

SECTION IV - EMERGENCY PROCEDURES

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INTRODUCTION

The Procedures described in this chapter are recommended by Airbus to achieve C-295 safe and efficient operation. As a result of the subsequent experience of both operators and the manufacturer there may be modifications to these Procedures. Any modifications will be reflected at the appropriate time by means of Revisions.

Like the rest of the Aircraft Operations Manual, these Procedures have not been certified by aviation authorities. Although Airbus takes maximum care while preparing this manual, the operator is responsible for the adoption of both Manual and its contents, as well as its adaptation to the operators modus operandi where appropriate.

If any information or Procedure in this Aircraft Operations Manual contradicts the "C-295 Flight Manual", the latter shall take precedence. There may be differences between each of them due either to the order in which particular steps are performed, or other steps or aspects addition, which while different, are not contradictory.

The Emergency Procedures describe the required actions to protect both the aircraft and its occupants from imminent risk or critical damage due to both imminent or actual failure of any aircraft component or system.

APPLICATION PRINCIPLES

As the Emergency Procedures are not routine, their application follows the "Read and Do" principle, except for those containing "Memory Items".

Some Emergency Procedures refer to the "ENGINE SHUTDOWN" Procedure. In this case, the applicable procedure will be either the "IN-FLIGHT ENGINE SHUTDOWN" or "GROUND ENGINE SHUTDOWN" procedure, as appropriate.

MEMORY ITEMS

Some procedures contain specific actions that have to be memory-performed as soon as circumstances do permit.

These actions are to be performed without resorting to the "Emergency Procedures List" in order to avoid any unnecessary delay at a time when the aircraft occupants safety has been compromised. These are printed in "**bold face**" and are called "Memory Items" or "Immediate Items".

In general, the "Memory Items" are performed in silence. However, some of these steps have to be announced loud and clear prior to being performed thus enabling its checking by the other C/M. These steps have been selected, for an incorrect performance could lead to a worse situation; to that purpose are identified with an asterisk (*) in the column indicating which C/M is to perform the action.

PRESENTATION

The Emergency Procedures expanded version is presented in Section IV. This version consists of basic procedures with explanations and clarifications to ease understanding about why and how some specific actions are to be performed.

Based on the "Expanded Emergency Procedures" an "Emergency Procedures List" has been drawn up, consisting of a summarized list of cockpit aiding procedures. The term "summarized" is applicable only to their length, as the number of actions is the same as in the Expanded List.

QUICK REFERENCE HANDBOOK

The "Emergency Procedures List" located in the quick reference handbook follows the same application principles. Memory items are also printed in "**bold face**" and those steps whose incorrect performance could lead to a worse situation are also identified with an asterisk indicated in the column indicating which C/M is to perform the action.

The "Emergency Procedures List" has a front page which indexes the emergency procedures. The meaning of colors and edges of the boxes is described below:

- If the box is red: the emergency procedure is only triggered by the MASTER WARNING light and the related IEDS warning message/s.
- If the box is yellow: the emergency procedure is only triggered by the MASTER CAUTION light and the related IEDS caution message/s.
- If the box is white: the emergency procedure can be triggered with/without a MASTER WARNING/CAUTION light.
- If the box edge is a continuous line: the emergency procedure includes memory items.
- If the box edge is a dashed line: the emergency procedure does not include memory items.

STARTING CONDITIONS

At each procedure start (expanded version) both technical conditions and or annunciations requiring the procedure application are stated. The following indications, which are the logical consequence of a specific technical failure, are not mentioned (for example: generator loss due to engine failure).

No action is taken, apart from situate landing gear lever up with positive climb, until:

- The appropriate flight path is established and minimum V2 is reached, and
- The aircraft is at least 400 ft. above the runway or above the adequate safe altitude considered for that particular Airport/Runway, except for any condition that precludes to achieve the above mentioned targets or impedes the control of the aircraft.

ACTION SEQUENCE FOR AN EMERGENCY PROCEDURE

1. IDENTIFICATION VERIFICATION:

- C/M detecting an actual or imminent emergency will immediately notify the other C/M. (Way of expression must not lead the other crew member to prejudge which procedure is applicable).
- Both acoustic warnings and MASTER Lights will be cancelled by either C/M **once the problem is identified and confirmed.**
- Before initiating an Emergency Procedure, verify that the affected system is correctly configured and its C/Bs are in. Only one attempt shall be made to reset a C/B.
- All the available indications must be cross-checked whenever possible to confirm that the system functions incorrectly.
- The Pilot in Command will request the applicable procedure.

2. DISTRIBUTION OF TASKS (TASKS SHARING):

- The Pilot in Command designates the PF.

These procedures are written assuming that C/M-1 is both Pilot in Command (PIC) and Pilot Flying (PF). Nevertheless, C/M-2 may be designated as PF for those flight phases in which this would give a greater safety level. It is essential that the PIC defines clearly who is acting as PF.

Those steps which require all the crew to perform the action are designated as ALL at the end of the step.

- Steps assigned to loadmaster

These steps must be accomplished by C/M-2 when loadmaster is not on board.

3. PERFORMING "MEMORY ITEMS":

As soon as the situation allows it, the "Memory Items" will be performed, if any.

4. READING PERFORMANCE:

- As soon as the situation allows it, C/M-1 will ask C/M-2 to read out the "Emergency Procedures List".

C/M-2 will read out loud the whole text applicable, including all the "Memory Items" as already performed. The text will be read only when C/M-1, if involved, is paying attention. C/M-1 must confirm that he/she has understood each point before proceeding.

Those steps whose incorrect performance could lead to a serious situation are identified with an asterisk (*) in the column indicating which C/M performs the action and **must be checked and confirmed by the other C/M before performing.**

- Both actions and decisions must be performed by the designated crew member:

If C/M-1 is the crew member designated to perform the corresponding step, C/M-2 will read the complete step, i.e. the action to perform and its purpose. C/M-1 will confirm that the action has been performed correctly by result repeating. C/M-2 will check it.

If C/M-2 is the crew member designated to perform the corresponding step, he will read the complete step and confirm that the action has been performed correctly by result repeating. C/M-1 will check it when possible.

When C/M-1 has to make a decision, C/M-2 will read all the options available and C/M-1 will decide which is appropriate for the situation.

5. PROCEDURE COMPLETED:

- Once an Emergency Procedure has been initiated, it must be continued until totally completed (procedure-completed or the word END). If an interruption is required, the sequence must be continued later.
- If an emergency procedure envisages steps affecting the landing procedure, C/M-2 shall advise C/M-1.
- At procedure end C/M-2 should say ".....Procedure Completed".
(e.g. *DC GENERATOR OVERHEAT Procedure Completed*)
- Both C/Ms shall undertake an analysis of the consequences of the failure for the rest of the flight and observe any restrictions arising as a result of the failure.

GENERAL

SMOKE OR FIRE AT THE COCKPIT OR CARGO CABIN

Fire evidence at both cockpit or cargo cabin

and / or

WARNING MASTER BELL Acoustic Warning

CARGO SMK with / without **LAV SMK**

NOTE

If a fire is identified, apart from the procedure described, try to extinguish it by using the appropriate extinguishers.

1. Masks and Goggles **ON / ADJUSTED / 100% / EMERGENCY** **ALL**
- Each C/M adjusts his mask, C/M-2 checks that the Oxygen Switch is set to ON and both C/M set the Mixture Selector to 100% position to avoid smoke-associated toxic emissions inhalation.

CAUTION

The oxygen masks must be adjusted correctly while the pressurized oxygen supply is used. Any leak will cause a considerable oxygen supply duration decrease as well as the temperature decrease of oxygen flowing from the mask.

NOTE

The Supply Selector will be set to EMERGENCY for smoke/vapour cleaning of both masks and goggles, and returned NORMAL position once cleared.

2. MASK Pushbutton **PRESS** **ALL**
- Each C/M presses the MASK pushbutton on his communications panel and, if the breathing noise is disturbing, presses the INPH HOT pushbutton and uses the PTT with the headphones or with the cockpit speakers.

3. Crew status **REPORT** **ALL**
- Each crew member reports to C/M-1 "Oxygen on".

4. Cockpit Door **CLOSE** **2**
- Close the Cockpit Door to make it as sealed as possible.

5. Recirculation and Avionics Fans.....OFF 2

This action avoids smoke from moving from an affected zone to others that are not thus aiding for better diagnose concerning fire origin.

NOTE

If the windshield mists up when the Recirculation Fans are turned off, switch on the windshield heater.

