bungs should be fitted if available. (See Figure 2).

WARNING: All covers and bungs should be prominently pennented to ensure that they are not overlooked during take-off preparations.

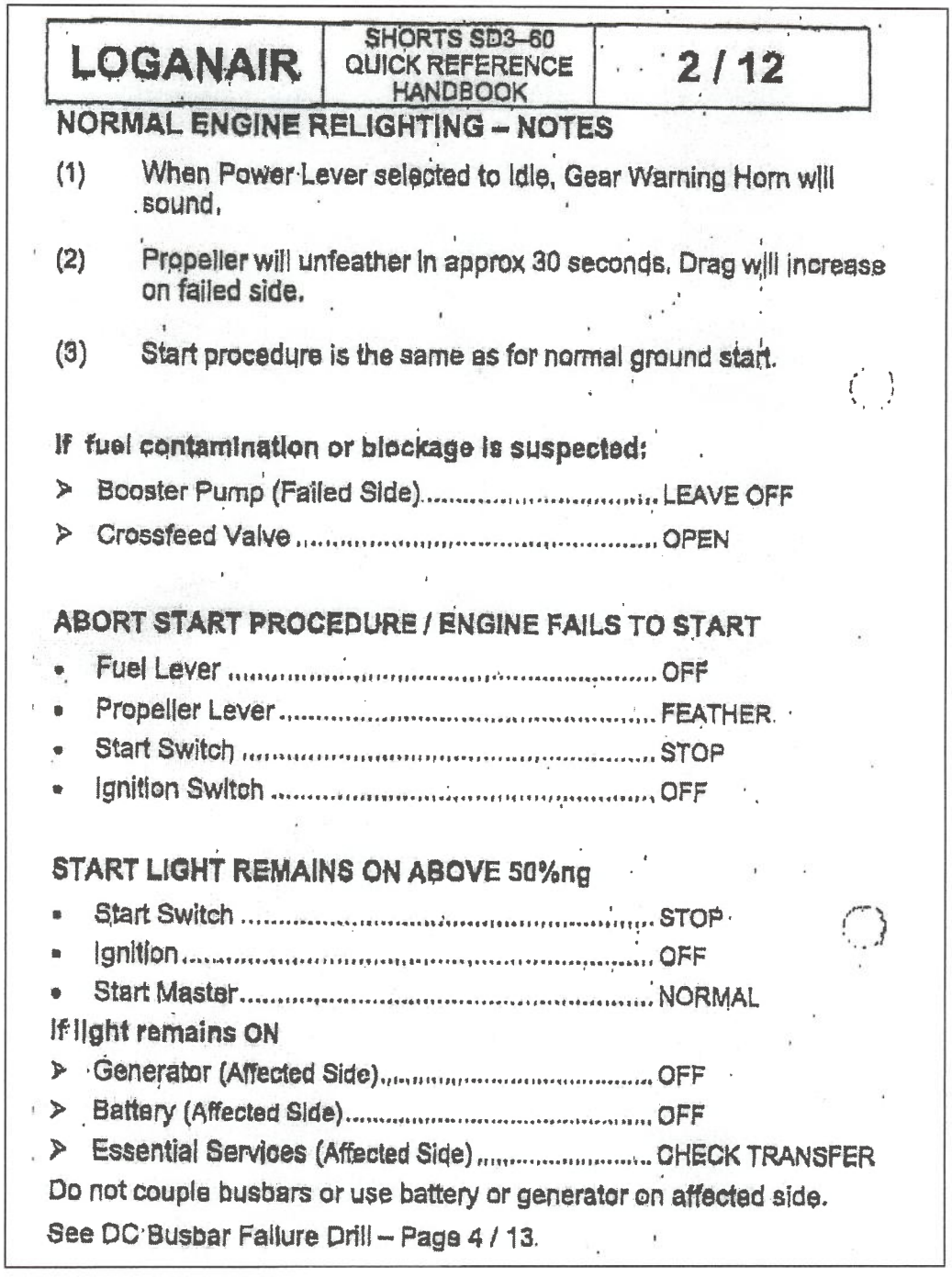
PRECAUTION: If the wind is stronger than 30 knots the aircraft should be hangared or moored.

Figure 4a Aircraft Handling – Ground Handling – Parking Procedure



ITEM	QTY	DESCRIPTION
1	1	COVER, CANOPY
2	2	COVER, ENGINE
3	2	COVER, PITOT HEAD
4	4	COVER, EXHAUST STUB
5	2	BUNG, AIR INTAKE
6	2	BUNG, OIL COOLER INTAKE

Figure 4b Aircraft Handling – Ground Handling – Equipment



LOGANAIR	SHORTS SD3-60 QUICK REFERENCE HANDBOOK	2 / 12

NORMAL ENGINE RELIGHTING – NOTES

(1) When Power Lever selected to Idle, Gear Warning Horn will sound.

(2) Propeller will unfeather in approx 30 seconds. Drag will increase on failed side.

(3) Start procedure is the same as for normal ground start.

If fuel contamination or blockage is suspected:

- Booster Pump (Failed Side) ..... LEAVE OFF
- Crossfeed Valve ..... OPEN

ABORT START PROCEDURE / ENGINE FAILS TO START

- Fuel Lever ..... OFF
- Propeller Lever ..... FEATHER
- Start Switch ..... STOP
- Ignition Switch ..... OFF

START LIGHT REMAINS ON ABOVE 50%ng

- Start Switch ..... STOP
- Ignition ..... OFF
- Start Master ..... NORMAL

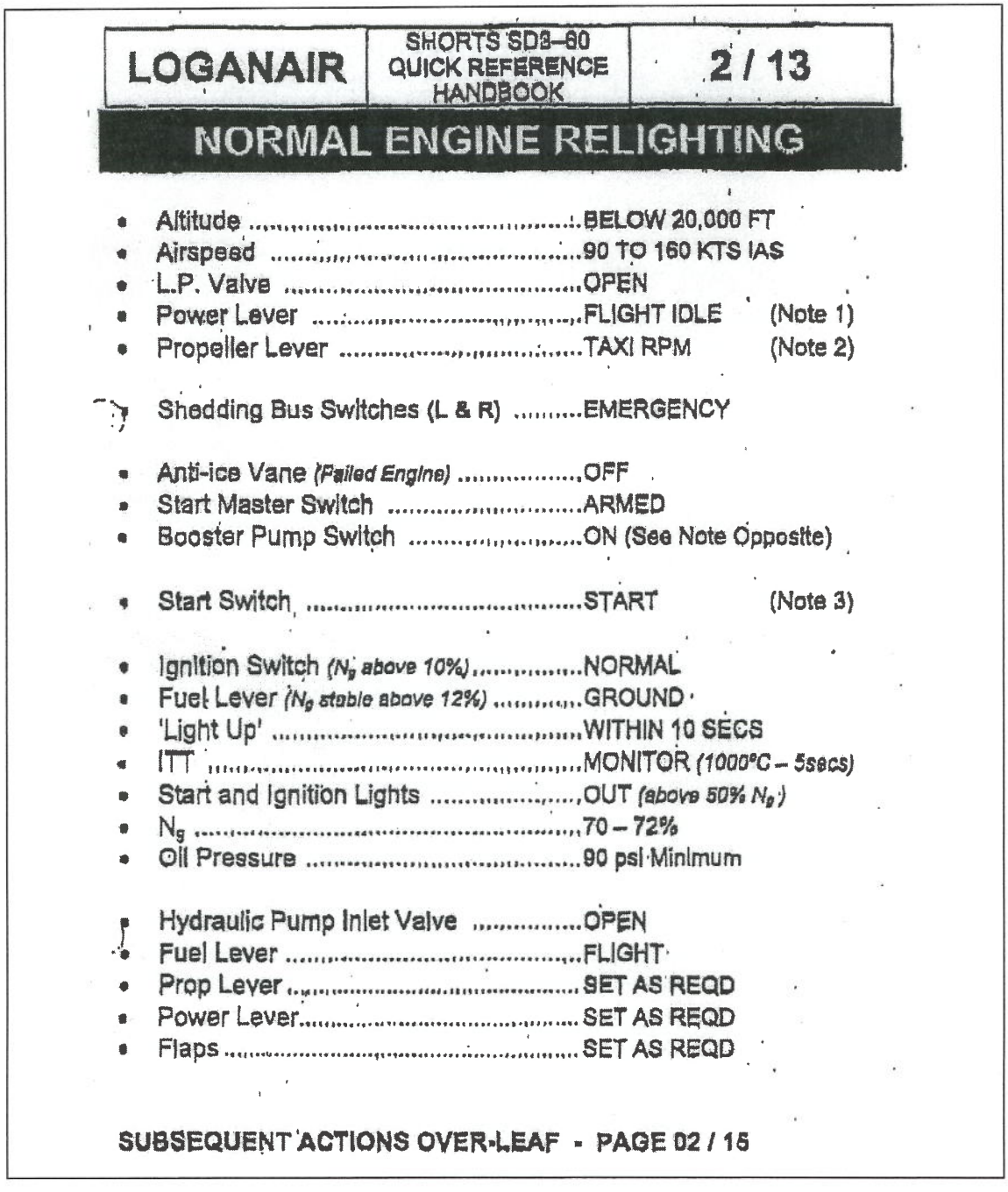
If light remains ON

- Generator (Affected Side) ..... OFF
- Battery (Affected Side) ..... OFF
- Essential Services (Affected Side) ..... CHECK TRANSFER

Do not couple busbars or use battery or generator on affected side.

See DC Busbar Failure Drill – Page 4 / 13.

Figure 5a Quick Reference Handbook – Normal Engine Relighting



LOGANAIR	SHORTS SD3–60 QUICK REFERENCE HANDBOOK	2 / 13

NORMAL ENGINE RELIGHTING

- Altitude ..... BELOW 20,000 FT
- Airspeed ..... 90 TO 160 KTS IAS
- L.P. Valve ..... OPEN
- Power Lever ..... FLIGHT IDLE (Note 1)
- Propeller Lever ..... TAXI RPM (Note 2)

- Shedding Bus Switches (L & R) ..... EMERGENCY

- Anti-ice Vane *(Failed Engine)* ..... OFF
- Start Master Switch ..... ARMED
- Booster Pump Switch ..... ON (See Note Opposite)

- Start Switch ..... START (Note 3)

- Ignition Switch *(N_g above 10%)* ..... NORMAL
- Fuel Lever *(N_g stable above 12%)* ..... GROUND
- 'Light Up' ..... WITHIN 10 SECS
- ITT ..... MONITOR *(1000°C – 5secs)*
- Start and Ignition Lights ..... OUT *(above 50% N_g)*
- N_g ..... 70 – 72%
- Oil Pressure ..... 90 psi Minimum

- Hydraulic Pump Inlet Valve ..... OPEN
- Fuel Lever ..... FLIGHT
- Prop Lever ..... SET AS REQD
- Power Lever ..... SET AS REQD
- Flaps ..... SET AS REQD

SUBSEQUENT ACTIONS OVER-LEAF - PAGE 02 / 15

Figure 5b Quick Reference Handbook – Normal Engine Relighting

Part 9

9.7.0 ADVERSE WEATHER CONDITIONS 9.7.6 De-Icing and Anti-Icing

9.7.6.1 (a) Anti-icing refers to the preventive treatment applied to aircraft surfaces to prevent accumulation of snow or ice; de-icing refers to the removal of contamination already on the aircraft.

(b) Snow, frost and ice adhering to aircraft surfaces will dangerously, even fatally, diminish the flying capability of an aircraft. The weight of such adhesions is less significant than the destruction of the aerodynamic shape. It is the captain's responsibility to ensure that his aircraft is free form all deposits of frost, ice or snow before take-off and to adhere to the instructions in the aircraft manual concerning the use of anti and de-icing equipment when icing conditions are encountered in flight.

Should any doubt arise regarding the necessity of anti or de-icing the aircraft captain's judgement is decisive and his instructions must be followed.

(c) Ice may appear on aircraft surfaces when an aircraft is parked outside in humid weather with a fall in temperature to 0°C or below. Propeller icing may occur during engine ground runs in humid air close to 0°C. Frost may coat only the upper surfaces of an aircraft parked in the open when air temperatures fall to 0°C overnight. Ice may form on an aircraft towed into freezing air from a heated hangar. Refuelling may melt snow on the wings of fuselage and cause the formation of layer of ice under an upper layer of snow. Pilots should anticipate these less obvious instances of ice formation and be prepared to order de-icing in good time to meet operational requirements.

(d) Should the captain decide to de-ice the aircraft the following guidelines are to be followed:-

1. The aircraft should be sprayed symmetrically.

2. Fuselage tops sides and under surfaces should be thoroughly treated to avoid run-off and refreezing.

3. All anti or de-icing operations must be carried out under the supervision of an engineer.

4. Kilfrost ABC, ABC-S or Aeroshell Compound 06A is to be used for anti-icing.

5. Kilfrost ABC fluid is to be diluted with water and applied at a temperature of between 90°C and 95°C for de-icing.

6. De-icing should be completed as close to departure time as possible. Should it be necessary to prepare the aircraft some time before departure then it may be necessary to respray immediately before taxying.

Figure 6 Procedures – Adverse Weather Conditions (part 1)

Part 9

9.7.0 ADVERSE WEATHER CONDITIONS 9.7.6 De-Icing and Anti-Icing

9.7.6.1 (d) contd..

7. Before spraying ensure that all aircraft doors and windows are closed.

8. Accumulations of loose snow or slush may be removed by sweeping with a soft brush before spraying is started. Care must be exercised to prevent brushed snow or slush from entering intakes, control surface gaps or seals.

9. All engine blanks, pitot covers and air conditioning intake blanks should be in position.

10. Avoid spraying directly onto fuel tank vents, propellers, windows, stall warning vanes and brake units.

11. Engines must not be operated during de or anti-icing.

12. Particular attention should be given to de-icing doors and emergency exits.

13. After treatment the nose of the aircraft should be wiped down to prevent excess fluid from blowing back onto cockpit windows. Passenger windows should also be cleared if time permits.

Figure 6 Procedures – Adverse Weather Conditions (part 2)

Part 9

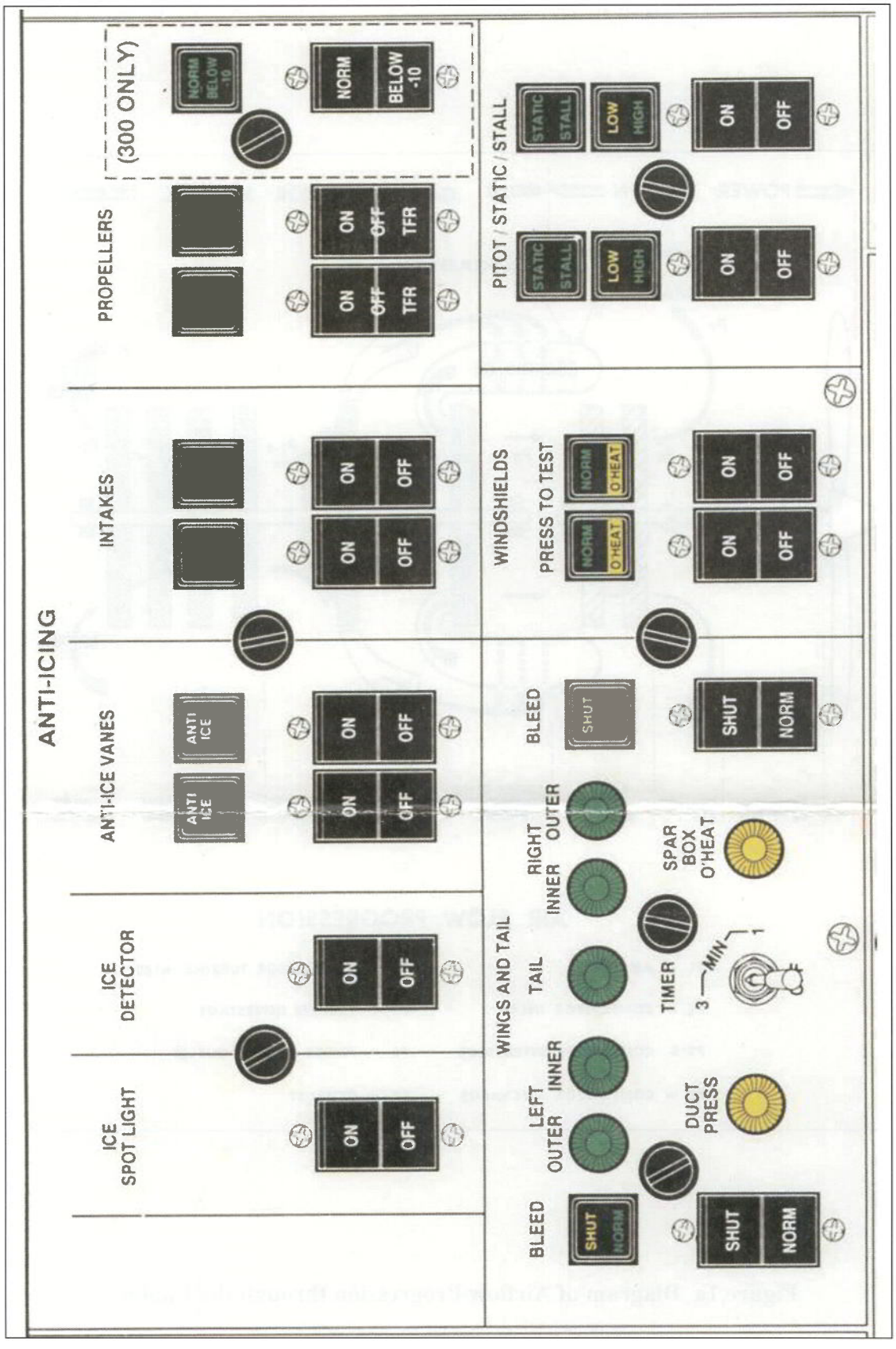
9.5.0 AIRCRAFT CHECKLISTS 9.5.2 Expanded Normal Checklist

PRE-START CHECKS contd.

	CHECKED & OFF
Anti-Ice Panel	
Ice spotlight switch	Off
Ice detector switch	Off
Anti-ice vane switches	On. Check Normal disappears and Anti Ice appears after 20 secs then Off
Intake heat switches	On. Check EI then Off.
Propeller heat switches	On. Check EI then Off.
Wings and tail bleed	Norm.
Timer switch	Off
Windshield heat switches	On. Check EI Norm. When caption goes out press EI and check EI display O'Heat then Off.
Pitot/Static heater switches	On. Check pitot warning lights out, Static and Stall caption on EI, Low on stall warning heater EI then off.