6. Passengers Signs ON 2
7. Pressurization Mode selectorMAN 2
8. Manual Rate of Change selector FULL INCREASE 2
9. Manual Cabin Altitude selectorUP 2

Keep the Manual Altitude Selector at UP position until:

- A. Cabin altitude or 10000 ft MSL or MEA (whichever higher) is reached, if there are passengers on-board and there is not enough oxygen for them all.
- B. Aircraft altitude is cabin reached if there are no passengers on-board and/or the aircraft altitude is below 10000 ft.

NOTE

When Cabin altitude reaches 10000 ft, CABIN warning light will appear.

10. ATC / Loadmaster NOTIFY 1/2

C/M-1 notifies the situation to the Loadmaster.

C/M-2 notifies the emergency to the corresponding ATC and, if necessary, his intention to initiate the descent procedure.

11. DescentA.R. 1

If it is required and depending on the above mentioned conditions, initiate the descent procedure.

CAUTION

If any on-board inflammable material is likely to fire dangerously, consider Cargo Jettison recommendations in AFM section 3. Refer to "CENTER OF GRAVITY LIMITATIONS" in Section I.

Bear in mind that if the fire has not been extinguished, ramp opening might intensify it.

12. Whether the smoke has dissipated or not, land at the nearest suitable airport, and apply the "SMOKE EVACUATION" Emergency Procedure, if possible.

CAUTION

Bear in mind that if the fire has not been extinguished, ramp opening might intensify it.

NOTE

If it is necessary to continue the flight for a considerable time with the aircraft depressurized, refer to "Fixed Oxygen System - Maximum Duration" table in "Chapter 35 - Oxygen" (Volume I - Systems Description).

SMOKE EVACUATION

NOTE

Do not apply this procedure until the memory steps concerning the corresponding smoke or fire procedure have been completed (Oxygen Masks and Goggles).

This procedure describes two methods for smoke evacuation:

The first one is a partial depressurization with air-conditioning air flow maintaining a maximum cabin altitude of 10000 ft. This method allows highly concentrated smoke to be evacuated once the fire has been extinguished.

The second method consists of completely depressurizing the aircraft and both cockpit window and the Ramp/Cargo Door opening. This method is used in extreme cases where the first method is insufficient.

- | | | |
|---|---------------|---|
| 1. Loadmaster | NOTIFY | 1 |
| C/M-1 notifies the situation to the Loadmaster. | | |
| 2. Pressurization Mode selector | MAN | 2 |
| 3. Manual Rate of Change selector | FULL INCREASE | 2 |
| 4. Manual Cabin Altitude selector | KEEP UP | 2 |

Maintain the Manual Cabin Altitude selector at UP position until:

- A. Cabin altitude of 10000 ft MSA or MEA (whichever higher) is reached, if there are passengers on-board and there is not oxygen enough for them all.
- B. Aircraft altitude is cabin reached if there are no passengers on-board and or the aircraft altitude is below 10000 ft MSL.

NOTE

If depressurization in Manual Mode is not enough for smoke eliminating, use the PRESS DUMP switch.

NOTE

When Cabin altitude reaches 10000 ft, CABIN warning light will appear.

- | | | |
|---|--------------|-----|
| 5. ATC | NOTIFY | 2 |
| C/M-2 notifies the emergency to the corresponding ATC and, if necessary, his intention to initiate descent procedure. | | |
| 6. Descent | A.R. | 1 |
| If it is required, and depending on the above mentioned conditions, initiate descent procedure. | | |
| A. <u>If the smoke goes-off:</u> | | |
| 7. Restore normal operation. (END) | | |
| B. <u>If the smoke does not go-off:</u> | | |
| If once descent is completed, the smoke has not gone out, follow up the procedure: | | |
| 7. PRESS DUMP Switch..... | ON | 2 |
| This action equalizes both aircraft internal and external pressures to allow the window opening. | | |
| 8. IAS..... | MAX 200 KIAS | 1 |
| Refer to Airspeed Limitations in Section I - Operating Limitations. | | |
| 9. Headphones..... | ADJUST | 1/2 |
| 10. RH window | OPEN | 2 |
| This action will be enough for smoke-evacuating if cockpit located. | | |

NOTE

If the smoke is cargo cabin mainly located, C/M-2 will open the cockpit door and C/M-1 will order to the Loadmaster to open the cargo door after warning the passengers (if any) about it.

WARNING

Before opening the cargo door, the Loadmaster must fit his Safety Harness / Parachute.

11. Re-establish normal conditions once the smoke has been evacuated.
12. Land at nearest suitable airport.

LAVATORY SMOKE / FIRE

Fire evidence or smoke coming from the lavatory
and / or

WARNING MASTER BELL Acoustic Warning

LAV SMK

- | | | |
|---|-------|---|
| 1. SMK DETECT C/B (R, A5) | PULL | 2 |
| 2. Cockpit Door | CLOSE | 2 |
| 3. Avionic Fan | ON | 2 |
| 4. Extinguish the fire with portable extinguisher | | 2 |

The C/M performing the fire suppression operation, should wear the appropriate respiratory and eye protection equipment and use emergency oxygen.

NOTE

Maximum duration of each portable oxygen bottle (when full) can be calculated from the "Portable Oxygen System - Maximum Duration" table in "Chapter 35 - Oxygen" (Volume I - Systems Description).

After the extinguisher has been discharged, ensure lavatory door remains closed for the remaining of the flight.

- 5. If necessary, apply Emergency Procedure "SMOKE EVACUATION".
- 6. Whether or not smoke has dissipated, if it cannot be visually verified that the fire has been extinguished, land immediately at the nearest suitable airport.

LANDING WITH ABNORMAL LANDING GEAR CONFIGURATION

The indication about one or more landing gear legs not down and locked, with the landing gear lever DOWN position, is given by a flashing red light on the landing gear lever and the red stripe on the corresponding Landing Gear Viewer.

NOTE

Apply this procedure only after applying "LANDING GEAR EMERGENCY LOWERING" Emergency Procedure and if all previous attempts to lock down the landing gear have failed.

1. ATC / TWR..... NOTIFY 1/2
 C/M-2 notifies ATC and TWR about problem.
 C/M-1 decides the moment for landing, considering both fuel reserves and visibility conditions.
2. Crew Briefing..... IMPART 1
 C/M-1 coordinates with C/M-2 and Loadmaster the emergency, and specifies the time remaining for preparation and instructs the passengers.
 The C/M-2, or the Loadmaster, will follow the instructions about warning the passengers of an imminent landing and the way it will be announced (using of the PA, paratroops jumping bell or seat belts signalling flashing).
3. Landing gear condition.....CONFIRM 1/2
 Before following the procedure, confirm the landing gear condition in order to determine actions to be taken while landing.

A. If the nose wheel is not locked down:

After touchdown, keep the nose up with the elevator and the trim. Retract the flaps and use reverse thrust (especially in the last moments of the landing run) to reduce the nose-down moment and delay the lowering of the nose. Minimize the use of the brakes. Lower the nose gently onto the runway while there is still effective elevator control.

After the nose contact, keep control with differential braking.

Continue with point 4.

B. If one main landing gear leg is not locked down:

It is recommended to land with all the landing gear up.

Nevertheless, if it is necessary to land with asymmetric main landing gear:

- Try to consume as much fuel as possible from the side with the insecure landing gear (XFEED and pump) without exceeding the fuel unbalance limits.
- Once the aircraft has touched down, keep the wings levelled as long as possible.
- Once the aircraft has banked, use both reverse thrust and brakes on the safe leg side.

- Try to keep runway-alignment with rudder, available brakes (without antiskid) and the nose wheel steering.

Continue with point 4.

C. If both main landing gear legs are not locked down:

It is recommended to land with all the landing gear up.

If it is nevertheless necessary to land with the landing gear insecure:

- Make initial contact with the rear landing gear fairing at an angle of 8-10° nose up.
- Try to keep runway-alignment with rudder, available brakes and nose wheel steering.

Continue with point 4.

D. If all the landing gear is up:

Try to keep runway-alignment with rudder and asymmetric power.

Hold the nose up as long as possible.

4. Cargo cabin and Cockpit..... PREPARE ALL

- Secure any loose equipment
- Lock both harnesses and seat-belts

5. Move the centre of gravity (if required).

C/M-2 determines the C.G. rear limit from the Balance Sheet and calculates the effect of passengers relocation (in case of either Nose Wheel or Main Landing Gear Insecure).

C/M-1 orders to the Loadmaster to relocate passengers in the established situation or on the side with the secure landing gear (in case of Asymmetric Landing Gear).