Figure 7 Checklists – Pre-Start Checks (Anti-Ice Panel)

APPENDIX 2



Appendix 2 Diagram of Overhead Anti-Icing Panel

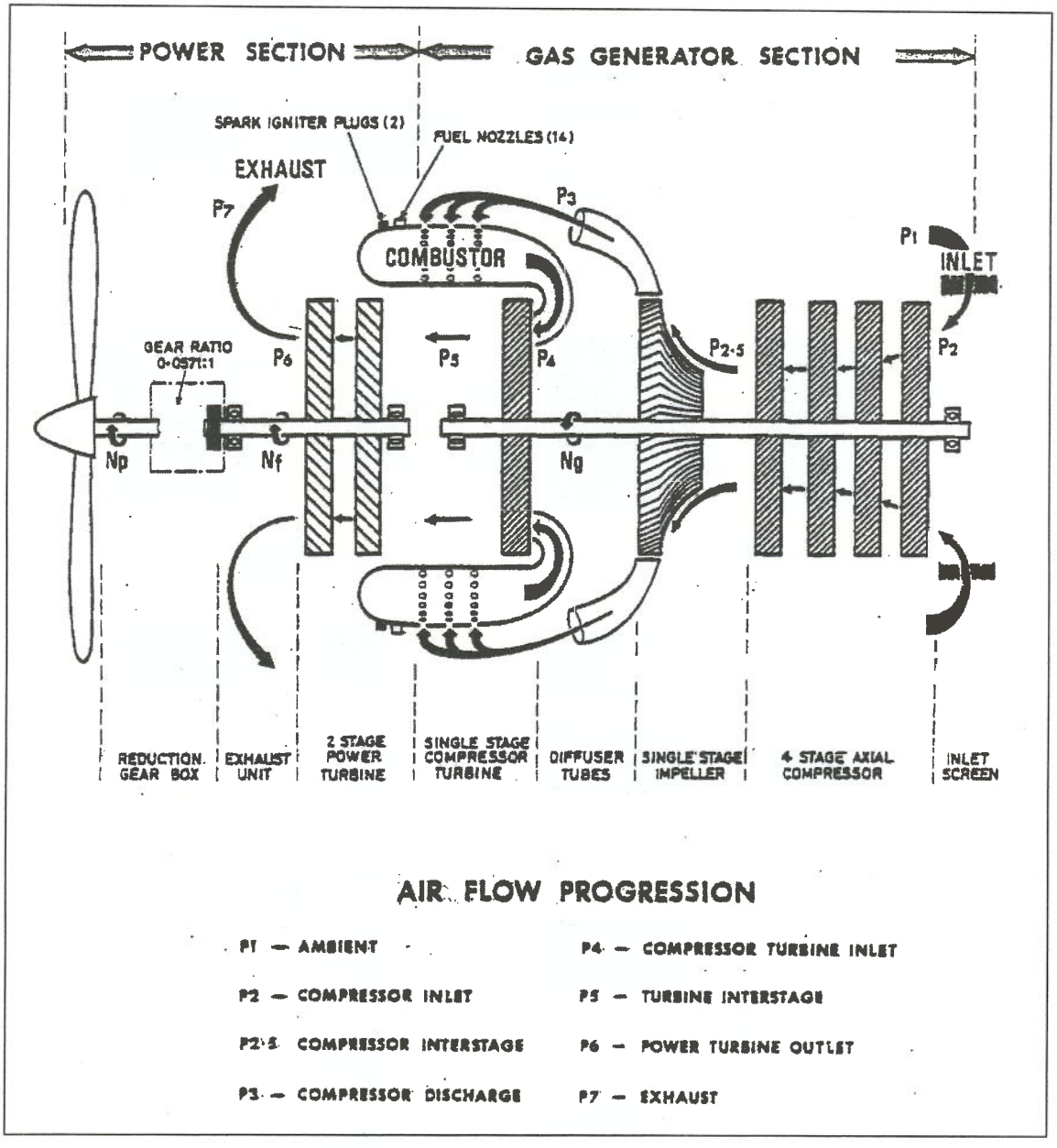
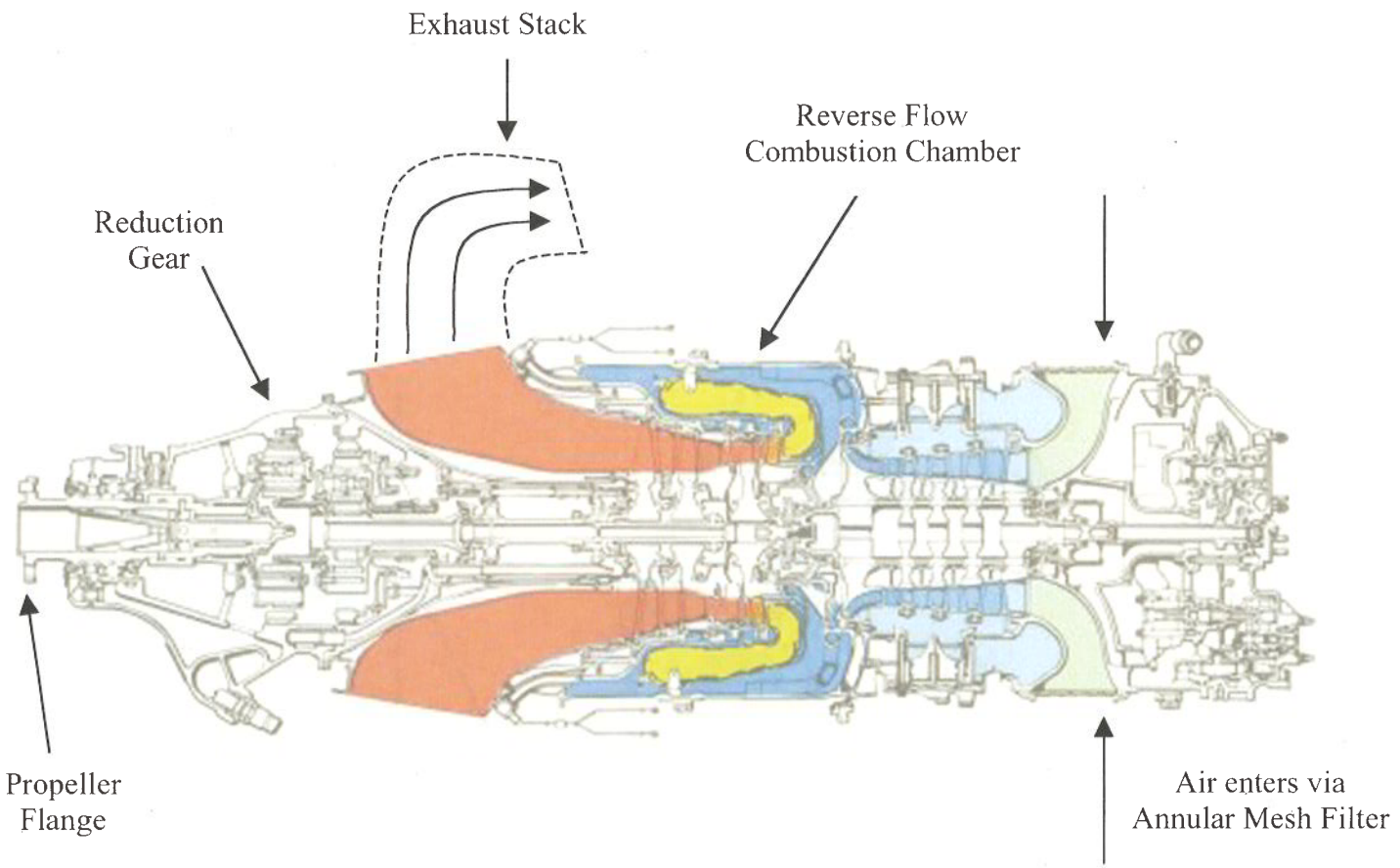
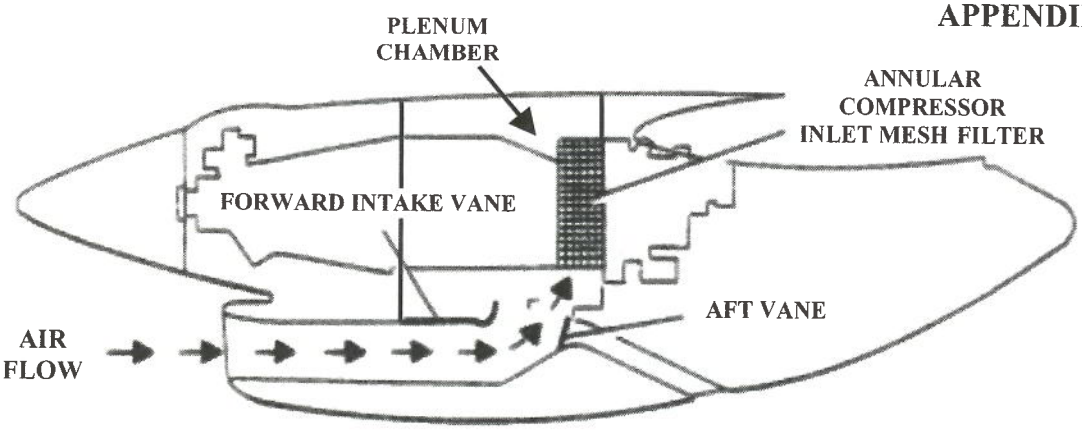


Figure 1a Diagram of Airflow Progression through the Engine

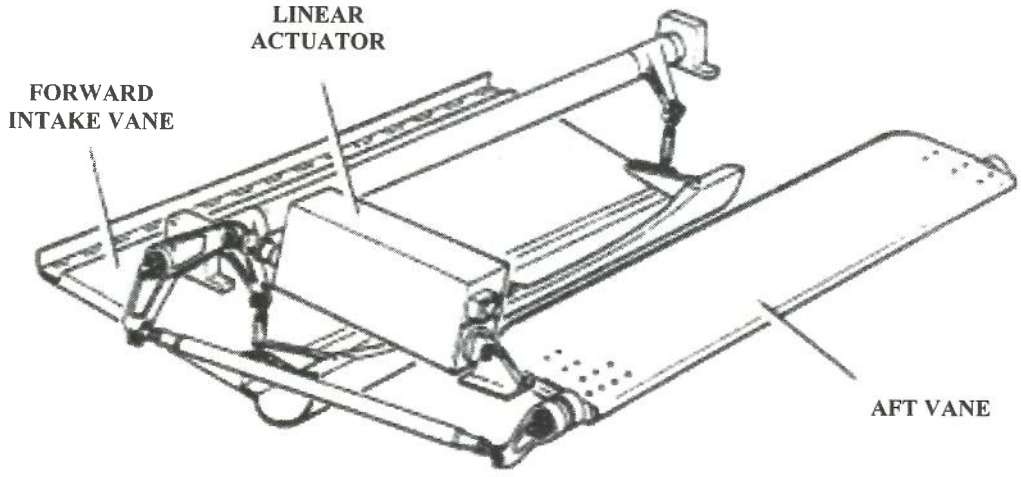


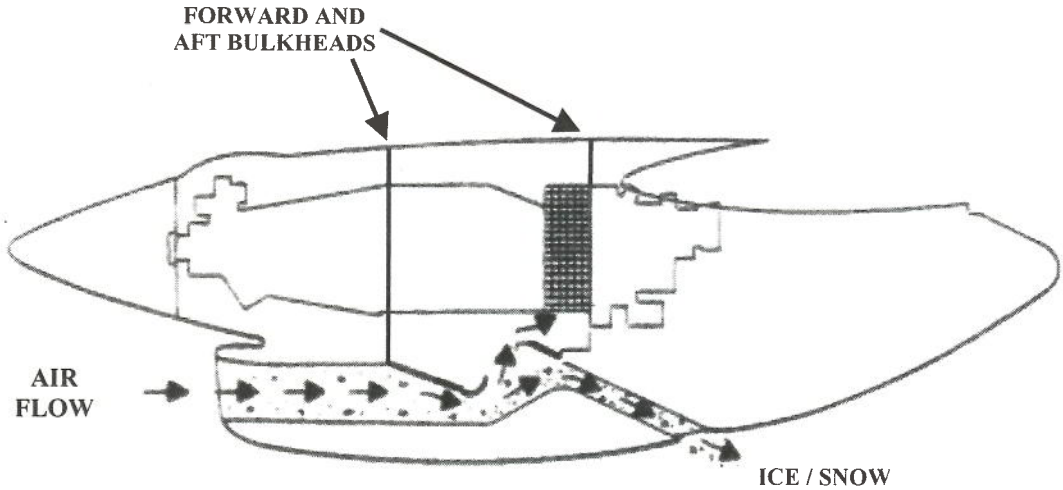
MAIN GAS FLOW THROUGH ENGINE

Appendix 3, Figure 1b Main Gas Flow Through Engine



SYSTEM OFF





SYSTEM ON

Figure 2 Cross-Section of Engine Nacelle Showing Intake Inertial Anti-Ice Vane System

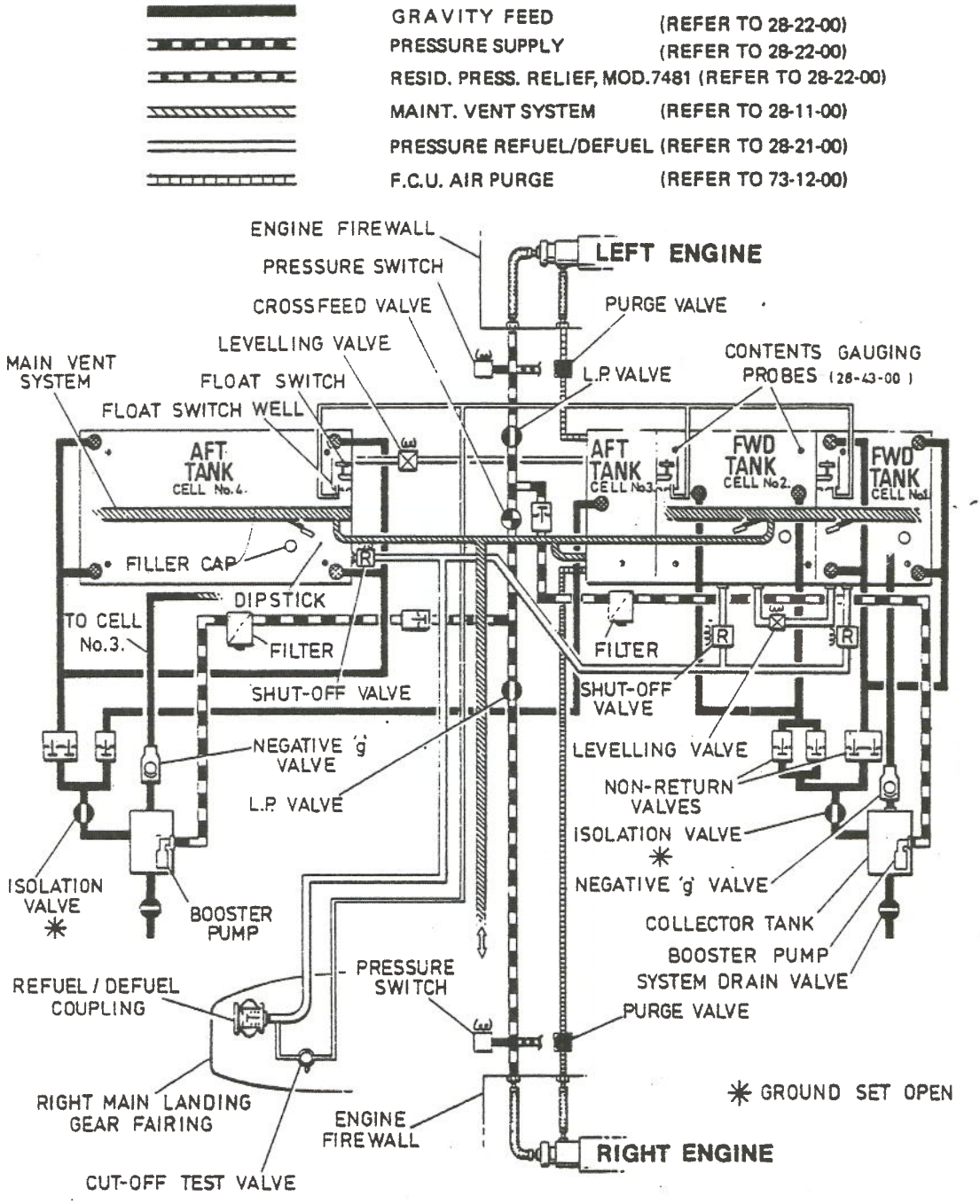


Figure 3 Shorts SD3-60 Fuel System Schematic

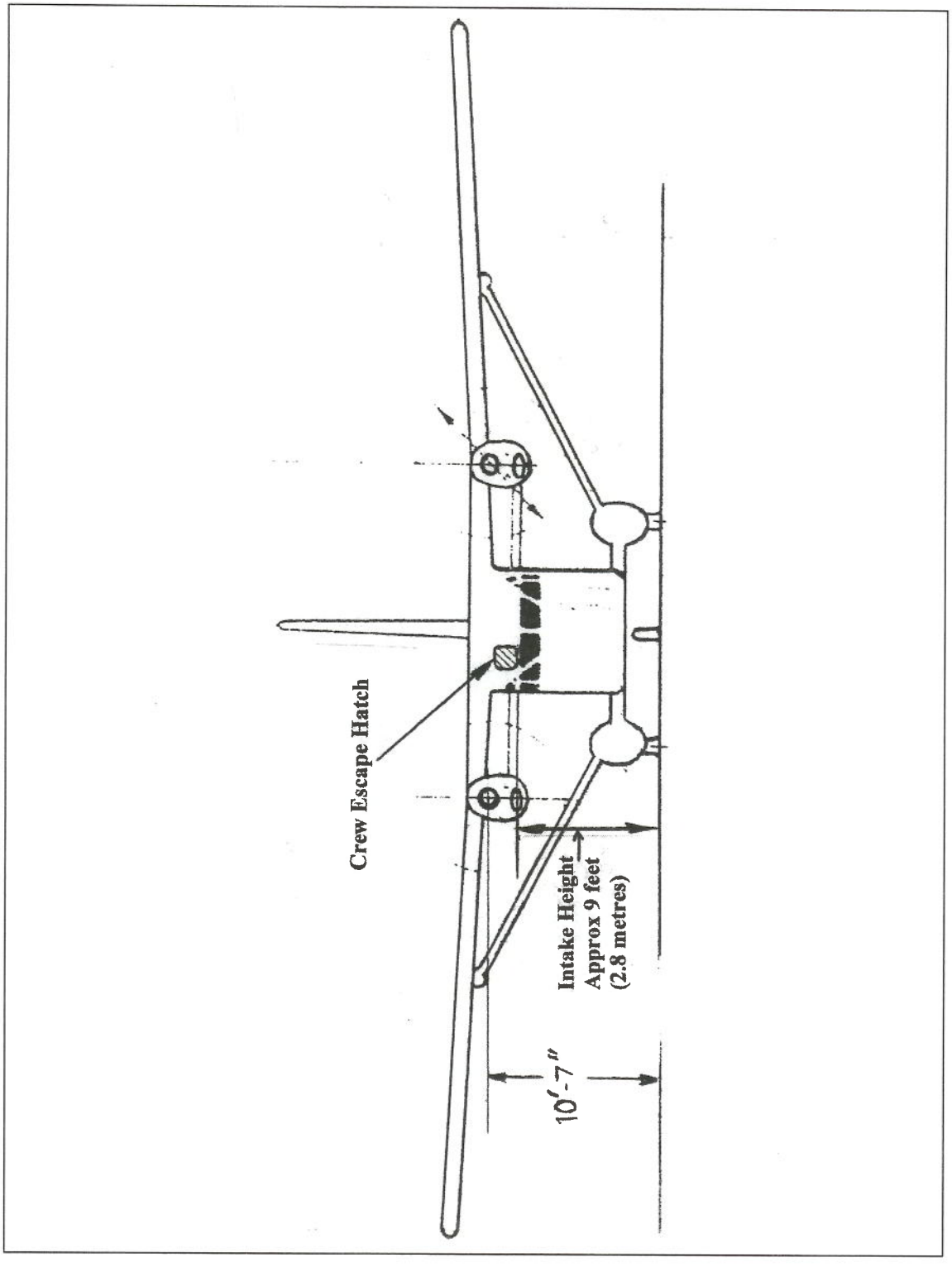


Figure 4 Shorts SD3-60 Intake Arrangement and Location of Crew Emergency Escape Hatch