Before entering the circuit:

6. V _{ref}	CALCULATE	2
7. Passengers Signs	ON	2
8. Crew Oxygen	CLOSE	2
9. Landing Data.....	CONFIRM	1/2
10. Exterior Lights	A.R.	1
11. Emergency and Entrance Lights.....	ON	2
12. Altimeters / Radioaltimeter.....	ADJUST __ & X-CHECK	1/2
13. Cabin Report	RECEIVE	1/2

Verify that the Loadmaster has completed the cargo cabin preparation and that both himself and the passengers have their seat-belts on.

14. Normal Procedure "APPROACH".....PERFORM ALL

Before landing:

Make a normal approach and try to achieve a smooth touchdown.

Avoid a high path, with power close to idle, or landing at a close-to-stall speed.

15. Flaps.....23° (DN) 2

As ordered by C/M-1, C/M-2 extends the flaps gradually, as appropriate, to reach its maximum deflection.

NOTE

The next step cancels the landing gear visual indication system (red band in all landing gear visual indicators).

16. LDG GR PDS C/B (U3, A3)PULL 2

17. TERR INHB, GPWS INHB and AUDIO INHB Pushbuttons PRESS 2

18. Bleed switchesOFF 2

19. PRESS DUMP Switch..... ON 2

20. PSHR DSARM Pushbutton.....A.R. 1

The Stick-Pusher must be disconnected to avoid its actuation when high attitude angles are forced.

21. V_{ref} MAINTAIN 1

22. Normal Procedure "BEFORE LANDING"PERFORM ALL

At 150 ft:

23. "Brace for impact"ORDER 2

Imminent contact is announced through the passengers address, or by flashing the seat-belt signalling or with the paratroops jump horn.

With aircraft stopped:

24. Parking Brake (if required).....SET 1

25. FFLs DIRECTLY TO OFF 2

26. Fire Handles..... PULL AND TURN BOTH TO DISCH 1 2

This action prevents from intensifying any possible fire due to broken pipes.

27. Fuel Pumps.....OFF 2

28. EvacuationORDER 1

29. MSTR ELEC (BAT and GEN) SwitchesOFF 1

FORCED LANDING

Preparation (if time enough):

If there is time enough for it, passengers should be instructed about and cabin should be prepared for an emergency landing.

NOTE

Wherever possible, all passengers must sit together leaving no spaces in between each other and at the forward part of the cargo cabin.

- | | | |
|---|----------------------|-----|
| 1. Loadmaster | NOTIFY | 1/2 |
| The C/M-1 coordinates the emergency with both C/M-2 and Loadmaster specifying the remaining time to prepare the cabin and instruct the passengers. | | |
| The Loadmaster will follow every instruction to warn of an imminent landing and the way announce it (by using PA, paratroops jump horn or seat-belt signalling). | | |
| 2. ATC | NOTIFY | 2 |
| Notify identification, IAS, position, altitude and heading. | | |
| Describe the emergency, state intentions and ask for help. | | |
| 3. IFF (if no other code is required) | 7700 | 2 |
| 4. Altimeters / Radioaltimeters | ADJUST ___ & X-CHECK | 1/2 |
| 5. Fuel Reduction / Transfer | CONSIDER | 1 |
| Consume the maximum fuel as possible in order to reduce the aircraft weight. | | |
| Reduce the fuel in the auxiliary tanks to a minimum. | | |
| 6. V_{ref} | CALCULATE | 1/2 |
| 7. Pressurization | ADJUST | 2 |
| Make sure that the cabin pressure is decreasing correctly to be totally depressurized at 500 ft (differential pressure 0) over the field. | | |
| 8. Oxygen | CLOSE / OFF | 2 |
| Close the oxygen, if open, to avoid intensifying any potential fire. | | |
| 9. Cargo cabin and Cockpit..... | PREPARE | ALL |
| <ul style="list-style-type: none"> – Secure any loose equipment. – Prepare the survival equipment – Fasten both harnesses and seat-belts | | |
| 10. Exterior lights | A.R. | 1 |
| 11. Emergency and Entrance Lights..... | ON | 2 |

12. Cabin reportRECEIVE 1/2
 Verify that the Loadmaster has completed the cargo cabin preparation and all passengers are properly seated and secured.

13. Final memory actions..... REVIEW 1/2

Approach:

NOTE

Plan the contact identifying both any potential obstacles and wind direction.

14. Passengers signs..... ON 2

15. Landing GearA.R. 2

Consider, depending on the chosen field for landing, convenience to land with the landing gear extended or retracted.

16. Flaps.....23° (DN) 2

At C/M-1 request, C/M-2 extends the flaps gradually, depending on previous considerations, to maximum deflection.

NOTE

The next step cancels the landing gear visual indication system (red band in all landing gear visual indicators).

17. LDG GR PDS C/B (U3, A3)A.R. 2

If decided to land with the landing gear up, pull out the circuit breaker to cancel the HORN acoustic alarm (Gear Up).

18. TERR INHB, GPWS INHB and AUDIO INHB Pushbuttons PRESS 2

19. Bleed switchesOFF 2

20. PRESS DUMP Switch..... ON 2

21. Last ATC Message TRANSMIT 2

Transmit all the required information on position, weather conditions, rescue instructions and number of passengers.

22. ELT ON 2

23. PSHR DSARM PRESS 2

24. Vref..... MAINTAIN 1

25. Fuel PumpsOFF 2

26. Harness..... LOCK 1/2

Imminent contact:**27. "Brace for impact"ORDER 2**

Imminent contact is announced through the passenger address or by flashing the seat-belts signalling or with the paratroops jump horn.

NOTE

If the field conditions are adequate to perform a secure landing, consider delaying the engines shutdown until the aircraft has stopped.

Upon contact:**28. FFLs DIRECTLY TO OFF 2***

At C/M-1 request, C/M-2 first announces this action prior to perform it.

29. Fire Handles PULLED 2**NOTE**

If necessary, and if there is enough hydraulic pressure available, retract the landing gear during landing, by pressing the Override Button and moving the Landing Gear Lever to UP.

When the aircraft stops:

30. Fire Handles TURN BOTH TO DISCH 1 2

This action prevents from intensifying any possible fire due to broken pipes.

31. EvacuationORDER 1**32. Portable ELT REMOVE LM****33. MSTR ELEC (BAT and GEN) SwitchOFF 1**

DITCHING

Preparation (if time enough)

If there is time enough for it, the passengers should be instructed about and the cabin should be prepared for an emergency landing.

NOTE

Wherever possible, all passengers must sit together leaving no spaces in between each other and at the forward part of the cargo cabin.

- | | | |
|--|----------------------|-----|
| 1. Loadmaster | NOTIFY | 1/2 |
| <p>The C/M-1 coordinates the emergency with both C/M-2 and Loadmaster specifying remaining time to prepare the cabin and instruct the passengers.</p> <p>Loadmaster will follow every instruction to remind passengers of life jackets adjustment, warn them of an imminent ditching and the way to announce it (by using PA, paratroops jump horn or seat-belt signalling).</p> | | |
| 2. ATC | NOTIFY | 2 |
| <p>Report identification, IAS, position, altitude and heading.</p> <p>Describe the emergency, state intentions and ask for help.</p> | | |
| 3. IFF (if no other code required) | 7700 | 2 |
| 4. Altimeters / Radio altimeter | ADJUST ___ & X-CHECK | 1/2 |
| 5. Reduction / Transfer of Fuel | CONSIDER | 1 |
| <p>Consume the maximum possible fuel in order to reduce the aircraft weight and increase the flotation.</p> <p>Reduce fuel in the auxiliary tanks to a minimum.</p> | | |
| 6. V _{REF} | CALCULATE | 1/2 |
| 7. Pressurization | ADJUST | 2 |
| <p>Make sure that the cabin pressure is decreasing correctly to be totally depressurized at 500 ft (differential pressure 0).</p> | | |
| 8. Oxygen | CLOSE / OFF | 2 |
| <p>Close the oxygen, if open, to avoid intensifying any potential fire.</p> | | |
| 9. Cargo cabin and Cockpit | PREPARE | ALL |
| <ul style="list-style-type: none"> – Secure any loose equipment – Prepare survival equipment – Done and adjust life jackets – Fasten both harnesses and seat-belts | | |
| 10. Exterior lights | A.R. | 1 |

11. Emergency and Entrance Lights.....	ON	2
12. Cabin Report	RECEIVE	1/2
Verify that the Loadmaster has completed cargo cabin preparation and all passengers have their life jackets and they are properly seated and secured.		
13. Final memory actions.....	REVIEW	1/2

Approach:**NOTE**

Plan contact parallel to wave motion and close to crest of wave. Keep wings levelled. With crosswind consider aligning nose into the wind with slight cross-wise wave motion. If the aircraft bounces, do not let the nose go down.