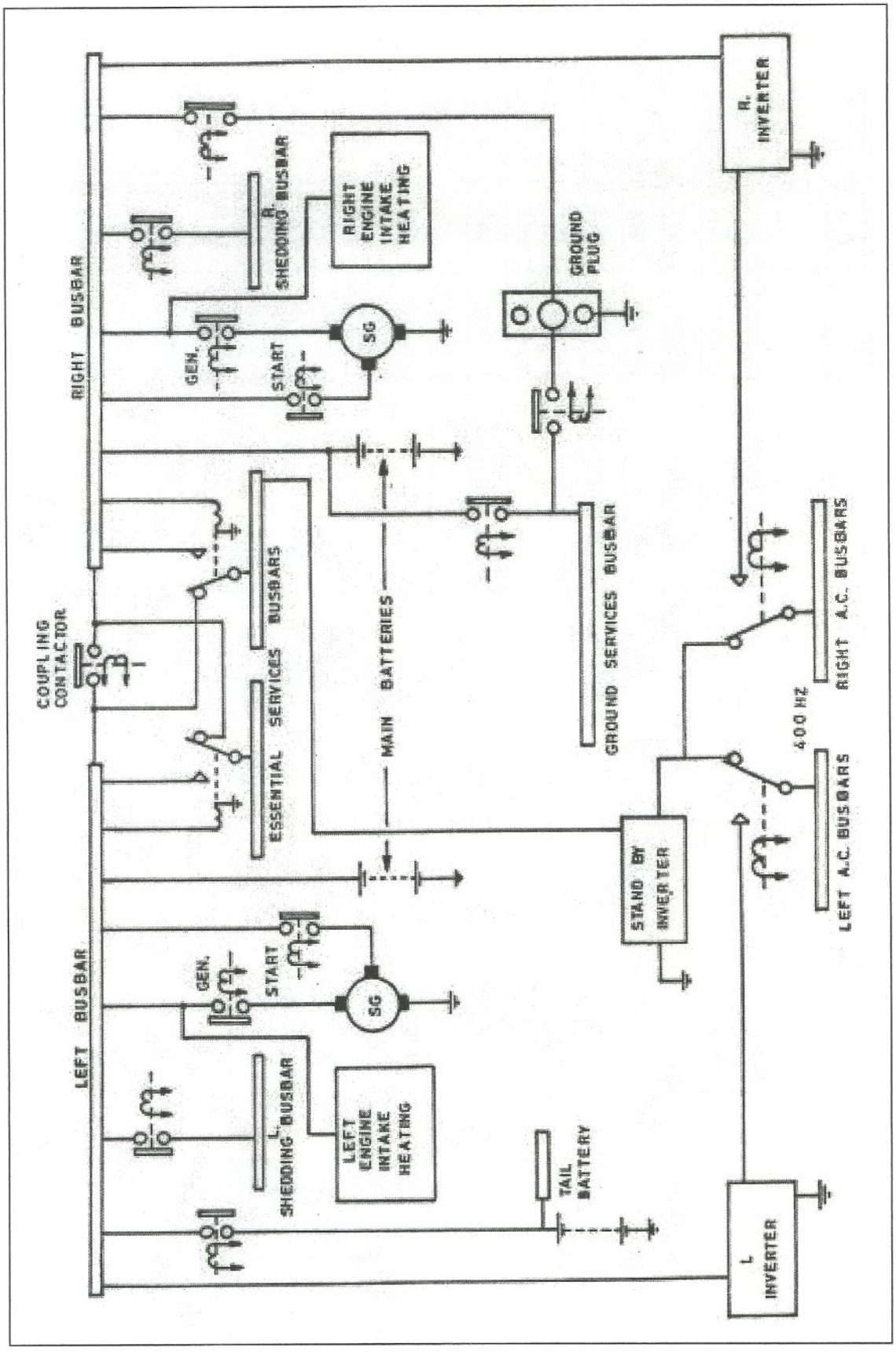


Figure 5 Shorts SD3-60 Electrical System Schematic

OBS	Time	Wind (kt)	vis (m)	IRVR (m)	Wx	Cloud	Temp/ Dewpoint (°C)	QNH (mb)	Remarks
MT	0020	04023G36	4100		-SN	FEW008 BKN010 BKN016	01/M00	993	REGR
MT	0050	03024G37	1900		-SN	FEW005 BKN010	01/M00	993	REGR
MT	0120	03024G37	1600		-SN	FEW004 SCT007 BKN008	00/M00	993	
MT	0150	03020	1100	06/1000 24/1300	SN	SCT004 SCT006	00/M00	994	
MT	0220	04024G37	800	06/1000 24/1200	SN	SCT004 SCT005 BKN008	00/M00	994	
MT	0250	04022G32	1100	06/1300 240900	SN	FEW004 BKN009	00/M00	994	
MT	0320	04023G33	2100		-SN	FEW004 BKN009	00/M00	994	RESN
MT	0350	04020G31	1300	06/1300 24/1000	-SN	FEW004 BKN009 BKN014	00/M01	995	RESN
MT	0420	--	700	06/P1500 24/1100	-SN	VV///	M00/M00	995	RESN
MT	0450	04021G31	500	06/0800 24/0650	SN	VV///	M00/M01	995	
MT	0520	04020G31	600	06/0900 24/0550	SN	VV///	M01/M01	996	
MT	0550	04020G30	800	06/1200 24/P1500	SN	VV///	M01/M01	996	
MT	0620	04023G34	1000	06/1200 24/1000	-SN	FEW007 SCT012 BKN018	M01/M02	996	RESN
MT	0650	04022G35	2100		-SN	FEW010 SCT016	M00/M02	997	RESN
MT	0720	03021G38	4700		-SN	FEW012 SCT018 BKN024	M00/M02	997	
MT	0750	04021	3800		-SN	FEW008 SCT010 BKN022	M00/M02	997	
MT	0850	03020G33	9999		SG	FEW009 SCT026 BKN035	00/M03	998	
MT	0920	03019G30	9999		-SHSN	FEW007 BKN030	00/M03	998	RESN
MT	0950	03020	9999		-SHSN	FEW007 BKN035	01/M03	999	RESN

APPENDIX 4, Figure 1 Automated Meteorological Records - Edinburgh Airport - 27 February 2001. (Page 1 of 2)

OBS	Time	Wind (kt)	vis (m)	IRVR (m)	Wx	Cloud	Temp/ Dewpoint (°C)	QNH (mb)	Remarks
MT	1020	03017	9999			BKN035	01/M03	999	RERA
MT	1050	03020G32	9999			BKN045	01/M03	999	RERA
MT	1120	03019	9999			FEW035 SCT080	02/M03	1000	
MT	1150	03017	9999			FEW040 BKN080	02/M03	1000	
MT	1220	03017G29	9999			FEW035	02/M03	1000	
MT	1250	03016	9999			FEW035	02/M03	1000	
MT	1320	03017	9999			FEW035	02/M03	1000	
MT	1350	03017G27	9999			FEW090	02/M03	1001	
MT	1420	03017	9999			FEW040 BKN080	02/M03	1001	
MT	1450	03016	9999			SCT040 BKN070	02/M03	1001	
MT	1520	03017	9999			BKN070	02/M04	1001	
MT	1550	03016	9999			FEW040 BKN070	02/M04	1002	
MT	1620	03017	9999			FEW040 BKN080	02/M03	1002	
MT	1650	03017G27	9999			SCT040 BKN080	02/M03	1002	
MT	1720	03016	9999			SCT045 BKN080	02/M03	1002	

APPENDIX 4, Figure 1 Automated Meteorological Records - Edinburgh Airport - 27 February 2001. (Page 2 of 2)

Time (UTC)	0020	0050	0120	0150	0220	0250	0320	0350	0420	0450	0520	0550	0620	0650	0720	0750	0850
Wind Direction (degM)	040	030	030	030	040	040	040	040	XXX	040	040	040	040	040	030	040	030
Mean Wind (kt)	23	24	24	20	24	22	23	20	XXX	21	20	20	23	22	21	21	20
Gust Wind (kt)	36	37	37		37	32	33	31		31	31	30	34	35	38		33
Visibility (metres)	4,100	1,900	1,600	1,100	800	1,100	2,100	1,300	700	500	600	800	1,000	2,100	4,700	3,800	10,000
IRVR RW24 (metres)				1,300	1,200	900		1,000	1,100	650	550	1,500	1,000				
Moderate Snow																	
Light Snow																	
Snow Grains																	
Light Snow Showers																	
Recent Rain																	
No Precipitation																	
Temperature (degC)	1	1	0	0	0	0	0	0	0	0	-1	-1	-1	0	0	0	0
Dew Point (degC)	0	0	0	0	0	0	0	-1	0	-1	-1	-1	-2	-2	-2	-2	-3

Time (UTC)	0920	0950	1020	1050	1120	1150	1220	1250	1320	1350	1420	1450	1520	1550	1620	1650	1720
Wind Direction (degM)	030	030	030	030	030	030	030	030	030	030	030	030	030	030	030	030	030
Mean Wind (kt)	19	20	17	20	19	17	17	16	17	17	17	16	17	16	17	17	16
Gust Wind (kt)	30			32			29			27						27	
Visibility (metres)	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
IRVR RW24 (metres)																	
Moderate Snow																	
Light Snow																	
Snow Grains																	
Light Snow Showers																	
Recent Rain																	
No Precipitation																	
Temperature (degC)	0	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2
Dew Point (degC)	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-4	-4	-3	-3	-3

APPENDIX 4, Figure 2 Graphical Presentation of Recorded Weather Observations

Figure 1 Ground Track Plots

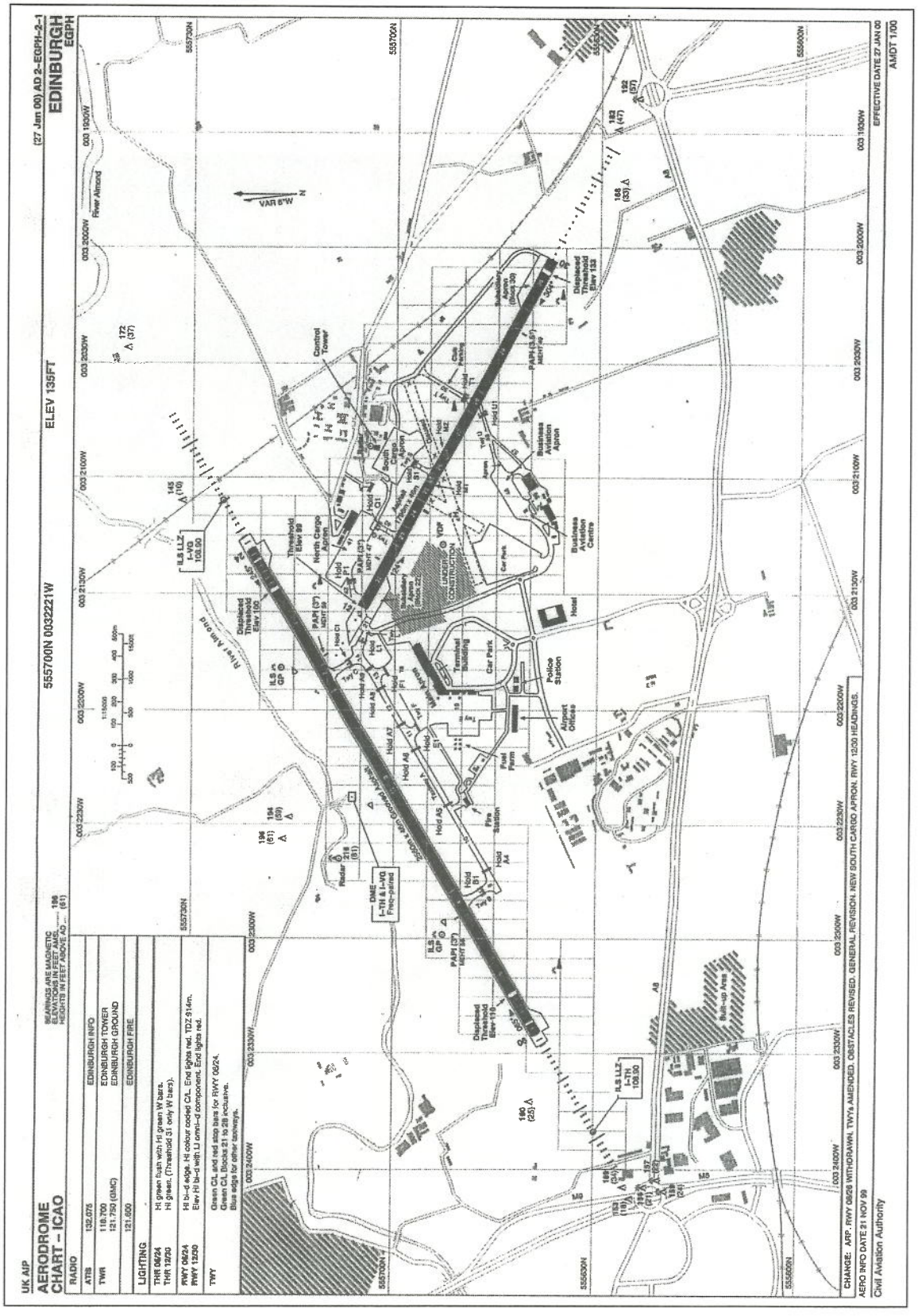


Figure 2 Edinburgh Airport Chart

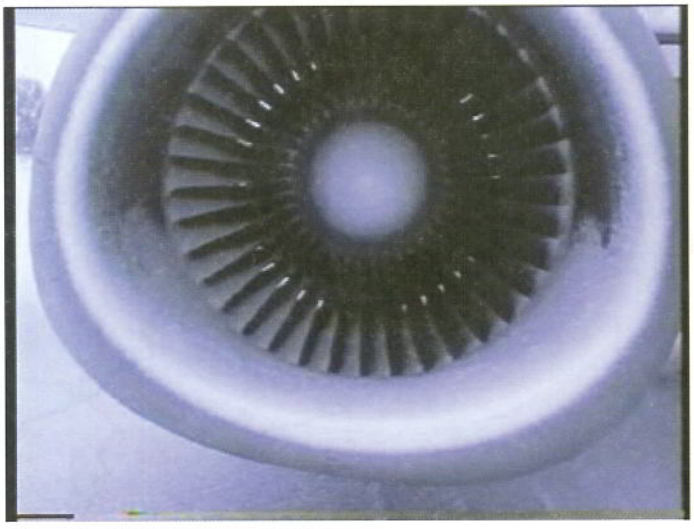
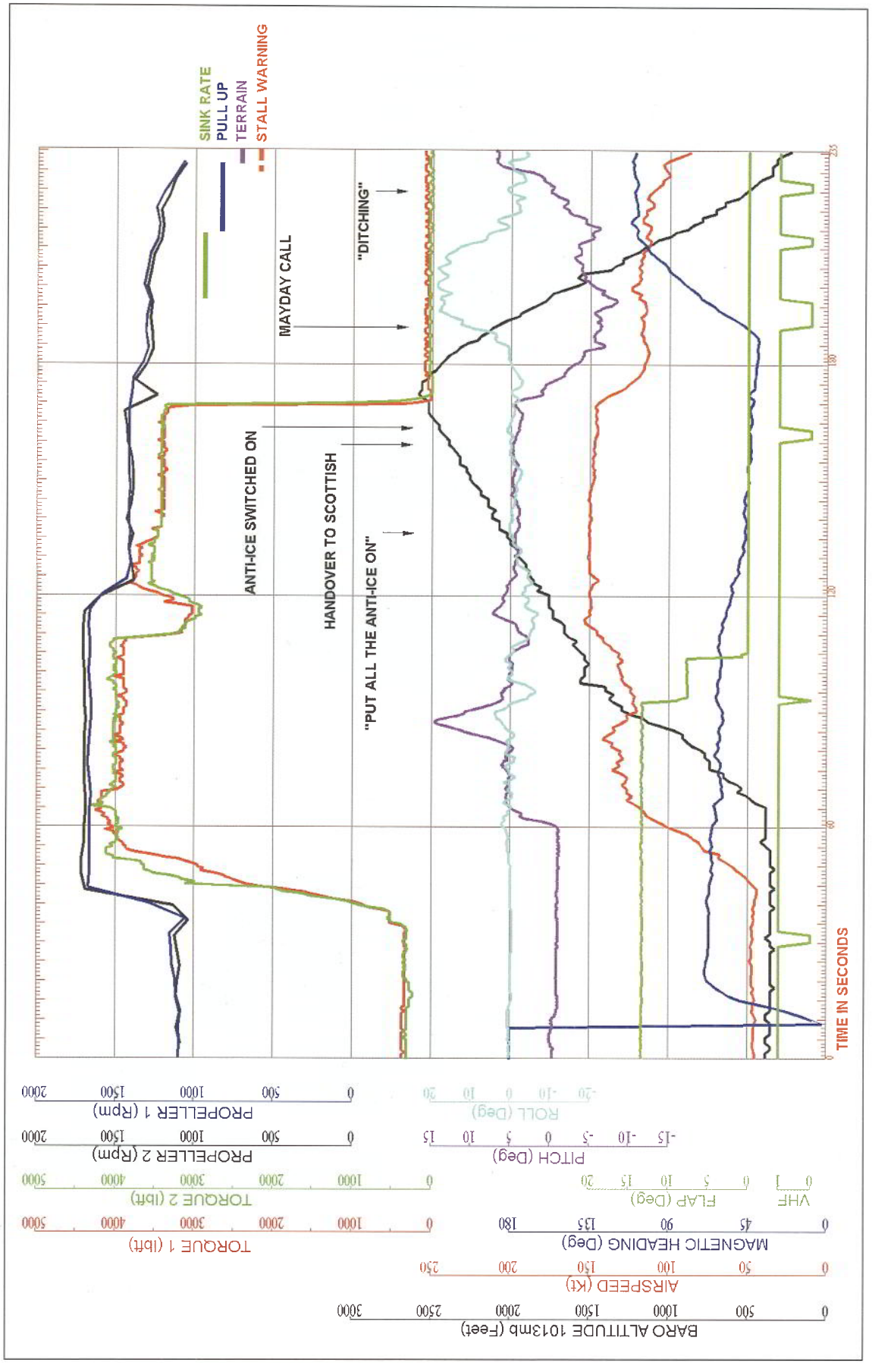
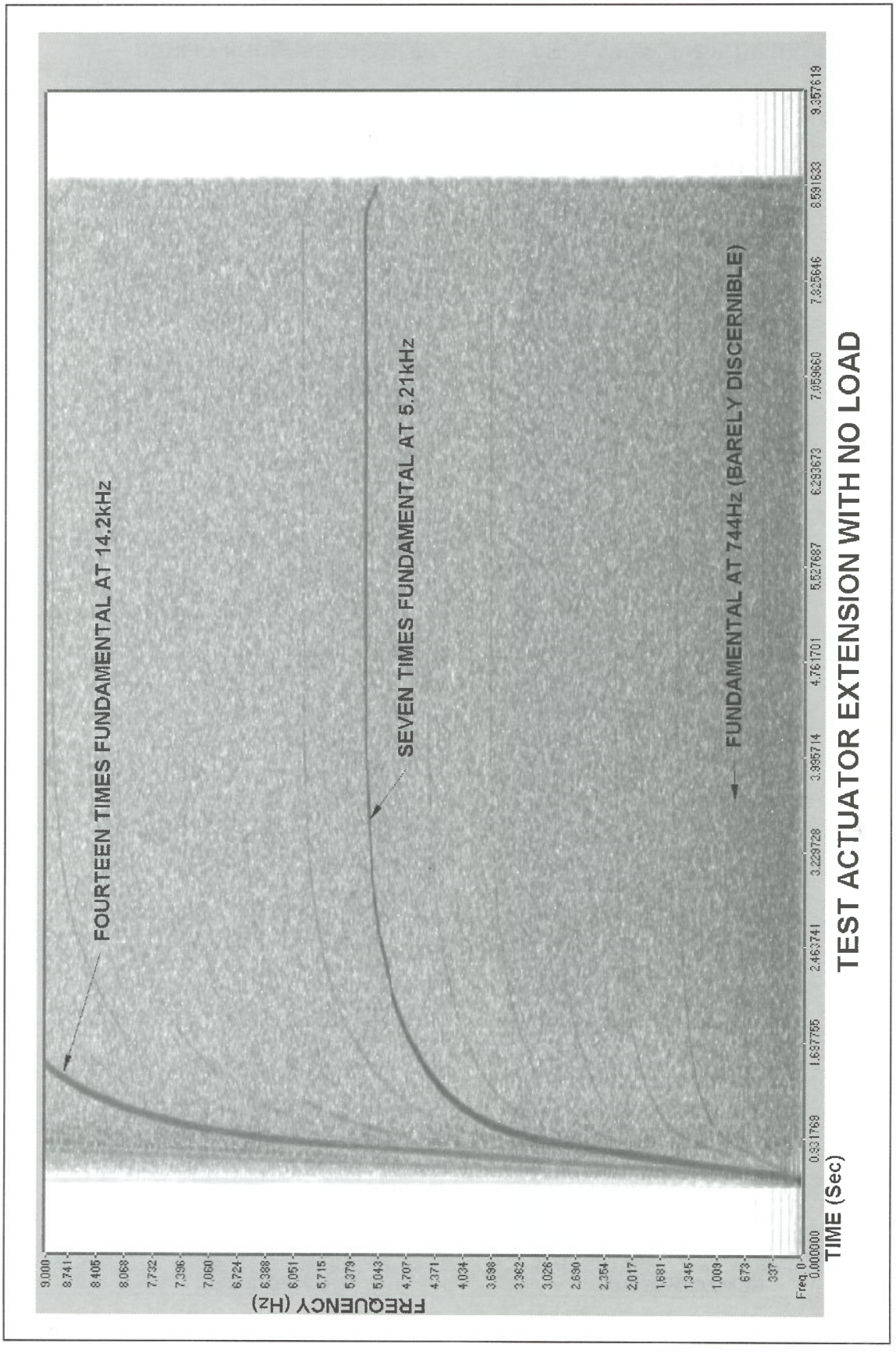