14. Passengers signs.....	ON	2
15. Landing gear	UP / THREE "UP"	2
16. Flaps.....	23° (DN)	2
At C/M-1 request, C/M-2 gradually extends the flaps as appropriate until maximum deflection is reached.		

NOTE

The next step cancels the landing gear visual indication system (red band in all landing gear visual indicators).

17. LDG GR PDS C/B (U3, A3)	PULL	2
18. TERR INHB, GPWS INHB and AUDIO INHB Pushbuttons	PRESS	2
19. Bleed switches	OFF	2
20. PRESS DUMP Switch.....	ON	2
21. Last ATC Message	SEND	2
Report any significant information on position, sea/weather conditions, rescue instructions and nearby ships (if any).		
22. ELT	ON	2
23. PSHR DSARM Pushbutton.....	PRESS	1
24. V _{REF} (rate of descent as low as possible)	MAINTAIN	1
25. Fuel Pumps	OFF	2
26. Harness.....	LOCK	1/2

Imminent ditching:

27. "Brace for impact"	ORDER	2
Imminent contact is announced through the passenger address, or by flashing the seat-belts signalling or with the paratroops jump horn.		
28. Nose Up Attitude	10° APPROXIMATELY	1
Minimize vertical speed.		

Upon contact:

29. FFLs DIRECTLY TO OFF 2*

At C/M-1 request, C/M-2 announces and performs the following action.

30. Fire Handles PULLED 2

When the aircraft stops:

31. Fire Handles TURN BOTH TO DISCH 1 2

This action is intended to avoid fire from broken fuel pipelines.

32. Evacuation ORDER 1

33. Portable ELT REMOVE LM

34. MSTR (BAT and GEN) Switches OFF 1

WARNING

Do not open any doors if (even partially) under water.

NOTE

After ditching, the aircraft will float with one wing in the water. If the right wing is submerged, both lower right paratroops door and crew door as well will be under water. If the left wing is submerged, both emergency door and lower left paratroops door will be under water.

ON GROUND EMERGENCIES

ENGINE FIRE OR SEVERE DAMAGE ON GROUND

WARNING MASTER BELL Acoustic Warning

and some or all of the following indications:

1 E/FIRE or **2 E/FIRE** FIRE BELL Acoustic Warning

FIRE warning light below FFL

FIRE warning light on Fire Handle

and/or

Noise or Structural vibrations with abnormal and/or inconsistent engine indications.

- | | | |
|---|------------------------|-----------|
| 1. PLs (both) | GI | 1 |
| 2. Parking Brake (with aircraft stopped) | SET | 1 |
| 3. FFL (affected engine) | DIRECTLY TO OFF | 2* |

NOTE

Consider delaying foregoing action on non-affected engine until airplane is safely positioned.

- | | | |
|---|---------------------------|-----------|
| 4. Fire Handle (affected engine) | PULL / CHECK READY | 2* |
|---|---------------------------|-----------|

Check that the READY lights come on.

A. If all the fire indications go off:

5. Follow up the "ENGINE SHUTDOWN ON GROUND" Emergency Procedure. (END)

B. If any fire indication persists:

- | | | |
|---|--------------------------------------|-----------|
| 5. Fire Handle (affected engine) | TURN TO DISCH 1 / CHECK EMPTY | 2* |
|---|--------------------------------------|-----------|

Turn the Fire Handle fully to the left (DISCH 1) and hold until related EMPTY light comes on.

- | | | |
|-----------------------|----------------|----------|
| 6. Clock | RUNNING | 2 |
|-----------------------|----------------|----------|

B.1. If all fire indications go off before 30 seconds:

7. Follow up the "ENGINE SHUTDOWN ON GROUND" Emergency Procedure. (END)

B.2. If any fire indication persists after 30 seconds:

- | | | |
|---|--------------------------------------|-----------|
| 7. Fire Handle (affected engine) | TURN TO DISCH 2 / CHECK EMPTY | 2* |
|---|--------------------------------------|-----------|

Turn the Fire Handle fully to the right (DISCH 2) and hold until other EMPTY light comes on.

- | | | |
|--|-----|---|
| 8. Bleed switches | OFF | 2 |
| 9. Fuel Pumps | OFF | 1 |
| 10. GPU Switch..... | OFF | 2 |
| 11. Follow up the "GROUND EVACUATION" Emergency Procedure. | | |

ENGINE FAILURE AT TAKEOFF

If an engine failure occurs before reaching the decision speed at takeoff (V_1), apply the Emergency Procedure "ABORTED TAKEOFF".

If an engine failure occurs above V_1 , the takeoff must be continued. The corresponding procedure will not be applied until the takeoff is complete, except in case of:

- ENGINE FIRE OR SEVERE DAMAGE or
- ENGINE FAILURE WITH AUTOFEATHER FAILURE

ABORTED TAKEOFF

If a failure occurs before V_1 the C/M-1 announces "ABORT" and the crew shall carry out the following actions:

- | | | |
|---|-----------|----------|
| 1. PLs | GI | 1 |
| Reverse thrust can be used, if conditions permit, until problems with directional controllability appear. | | |

WARNING

If Take-Off is aborted due to engine fire or severe damage, do not use reverse power.

- | | | |
|--|-----------------------------|------------|
| 2. Brakes | A.R. | 1 |
| If stopping distance is marginal, apply maximum brakes with constant pedal deflection. Do not cycle. | | |
| 3. Control Column | SLIGHT FORWARD FORCE | 2 |
| 4. Corresponding Emergency Procedure | APPLY | 1/2 |
| Once the Aircraft is stopped the corresponding Emergency Procedure shall be applied. | | |

ENGINE SHUTDOWN ON GROUND

- | | | |
|---|-----------------|----|
| 1. PLs (both)..... | GI | 1 |
| 2. Parking Brake (with aircraft stopped) | SET | 1 |
| 3. FFL (affected engine)..... | DIRECTLY TO OFF | 2* |
| 4. Fuel PUMP pushbutton (affected engine) | PRESS / CHECK | 2 |

Check that the OFF amber light on the corresponding pushbutton comes on.

5. Electrical SystemCHECK BUS TIE 2
If the BAT BUS TIE magnetic indicator is not in line, set selector to ON. If still not in line, set the selector to OFF and press the GEN BUS TIE pushbutton.
6. Generator (affected engine).....OFF 2
7. Reduce electrical loads to below 400 A. Refer to "List of Electrical Loads" in the "DUAL DC GENERATORS FAILURE" Emergency Procedure.

NOTE

Consider return to Parking and/or apply Emergency Procedure "GROUND EVACUATION", as necessary.

EMERGENCY BRAKING

This procedure will be applied when no hydraulic pressure is available at the Normal Brakes System pumps.

1. Brakes PressureCHECK 2
The C/M-2 checks BKR PRESS and EMER BKR PRESS indicators and notifies C/M-1 on this issue.

A. If pressure is available at the normal brakes accumulator:

NOTE

With 3000 PSI at the BKR PRESS Indicator, the accumulator allows at least six normal brakes full operations.

2. AntiSkidOFF 2

With the aircraft firmly grounded:

3. Normal BrakesAPPLY SMOOTHLY 1
Press the brakes pedals, in a smooth and progressive way, until the aircraft speed decreases to the taxiing speed. Release them only in case any wheel can get blocked. In case of brakes releasing, check the accumulator pressure through the BKR PRESS Indicator.

CAUTION

Do not pump the brakes to avoid accumulator pressure fast discharging.

NOTE

The pressure in the normal brakes accumulator will quickly drop to zero once 1500 psi are reached.

NOTE

With normal brakes, differential braking capacity persist.

Consider, while selecting the runway, that the required landing distance could be increased in up to 35%. Nevertheless, it will mainly depend on braking technique and runway condition. See "LANDING DISTANCES TABLE".

4. If there is no more pressure in the Normal Brakes accumulator, continue with section B.

B. If there is no pressure available at the normal brakes accumulator:

NOTE

Before using the emergency brakes, completely release the pressure on normal brakes pedals.

NOTE

With 3000 psi at the EMER BKR PRESS indicator, the accumulator allows at least six emergency brake full operations, if correctly used.

NOTE

Antiskid is unavailable.

With the aircraft firmly grounded:

2. Emergency BrakeAPPLY SMOOTHLY

1

Apply the Emergency Brakes pulling back the EMER & PARK BR lever, without pulling the trigger, in a smooth and progressive way, until the aircraft speed decreases to the taxiing speed, releasing it only in case any wheel can get blocked. In case of brakes releasing, check the accumulator pressure through the EMER BKR PRESS Indicator.

CAUTION

Do not pump the brakes to avoid accumulator pressure fast discharging.

NOTE

The pressure in the emergency brake accumulator will quickly drop to zero once 1500 psi are reached.

Consider while selecting the runway, that the required landing distance could be increased in up to 35%. Nevertheless, it will mainly depend on braking technique and runway conditions. See "LANDING DISTANCE TABLE".

3. If there is no more pressure in the emergency brakes accumulator, continue with section C.

C. If there is no pressure available at the normal brakes accumulator and the emergency brakes accumulator:

- 2. Use reverse judiciously for braking, as well as for directional control in conjunction with rudder control, and if available, with nosewheel steering.

NOTE

If necessary, as braking aid, consider to retract the landing gear.

ELECTRICAL SMOKE OR FIRE ON GROUND

Smoke or fire from known, or unknown, electrical source

with/without

WARNING MASTER BELL Acoustic Warning

CARGO SMK with / without **LAV SMK**

NOTE

If the fire is identified, besides the described procedure, try to extinguish it by using the appropriate portable extinguishers.

- | | | |
|---|-----------------|------------|
| 1. Tower / Loadmaster / Ground Personnel | NOTIFY | 1/2 |
| C/M-1 alerts both ground personnel and Loadmaster, if any. | | |
| C/M-2 shall notify the tower. | | |
| 2. MSTR ELEC BAT and GEN Switches (and GPU) | OFF | 2 |
| 3. Both PLs | GI | 1 |
| 4. Parking Brake (with aircraft stopped) | SET | 1 |
| 5. Both FFLs | DIRECTLY TO OFF | 2 |
| 6. If necessary, follow up the "GROUND EVACUATION" Emergency Procedure. | | |

GROUND EVACUATION

Once the aircraft has stopped and, in case of emergencies such as fire, explosion, landing gear fracture while exiting the runway, etc. if evacuation is required, proceed as follows:

WARNING

If a hot brake is suspected or main wheel well fire exists, use reverse thrust to stop the aircraft, once the aircraft is stopped do not use parking brake.

If a main wheel well fire exists, or if hot brakes are suspected, chock the nose wheel only.

Do not approach the main wheel area when extreme temperatures due to excessive braking are suspected. All personnel other than the fire department should evacuate the immediate area. The area on both sides of the wheel will be cleared of personnel and equipment for at least 300 feet. If conditions require personnel to be close to any overheated wheel or tire assembly, the approach should only be from the fore or aft of the wheel area.

- | | | |
|---|------------------------|------------|
| 1. Parking Brake (with aircraft stopped)..... | SET | 1 |
| 2. Tower, Loadmaster, Ground Personnel | NOTIFY | 1/2 |
| C/M-1 shall notify the ground personnel and loadmaster, if any, of the situation. | | |
| C/M-2 shall notify the Tower. | | |
| 3. FFLs | DIRECTLY TO OFF | 2 |
| 4. Both Fire Handles | PULL | 2 |
| 5. Both Fire Handles (if required)..... | TURN TO DISCH 1 | 2 |
| Perform this step in the event of aircraft structural damage, even with no fire warning. This action will prevent the possibility of fire from liquids spilling from broken pipes or casings. | | |
| 6. Emergency Lights | ON | 2 |
| 7. PRESS DUMP switch | ON | 2 |
| 8. Ramp | A.R. | 2 |
| If necessary and/or possible, check the hydraulic system is connected and open the ramp fully to facilitate the evacuation. | | |
| 9. Evacuation | ORDER | 1 |
| 10. MSTR ELEC BAT and GEN Switches (and GPU)..... | OFF | 1 |
| If GPU is connected and ON, press GPU Switch. | | |
| 11. Leave the aircraft | | ALL |

ENVIRONMENTAL CONTROL SYSTEM FAILURES

AIR-CONDITIONING SMOKE

Smoke coming from the Air-Conditioning System

with / without

WARNING MASTER BELL Acoustic Warning

CARGO SMK with / without **LAV SMK**

NOTE

This procedure does not try to extinguish any possible fire. If the fire is identified, the priority is to try to extinguish it by means of portable extinguishers and do not ventilate while it continues.

1. **Masks and Goggles** **ON / ADJUSTED / 100% / EMERGENCY** **ALL**

Each C/M adjusts his mask, C/M-2 checks that the Oxygen Switch is set to ON and both C/M set the Mixture Selector to 100% position to avoid smoke-associated toxic emanations inhaling.

CAUTION

The oxygen masks must be adjusted correctly while the pressurized oxygen supply is used. Any leakage will cause a considerable oxygen supply duration reduction and also of the temperature of the oxygen flowing from the mask.

NOTE

The Supply Selector will be set to EMERGENCY in order to clean both masks and goggles from smoke and vapour and it will be set back to NORMAL once they are cleared.

2. **MASK Pushbutton** **PRESS** **ALL**

Each C/M presses the MASK pushbutton on his communications panel and, if breathing noise is disturbing, presses the INPH HOT pushbutton and uses the PTT with the headphones or with the cockpit speakers.

3. **Crew status** **REPORT** **ALL**

Each crew member reports to C/M-1 "Oxygen on".

4. Recirculation FansOFF 2

This action avoids smoke moving from an affected zone to others that are not and aids to a better diagnosis of its origin.

NOTE

If the windshield mists up after the Recirculation Fans are disconnected, connect the Windshield heating.

5. ATC / Loadmaster NOTIFY 1/2

C/M-1 notifies the Loadmaster about the situation.

C/M-2 notifies the corresponding ATC about the emergency.

6. Corresponding Bleed SwitchOFF 2

Switch off the left Pack, if most of the smoke affects the cockpit, or the right Pack if most of the smoke affects the cargo cabin.

- A. If the smoke decreases or does not increase (after 2 minutes):

The smoke was coming from the disconnected pack. If necessary, follow up the "SMOKE EVACUATION" Emergency Procedure. (END)

- B. If the smoke continues to increase:

7. Bleed Switch previously turned off..... ON 2

8. Other Bleed SwitchOFF 2

- B.1. If the smoke decreases or does not increase (after 2 minutes):

The smoke was coming from the disconnected pack. If necessary, follow up the "SMOKE EVACUATION" Emergency Procedure. (END)

- B.2. If the smoke continues to increase:

9. Bleed Switch previously turned off..... ON 2

10. Land at the nearest suitable airport.

11. If necessary, follow up the "SMOKE EVACUATION" Emergency Procedure.

PCKG BLEED

Air-Conditioning Panel PCKG BLEED amber light on.

Corresponding bleed magnetic indicator crossed

The warning comes on due to both bleed duct overpressure or Pack compressor outlet over-temperature.

1. PCKG BLEED pushbutton PRESS 2
- A. If the "PCKG BLEED" light goes off:
2. Check that the corresponding Bleed Magnetic Indicator is in line. The normal system conditions have been re-established. (END)
- B. If the "PCKG BLEED" light remains on:
2. Corresponding Bleed SwitchOFF 2

O.TEMP LIGHT ON (OUTLET PACK OVERTEMPERATURE)

Air-Conditioning Panel O.TEMP amber light on.

1. Recirculation FanCHECK / ON 2
- A. If the "O.TEMP" light goes off:
2. Keep flying in normal operation. (END)
- B. If the "O.TEMP" light remains on:
2. Corresponding Temperature selector knobROTATE TO COLD 2

NOTE

The O.TEMP light will go out normally in under 45 seconds.

- B.1. If the "O.TEMP" light goes off:
3. Continue with the Temperature Control in Automatic Mode. (END)
- B.2. If the "O.TEMP" light remains on:
3. O.TEMP Pushbutton PRESS 2
- This Action will set the Air Conditioning Temperature Control to Manual Mode. The Pushbutton MAN light comes on.
- B.2.1. If the "O.TEMP" light goes off:
4. Continue with the Temperature Control in Manual Mode. (END)

B.2.2. If the "O.TEMP" light remains on:

- | | | |
|-------------------------------------|-----|---|
| 4. Corresponding Bleed Switch | OFF | 2 |
|-------------------------------------|-----|---|

RAPID DEPRESSURIZATION

WARNING MASTER BELL Acoustic Warning

CABIN

Sharp increase of the cabin altitude and decrease of differential pressure

with/without

high level of noise, environmental condensation and temperature sharp decrease.

NOTE

The DOOR UNLK warning with origin at the crew door or ramp/cargo door will result in a cabin depressurization.