Figure 3 Snow Deposits in Engine Intakes of other Aircraft at Edinburgh during the morning of 27 February 2001



APPENDIX 6 Flight Data Recorder



APPENDIX 7 CVR Spectral Analysis — Test Actuator

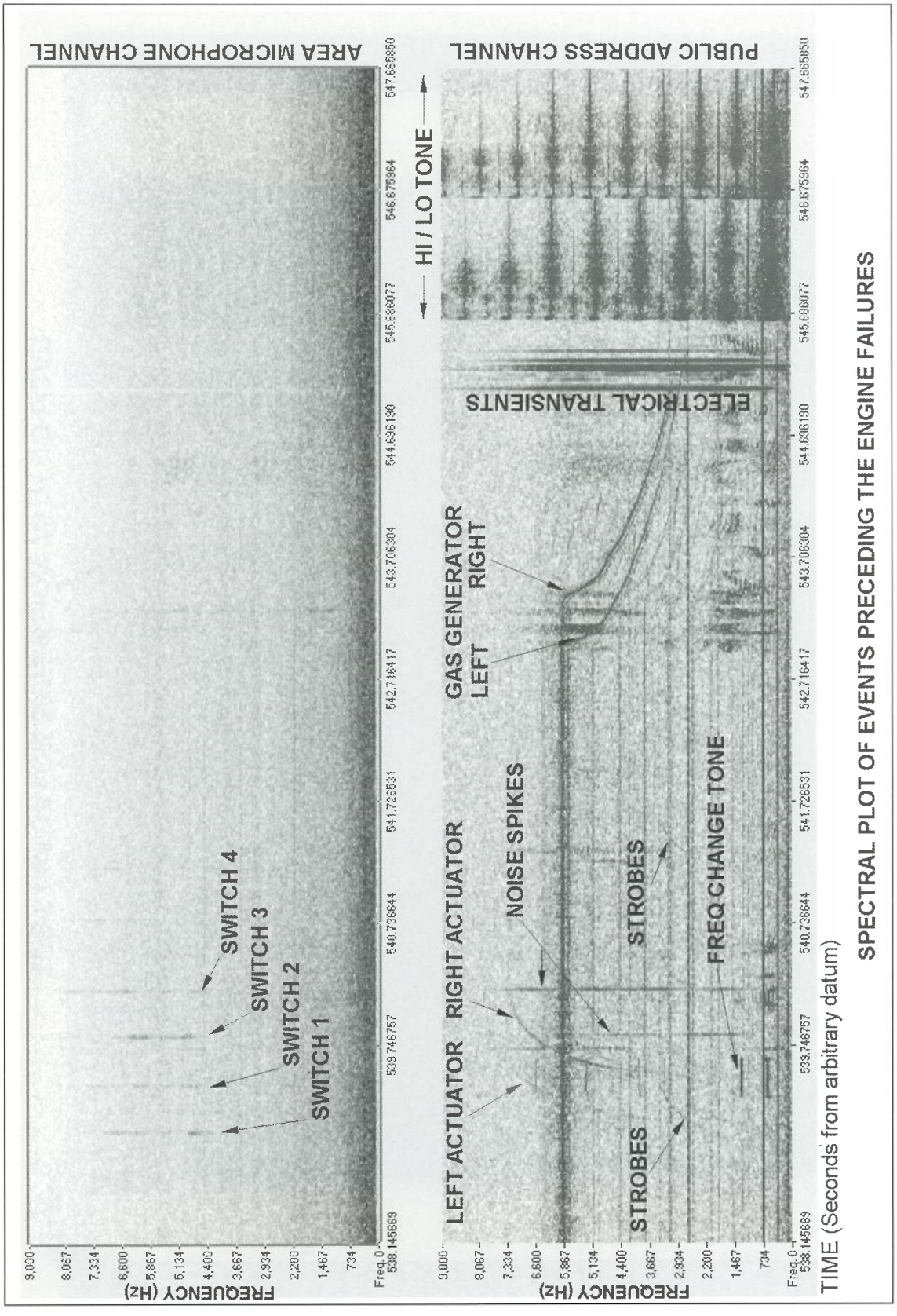
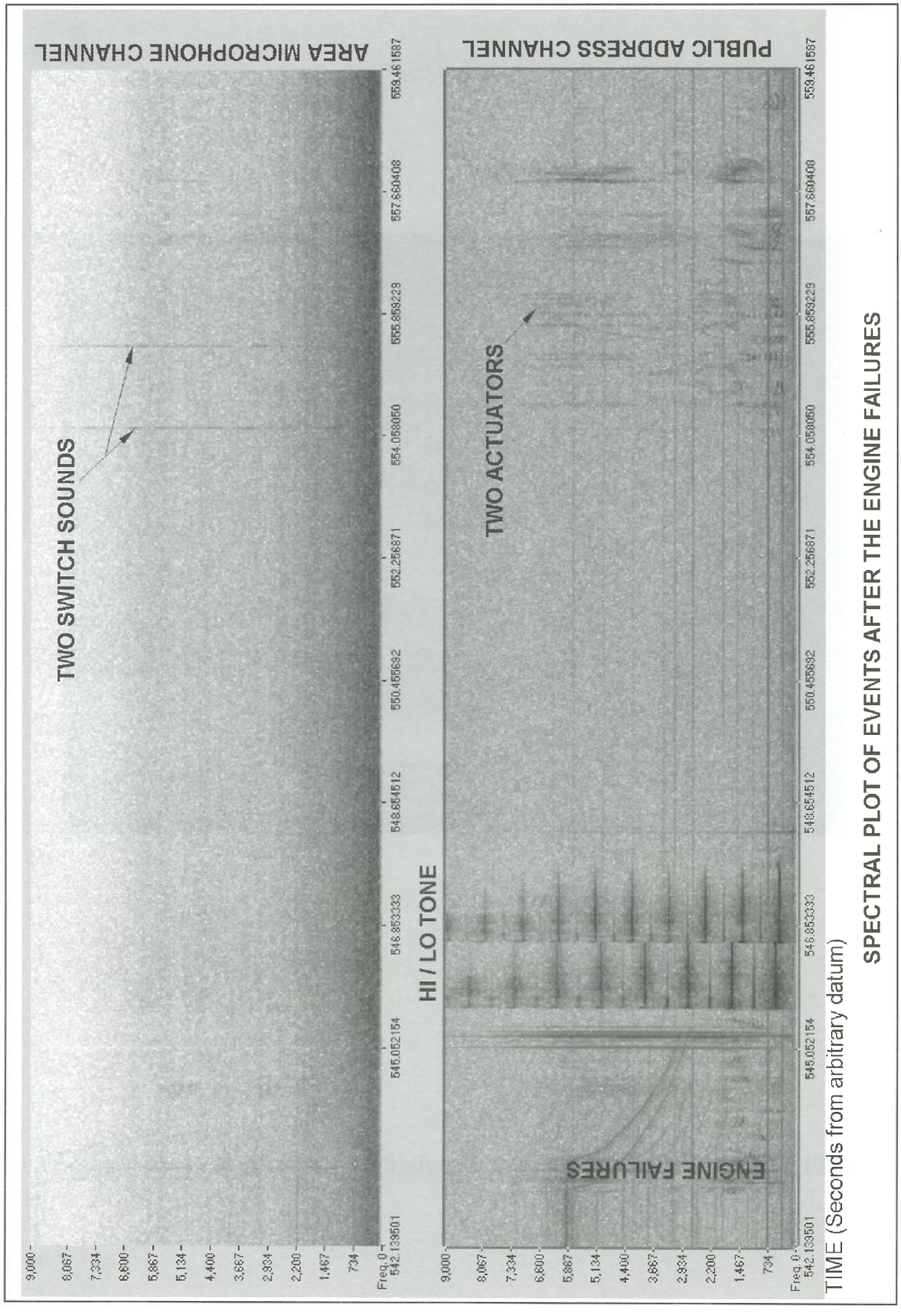