A. If flying altitude is over 15000 ft:

- | | | |
|-----------------------|-----------|-----|
| 1. Masks | ON / 100% | ALL |
|-----------------------|-----------|-----|

Each C/M adjusts his mask, C/M-2 checks that the Oxygen Switch is set to ON and both C/M set the Mix Selector to 100%.

- | | | |
|---------------------------------|-------|-----|
| 2. MASK Pushbutton | PRESS | ALL |
|---------------------------------|-------|-----|

Each C/M presses the MASK pushbutton on his communications panel and, if the breathing noise is disturbing, presses the INPH HOT pushbutton and uses the PTT with the headphones or with the cockpit speakers.

- | | | |
|----------------------|--------|-----|
| 3. Crew status | REPORT | ALL |
|----------------------|--------|-----|

Each crew member reports to C/M-1 "Oxygen on".

Proceed to Section B.

B. If flying altitude is below 15000 ft:

- | | | |
|--|-----------|---|
| 1. Passengers Signs | ON | 2 |
| 2. ATC / Loadmaster | NOTIFY | 2 |
| 3. IFF (if no other code required) | 7700 | 2 |
| 4. Automatic Pilot | DISENGAGE | 1 |
| 5. PLs | FI | 1 |
| 6. PRS | TOGA | 1 |
| 7. FI SEL Pushbutton | A.R. | 1 |

8. Descent (MAX V_{MO}) INITIATE 1

NOTE

Descend to 10000 ft or MEA, whichever higher.

CAUTION

If structural integrity is suspected, reduce airspeed as much as possible (min. V_{REF} / max. V_{FE}). Extend flaps 23° and landing gear.

CAUTION

The technical crew must use oxygen while the cabin altitude is above 10000 ft. The Loadmaster will supply oxygen to those passengers requiring it.

EXCESSIVE CABIN DIFFERENTIAL PRESSURE

Cabin Differential Pressure Indication in red zone.

- | | | |
|---|---------------|---|
| 1. Pressurization Mode selector | MAN | 2 |
| 2. Manual Rate of Change selector | FULL INCREASE | 2 |
| 3. Manual Cabin Altitude selector | KEEP UP | 2 |

Hold the Manual Cabin Altitude Selector at UP position to take and keep the Differential Pressure in the green zone.

A. If it is not possible to keep the differential pressure in the green zone:

- | | | |
|--|-----|---|
| 4. Bleed Switches..... | OFF | 2 |
| Check that the Cabin Pressure decreases (Cabin variometer with positive indication). | | |
| 5. PRESS DUMP Switch (with aircraft depressurized)..... | ON | 2 |

NOTE

The aircraft is considered to be depressurized when the Differential Pressure is approximately zero and the cabin altitude variation is zero.

NOTE

After landing, while reaching the parking position, open a window. (END)

A.1. If the CABIN warning comes on:

6. Follow up the "LOSS OF PRESSURIZATION (LOSS OF CABIN PRESSURIZATION)" Emergency Procedure.

LOSS OF PRESSURIZATION (LOSS OF CABIN PRESSURIZATION)

WARNING MASTER BELL Acoustic Warning

CABIN

Cabin Control Pressure Panel FAULT amber light on

Cabin altitude increases and differential pressure decreases

with/without

DOOR UNLK

NOTE

The DOOR UNLK warning with origin at the crew door or ramp/cargo door will result in a cabin depressurization. If at the end of this procedure, the DOOR UNLK warning is still on, consider to follow up the "DOOR UNLOCKED" Emergency Procedure.

- | | | |
|---|-----------|-----|
| 1. Masks | ADJUSTED | ALL |
| Each C/M adjusts his mask and C/M-2 checks that the Oxygen Switch is set to ON and both C/M set the Mixer Selector at NORMAL position. | | |
| 2. MASK Pushbutton | PRESS | ALL |
| Each C/M presses the MASK pushbutton on his communications panel, and if the breathing noise is disturbing, presses the INPH HOT pushbutton and use the PTT with the headphones or with the cockpit speakers. | | |
| 3. Crew status | REPORT | ALL |
| Each crew member reports to C/M-1 "Oxygen on". | | |
| 4. Passengers Signs | ON | 2 |
| 5. ATC / Loadmaster | NOTIFY | 2 |
| 6. Automatic Pilot | DISENGAGE | 1 |
| 7. Descent | INITIATE | 1 |

NOTE

Descent will be performed until the CABIN annunciator goes off or until MEA, whichever higher.

If the actual aircraft altitude is high as well as the Cabin Variometer pressurization loss, the descent will be performed at MAX V_{MO} .

CAUTION

If structural integrity is suspected, reduce airspeed as much as possible (min. V_{REF} / max. V_{FE}). Extend flaps 23° and landing gear.

CAUTION

Technical crew must use oxygen while the cabin is above 10000 ft. The Loadmaster will supply oxygen to those passengers requiring it.

8. PressurizationRESET 2

Reset the system setting the Pressurization Mode Selector to MAN and back to AUTO, checking that the FAULT amber light goes out.

- A. Pressurization panel "FAULT" light off:

(END)

- B. Pressurization panel "FAULT" light on:

9. PressurizationOPERATE MANUALLY 2

Set the Pressurization Control to Manual Mode in order to control the cabin altitude by means of both Manual Rate of Change Selector and Manual Cabin Altitude Selector.

NOTE

If the cabin altitude control cannot be reestablished in Manual Mode and there are no passengers, the flight can go on at cabin altitude of 10000 ft or higher.

NOTE

If the flight is necessary to continue for a considerable time with the aircraft depressurized, refer to "Fixed Oxygen System - Maximum Duration" table in "Chapter 35 - Oxygen" (Volume I - Systems Description).

WINDSHIELD/WINDOW CRACKED

Cockpit windshield and/or cargo cabin window cracked.

- | | | |
|-----------------------------------|----------|-----|
| 1. Harnesses and seat-belts | LOCK | ALL |
| 2. Layer with the crack | IDENTIFY | 1/2 |

Identify by any possible mean if the inner layer is cracked. A good way to identify if the inner layer is cracked is to try to touch the crack with the finger nail or with a pen.

A. Inner layer is cracked:

CAUTION

Outer layer integrity cannot be guaranteed.

- | | | |
|----------------------------------|------------|-----|
| 3. Helmet / Goggles | DON | ALL |
| 4. SEAT BELTS Pb | ON | 2 |
| 5. Pressurization Mode Sel | MAN | 2 |
| 6. Manual Cabin Alt | A.R. (0.6) | 2 |

Use Manual Cabin Altitude Selector to set "Cab delta P" at 0.6 and maintain it.

- | | | |
|-------------------|----------------|---|
| 7. Altitude | 10000 FT / MEA | 1 |
|-------------------|----------------|---|

Maintain an altitude of 10000 ft or MEA, whichever higher.

8. Land at nearest suitable airport.

3000 ft above landing airfield altitude:

- | | | |
|-------------------------|---------------|---|
| 9. Pressurization | AUTO / ADJUST | 2 |
|-------------------------|---------------|---|

Set Pressurization Mode Selector in AUTO.

Verify if landing field elevation, as entered in the Airfield Altitude Indicator, is correct. If not, change it as required with the A knob.

Enter the reported QNH with the B knob.

Verify that the R knob is in its normal position (dot and triangular mark facing each other).

(END)

B. Inner layer is not cracked:

3. Continue flight normally.

(END)

DOOR UNLOCKED

WARNING MASTER BELL Acoustic Warning

DOOR UNLK

with / without

Cabin altitude sharp increase and the differential pressure reduction

with / without

high level of noise, atmospheric condensation and temperature sharp decrease.

Do not initiate takeoff with the DOOR UNLK annunciator on.

NOTE

The DOOR UNLK warning with origin at the crew door or ramp/cargo door will result in a cabin depressurization. The CABIN warning will come on if the aircraft flies above 10000 ft. If the CABIN warning comes on, follow up the "LOSS OF PRESSURIZATION (LOSS OF CABIN PRESSURIZATION)" Emergency Procedure.

1. Passengers Signs (No Smoke and Seat Belts)..... ON 2
- A. If the crew door/ramp door light is on:
2. The aircraft will depressurize automatically. Follow up the "RAPID DEPRESSURIZATION" Emergency Procedure and land at the nearest suitable airport. (END)
- B. If the emergency door/paratroops door light is on:
2. Aircraft.....LEVEL AND STABILIZE 2
3. Safety Harness / Parachute..... FIT LM
At C/M-1 request, the Loadmaster fits his Safety Harness / Parachute.
4. Door Closed CHECK LM
At C/M-1 request, the Loadmaster checks visually that the door is closed and secures its locking device.
- B.1. The light goes off:
5. Continue flight normally. (END)
- B.2. If the light remains on, or both door and locking device cannot be checked:
5. Cabin Differential Pressure.....MAINTAIN POSITIVE 2
This will help hold the door in its secure position.
6. Assess whether it is advisable to keep flying or land at the nearest suitable airport. 1

AUTO FLIGHT SYSTEM FAILURES

ELEVATOR MISTRIM

"MISTRIM (TRIM NOSE UP)" or "MISTRIM (TRIM NOSE DN)" is displayed in both PFD

- | | | |
|---|-------------|-----|
| 1. Control Columns | HOLD FIRMLY | 1/2 |
| Before performing next step, be prepared for a soft control column movement. | | |
| 2. Elevator re-trim..... | A.R. | 1 |
| 3. If necessary, autopilot can be reengaged after manually trimming the airplane. | | |

PITCH TRIM FAILURE

"AP PITCH TRIM FAIL" is displayed in both PFD

- | | | |
|---|-------------|-----|
| 1. Control Columns | HOLD FIRMLY | 1/2 |
| Before performing next step, be prepared for an abrupt control column movement. | | |
| 2. Elevator re-trim..... | A.R. | 1 |
| 3. If necessary, autopilot can be reengaged after manually trimming the airplane. | | |

AILERON / RUDDER MISTRIM

"MISTRIM (L WING DN)" or "MISTRIM (R WING DN)" or "MISTRIM (TRIM NOSE LEFT)" or "MISTRIM (TRIM NOSE RIGHT)" is displayed in both PFD

A. If "MISTRIM (L WING DN)" or "MISTRIM (R WING DN)" is displayed:

- | | | |
|------------------------|-------------|-----|
| 1. Control Wheels..... | HOLD FIRMLY | 1/2 |
| 2. Normal Trim | A.R. | 1 |

NOTE

Trimming with AP/YD engaged is permitted by sequentially performing a small trim input followed by a period to stabilize, and repeating operation if necessary until MISTRIM annunciation disappears.

B. If "MISTRIM (TRIM NOSE LEFT)" or "MISTRIM (TRIM NOSE RIGHT)" is displayed:

- | | | |
|----------------------|-------------|-----|
| 1. Pedals | HOLD FIRMLY | 1/2 |
| 2. Normal Trim | A.R. | 1 |

NOTE

Trimming with AP/YD engaged is permitted by sequentially performing a small trim input followed by a period to stabilize, and repeating operation if necessary until MISTRIM annunciation disappears.

AUTOPILOT FAILURE WARNING

"AFCS FAIL" and/or "AP FAIL" and/or "AP/YD FAIL" is displayed in both PFD

And

Auto Pilot disengaged aural alert

NOTE

Automatic Pilot cannot be engaged again until the failure is not cleared.

- | | | |
|--|-------------------|-----|
| 1. Automatic Pilot | DISENGAGE / CHECK | 1/2 |
| Check that all failures have been cleared. | | |
| 2. Automatic Pilot | A.R. | 1/2 |

ELECTRICAL SYSTEM FAILURES

DUAL DC GENERATORS FAILURE

WARNING MASTER BELL Acoustic Warning

1 DC GEN and **2 DC GEN**

Magnetic indicators of both generators are crossed.

-
- | | | |
|---|-----------------------------|---|
| 1. BAT BUS TIE Selector | OFF | 2 |
| 2. Generators | RESET / ON (MAX 2 ATTEMPTS) | 2 |
| A. <u>If no generator is recovered:</u> | | |

CAUTION

When the TRU selector is not in OFF position, LH and RH miscellaneous buses are lost.

- | | | |
|---|------------|---|
| 3. TRU Selector..... | 1 | 2 |
| If the TRU-1 magnetic indicator is not in line, change to position 2 and check that its magnetic indicator stays in line. | | |
| 4. BAT BUS TIE Selector..... | ON | 2 |
| 5. Hydraulic Pumps..... | MAN / A.R. | 2 |
| When necessary, use only the hydraulic pump corresponding to the operative TRU (1 or 2). | | |
| 6. GEN Switches (1 and 2) | OFF | 2 |
| 7. Land at the nearest suitable airport. Reduce electrical loads below 300 A. Refer to "LIST OF ELECTRICAL LOADS" at the end of this procedure. (END) | | |

B. If only one generator is recovered:

3. Unrecovered GeneratorOFF 2
4. BAT BUS TIE Selector.....AUTO 2

Check that the BAT BUS TIE Magnetic Indicator is in line.

If the BAT BUS TIE magnetic indicator is not in line, the BUS UNTIE warning will come on. Set the BAT BUS TIE selector to ON. If the magnetic indicator is still not in line, set it to OFF and press the GEN BUS TIE pushbutton.

CAUTION

If it is not possible to tie the bus bars correctly, the battery will power the associated bars while not empty or disconnected.

5. Hydraulic PumpsMAN / A.R. 2

When necessary, use only the hydraulic pump corresponding to the operative generator (1 or 2).

6. Reduce electrical loads below 400 A. Refer to "LIST OF ELECTRICAL LOADS" at the end of this procedure. (END)

C. If both generators are recovered:

3. BAT BUS TIE Selector.....AUTO 2

(END)

Hydraulic pump #1 or #2 (under load)	60 (130) A
Windshield Heating (1)	44 A
Recirculation fan (1)	35 A

Table 4-1 List of electrical loads

BUS UNTIE

WARNING MASTER BELL Acoustic Warning

BUS UNTIE

Corresponding BAT-GEN Magnetic Indicator crossed

NOTE

It is a normal condition that this light comes on while at cross-start.

1. Bus bar RESET button (once only).....PUSH 2

Perform this action as soon as possible to avoid battery discharging.

A. If the BAT-GEN magnetic indicator goes to in-line position:

Continue normal operation. (END)

B. If the BAT-GEN magnetic indicator remains in crossline position:

2. BAT BUS TIE Selector..... ON 2

B.1. If the BAT BUS TIE Magnetic Indicator moves to in-line position:

The generator on the affected side will be isolated and power only its own bus. Its battery bus will be powered by the other generator.

3. Disconnect non-essential electrical loads to reduce the ammeter reading to below 400 A. Refer to "LIST OF ELECTRICAL LOADS" at the "DUAL DC GENERATORS FAILURE" Emergency Procedure. (END)

B.2. If the BAT BUS TIE Magnetic Indicator does not go to in-line position:

The battery bus bar on the affected side will be lost when the battery is discharged. Consider disconnecting the battery to save its charge for more critical phases of the flight.

3. BAT BUS TIE Selector.....OFF 2

4. GEN BUS TIE Pushbutton..... PRESS 2

Press the GEN BUS TIE pushbutton to balance any electrical loads and prepare for a possible subsequent failure in the generator.

5. Land at nearest suitable airport. If the battery has been disconnected or discharged, V/UHF and pitot heating on the affected side will not be available. Autopilot disconnection will occur. Consequently:
 - Transfer the functions between C/M-1 and C/M-2 if No. 1 Battery bus has failed.
 - Avoid icing zones.
 - Match the PL without indication with the other.

Other systems requiring special actions will have also been lost:

- If BAT bus 1 has been lost:

CAUTION

Ice Detector has been lost. If ice conditions are suspected, apply the next step to recover the system.

- A. **Inverters:** Main inverter has been lost, follow up the "INVERTER FAILURE" Emergency Procedure.
- B. **Communications:** IOP 1 has been lost; follow up the "IOP FAILURE" Emergency Procedure.
- C. **Flaps:** Land with the available flaps (according to cut-off level) with $V_{REF} + 1kt$ for each degree below 25° . Press the EGPWS FLAP OVRD pushbutton to avoid a nuisance warning. Refer to "LANDING DISTANCES TABLE" to ensure that the selected airport is landing convenient.
- D. **Landing Gear:** Follow up the "LANDING GEAR EMERGENCY LOWERING" Emergency Procedure. There is a valid landing gear indication.
- E. **Trim:** Only normal rudder, standby aileron and standby elevator trims are operative.
- F. **Engines:** The igniters in both engines are inoperative. Then, in flight, the engines cannot be restarted and autoignition is not operative.
- G. **Hydraulic Pumps:** Hydraulic pumps No. 1 and No. 3 have been lost. Use the remaining hydraulic pump for braking. Nose wheel steering is lost.
- H. **Ice Protection:** Left windshield heating has been lost.
- I. **EFIS:** C/M-1 PFD and C/M-2 ND have been lost. In C/M-1 side, to display PFD information in ND, switch off PFD in EFIS control panel.