Figure 1 CVR Spectral Analysis — Pre Engine Failures



SPECTRAL PLOT OF EVENTS AFTER THE ENGINE FAILURES

Figure 2 CVR Spectral Analysis — Post Engine Failures

APPENDIX 9 Engine Intake Flow Simulation — Test Rig Fan Arrangement

APPENDIX 10

Manufacturer's All Operator Message Reference SD002/02
Issued 4 March 2002

Through the experience of one operator it has been discovered that failure to install engine intake covers/bungs when parked can allow ice/snow build up in the engine air intake, immediately ahead of the aft vane of the inertial separator and up into the upper plenum area. Heat generated during pre-flight engine running could cause any build-up of ice/snow in the upper plenum areas to melt and fall, creating an accumulation in the lower nacelle where, given the appropriate conditions of near or sub-zero temperatures it may re-freeze.

Simultaneous deployment of the inertial separator vanes onto this accumulated ice/snow could potentially cause a complete and simultaneous double engine power loss. (See note (1) below).

As a result the following procedures should be adopted where there is any doubt surrounding the proper installation of the intake covers/bungs (see note (2) below) in conjunction with the previous presence of either falling snow or sub-zero temperatures:-

Tactile inspections of the engine nacelle intakes must be completed;
Inspection of the intakes must be carried out using either a ladder or raised platform so that the interior of each intake, up to and including the aft vane of the inertial separator, is clearly visible.

A visual inspection of the intake from ground level may NOT identify ice or snow that has formed in the plenum (see Note (3) below). This area MUST be clear before flight, thus:

<u>Presence of Snow/Ice Detected in the Intake</u>
The engine upper access panels must be removed and all snow/ice deposits removed from the compressor intake plenum chamber and lower nacelle intake. Once the panel is replaced, intake bungs must be fitted until immediately prior to engine start and thereafter, Aircraft Flight Manual procedures followed.

Manufacturer's All Operator Message Reference SD002/02
Issued 4 March 2002

No Snow/Ice Detected in the Intake

The engines should be started and run for a minimum of 5 minutes with stabilised oil temperatures (warm up time can be reduced with selection of ground fine or reverse). The anti-ice vanes should be cycled at least twice on each engine throughout this period. Any snow/ice accumulation on the top of the intake mesh is likely to melt or be loosened by vibration and will either enter the engine or drip onto the lower intake and be expelled by operation of the anti-ice vanes. Since the intakes have already been verified as clear of snow/ice prior to the engine run, there should be no build up in the lower intakes likely to disrupt mass flow.

Notes

(1) Deployment of anti-icing vanes at low engine power settings with ice/snow contamination present in the region of the bypass door is unlikely to cause adverse effect on engine operation.

(2) Considerable material may have accumulated in plenum chambers during periods of falling snow before intake covers were fitted and may remain undetected therein after a lengthy period parked with covers/bungs in position.

(3) Absence of ice/snow on the exterior of the aircraft or in the intake system is NOT a reliable guide to the presence or otherwise of contaminant in the plenum chamber(s).

SAFETY REGULATION GROUP

FLIGHT OPERATIONS DEPARTMENT COMMUNICATION

CIVIL AVIATION AUTHORITY

Flight Operations Department, Aviation House, Gatwick Airport South, Gatwick West Sussex, RH6 0YR

17/2001

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1 DE/ANTI-ICING OF AIRCRAFT

1.1 This Communication applies to both ground and flight operations.

1.1.1 JAR-OPS and CAP 360 both require operators to establish procedures for de-icing and anti-icing, to ensure aeroplanes are free from ice and snow. The inspection of the aeroplane, following de/anti-icing must ensure that neither degradation of engine performance, aerodynamic characteristics nor any mechanical interference by an accumulation of ice will occur, and that the airframe will remain free of ice for the appropriate holdover time.

1.1.2 The AEA (Association of European Airlines) publish a booklet annually, titled "Recommendations for De-icing/Anti-Icing of Aircraft on the Ground". The booklet incorporates definitions and holdover times that are acceptable to the Authority. Revision 15, which was published in September 2001, includes revised holdover times and additional information relating to new de-icing methods. The document may be viewed on the AEA website (**www.aea.be** and click on Special Publications).

1.1.3 An AIC (Pink) is about to be published to include the revised holdover times, and additional information from the following sources;

- JAA Administrative & Guidance Material Section Four: Operations, Part Three: Temporary Guidance Leaflet 4 - "Proposed AMC OPS 1.345 Ice and Other Contaminants - Procedures".
- JAA Operational Directive OST 01-3 – "Use of thickened de-icing/anti-icing fluid".
- CAA experience from incidents including ice and snow accretion in engine intakes of turbo-prop and low by-pass engined aircraft.

1.1.4 Following a fatal accident to one UK registered aircraft and a serious incident to another, a recent Specific Objective Check (SOC 1/2001) was completed to review the manner in which operators address the hazards associated with ice and snow accretion in the air intakes of turbo-prop and low by-pass turbine engines. Analysis of the reports identified that, in some cases, a number of safety-related issues exist, which should be considered by all operators. These are as follows:

- Operations Manual and Maintenance Management Exposition procedures for de/anti-icing and winter ground handling were inadequate. Operators should review their Operations Manual and Maintenance Management Exposition and amend as necessary to include:

  1. Who is responsible for the de/anti-icing of the aircraft;
  2. Specific procedures for removal of contaminants from engine intakes, other intakes and undercarriage;
  3. Fitting/removal of blanks to engine intakes, and other intakes;
  4. Type specific de/anti-icing procedures;
  5. Operational guidance on the precautions to be taken when aircraft are moved from a heated hanger to sub-zero conditions; and
  6. Instructions relating to the removal of snow and ice from engine and other intakes should be developed.

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- Training of flight crew, ground handling and engineering staff is inadequate. Appropriate time should be allocated to deliver a meaningful syllabus, and the training/competence of contracted organisation staff should also be considered. Ground de/anti-icing procedures should be covered during type related initial and recurrent training of flight and ground crew.
- The procedure for selection of engine de/anti-icing in flight should be reviewed with the support of engine/airframe manufacturers where necessary.
- Flight Safety Programmes fail to highlight winter operations issues to the operators' personnel and contracted organisations' staff. A Flight Safety Programme would be most effective if completed immediately prior to the onset of winter.
- Quality systems should be improved to address de/anti-icing and winter ground handling standards, and must include contracted organisations.
- Ground handling contracts do not include sufficient operator or aircraft type specific information and the transfer of responsibility for snow and ice precautions, between ground staff and flight crew, needs to be clarified.
- Access equipment for intake inspections is not readily available.

1.1.5 Operators should therefore review their standards in each of the areas detailed above, and ensure that the revised holdover times are implemented in their Operational documentation.

1.1.6 The CAA is grateful for the operators' full and frank contribution to the Special Objective Check, which has resulted in the foregoing recommendations.

2 SLUSH COVERED RUNWAYS FRICTION REPORTS

2.1.1 Flight Operations Department Communication (FODCOM) 2/98 gave information regarding operations from runways contaminated by slush. It stated that under certain circumstances an unofficial friction co-efficient would be passed to pilots upon request. This will no longer be the case.

2.1.2 The Authority is aware that the runway friction measuring machines currently available do not give a reliably accurate reading in conditions of slush or thin deposits of wet snow. Accordingly, a Notice to Aerodrome Licence Holders (NOTAL 1/99) and an amendment to the Manual of Air Traffic Services have been produced. These state that in conditions of slush, pilots shall be informed that measurements of co-efficients of friction are unreliable and, consequently, braking action assessments are not available. Unofficial readings will not be given.

2.1.3 The above practice will continue to place the responsibility upon pilots to decide whether to operate in such conditions. AIC 61/1999 (Pink 195) gives guidance on operations from contaminated runways.

2.1.4 FODCOM 2/98 Item 3 - Slush Covered Runways Friction Reports. This item is now cancelled.

Captain D J Chapman
Head Flight Operations Department
20 October 2001

Recipients of new FODCOMs are asked to ensure that these are copied to their 'in house' or contracted maintenance organisation, to relevant outside contractors, and to all members of their staff who could have an interest in the information or who need to take appropriate action in response to this Communication.