(END)

- If BAT bus 2 has been lost:

- A. **Flaps:** Land with the available flaps (according to cut-off level) with $V_{REF} + 1kt$ for each degree below 25° . Press the EGPWS FLAP OVRD pushbutton to avoid a nuisance warning. Refer to "LANDING DISTANCES TABLE" to ensure that the selected airport is landing convenient.
- B. **Trim:** Only standby rudder, normal aileron and normal elevator trims are operative. Trim indication is lost.
- C. **Pressurization:** Automatic mode is lost, operate manually.
- D. **Engines:** The engines cannot be started in-flight.
- E. **Hydraulic Pumps:** Hydraulic pumps No.2 and No.3 have been lost. Use the remaining hydraulic pump for landing gear extension and normal braking (without brake pressure, hydraulic pressure and hydraulic quantity indications) and for nosewheel steering.

Follow up the "LANDING GEAR EMERGENCY LOWERING" Emergency Procedure (as a redundant measure due to the false viewer's red indication)

DC GEN & BUS UNTIE (DC GENERATOR FAILURE AND BUS UNTIE)

WARNING MASTER BELL Acoustic Warning

1 DC GEN or **2 DC GEN** and **BUS UNTIE**

Corresponding Magnetic Indicator crossed

Corresponding BAT-GEN Magnetic Indicator crossed or BAT BUS Magnetic Indicator crossed

-
1. Affected Generator..... RESET / ON (MAX 2 ATTEMPTS) 2

Before trying to reset, monitor the operative generator ammeter reading and consider reducing non-essential loads. If necessary, perform a second reset.

 - A. If the "GEN" magnetic indicator goes to in-line position and the annunciator goes off:
(END)
 - B. If the "GEN" magnetic indicator goes to in-line position and the "BUS UNTIE" annunciator persists:
 2. Follow up the "BUS UNTIE" Emergency Procedure. (END)
 - C. If the "GEN" magnetic indicator remains at crossline position and both annunciators persist:
 2. Affected Generator.....OFF 2

Consider reducing non-essential loads.

 - C.1. If the BAT BUS TIE Magnetic Indicator is at in-line position:
Corresponding BAT-GEN Magnetic Indicator is crossed
 3. Corresponding bus RESET buttonPUSH 2
 - C.1.1. If the BAT-GEN Magnetic Indicator goes to in-line position:
 4. Proceed to step 7 of section C.2.2.
 - C.1.2. If the BAT-GEN Magnetic Indicator remains at crossline position:
The corresponding generator bus and its associated equipment have been lost:
 - If GEN bus 1 has been lost: Engine Air Inlet De-Icing, Fuel Indication, Windshield Wiper, propeller deicing, AOA heater and Pack have been lost on the left side. Front Anti-Skid, ramp operation, Weather Radar and Wing and Tail De-Icing AUTO Mode have also been lost.
 - If GEN bus 2 has been lost: Engine Air Inlet De-Icing, Fuel Indication, Windshield Wiper, propeller deicing, AOA heater, aux pitot and Pack have been lost on the right side. Rear Anti-Skid, Hydraulic Pump No. 3, and both Wing and Tail De-Ice MAN Mode have also been lost.
 4. Proceed to step 7 of section C.2.2.

C.2. If the BAT BUS TIE Magnetic Indicator is at crossline position:

3. BAT BUS TIE Selector..... ON 2

C.2.1. If the BAT BUS TIE Magnetic Indicator goes to in-line position:

4. Proceed to section C.1.2.

C.2.2. If the BAT BUS TIE Magnetic Indicator remains at crossline position:**NOTE**

The related BAT BUS has been lost. After finishing this procedure, proceed to step 5 of section B.2. in "BUS UNTIE" Emergency Procedure.

4. BAT BUS TIE Selector.....OFF 2

5. GEN BUS TIE Pushbutton..... PRESS 2

Press the GEN BUS TIE pushbutton to balance the electrical loads.

6. Hydraulic Pumps.....MAN / A.R. 2

When necessary, connect only the hydraulic pump corresponding to the operative generator (1 or 2).

7. Reduce non-essential electrical loads in order to reduce the ammeter reading to below 400 A. Refer to "LIST OF ELECTRICAL LOADS" at the "DUAL DC GENERATORS FAILURE" Emergency Procedure.

GEN HOT (GENERATOR OVERHEAT)

WARNING MASTER BELL Acoustic Warning

1 GEN HOT or **2 GEN HOT**

1. Affected Generator.....OFF 2

2. Bat Bus Tie Magnetic Indicator..... CHECK IN LINE 2

If the BAT BUS TIE magnetic indicator is not in line, set the selector to ON. If still not in line, set the BAT BUS TIE selector to OFF and press the GEN BUS TIE pushbutton.

3. Hydraulic Pumps.....MAN / A.R. 2

When necessary, connect only the hydraulic pump corresponding to the operative generator (1 or 2).

4. Reduce electrical loads to below 400 A. Refer to "LIST OF ELECTRICAL LOADS" in the "DUAL DC GENERATORS FAILURE" Emergency Procedure.

If the "GEN HOT" warning goes off (after a few minutes):

5. Affected Generator (once only)..... RESET / ON 2

6. Disconnected Electrical Loads.....REPLACE 2

7. Hydraulic PumpsAUTO 2

NOTE

If the GEN HOT warning comes on again, apply the procedure again only up to step 4.

INVERTER FAILURE

CAUTION

1 INV

Inverter pushbutton amber FAIL light is on.

AC voltmeter reading zero.

-
1. MAIN Inverter Pushbutton PRESS 2
- Press the pushbutton, checking that the OFF light comes on and the 1 INV annunciation goes off from the IEDS.
2. STBY Inverter Pushbutton PRESS 2
- Check that the ON light comes on when the pushbutton is in and the AC voltmeter returns to the green arc.

BAT HOT/WARM (BATTERY HOT/WARM)

WARM light on the Battery Temperature Indicator with / without

WARNING MASTER BELL Acoustic Warning

BAT HOT

HOT light at the Battery Temperature Indicator

A. "BAT HOT" warning on:

Do not initiate takeoff with the "BAT HOT" warning on IEDS.

1. **Affected Battery (above 150 °F)**.....OFF 2

NOTE

Leave the battery off during the rest of the flight.

(END)

B. If only "BAT WARM" warning is on:

1. Monitor the battery rate of recharge 2

B.1. If the batteries recharging rate is normal:

Takeoff can be initiated or continue the flight, monitoring the batteries rate of recharge (each 2 minutes at least) and temperature. (END)

B.2. If the batteries rate of recharge is abnormal:

Do not initiate the take off.

- | | | |
|--|-----|---|
| 2. Affected Battery | OFF | 2 |
| 3. Let the affected battery cool down for 5 minutes after the WARM light has gone off. | | |
| 4. Affected Battery | ON | 2 |

NOTE

If the WARM light comes on again, disconnect the affected battery for the rest of the flight.

AC GEN (AC GENERATOR FAILURE)**CAUTION**

1 AC GEN with / without **1 P/D-ICE** and / or **1 E/D-ICE** or **2 AC GEN** with / without **2 P/D-ICE** and / or **2 E/D-ICE**

with / without

Amber FAIL light in the related propeller de-icing pushbutton.

Amber FAIL light in the related engine air inlet de-icing pushbutton.

Amber OFF light in the related MISC BUS master pushbutton.

NOTE

The display of the AC GEN annunciator in the IEDS, below 70% N_P is normal as the alternator is not connected up to this value.

CAUTION

After finishing this procedure, continue monitoring the engine of the affected AC GEN for the rest of the flight. If smoke or sparks are detected, immediately follow up the corresponding "ENGINE SHUTDOWN" Emergency Procedure.

"1 AC GEN" WITH ICE PROTECTION OFF:

- | | | |
|------------------------|-------------------|---|
| 1. Left Propeller..... | CHECK UNFEATHERED | 2 |
| 2. MISC XFR..... | PRESS | 2 |

3. 1 MISC Master Switch OFF / ON 2
- A. If "1 AC GEN" does not come on again:
4. MISC XFR PRESS 2
5. Continue flight in normal operation.

(END)

- B. If "1 AC GEN" comes on again:

4. 1 MISC Master Switch OFF 2

NOTE

LH Misc bus Group 3 and RH Misc bus Group 4 have been lost.

(END)

"1 AC GEN" WITH ICE PROTECTION ON:

1. Left Propeller CHECK UNFEATHERED 2
2. MISC XFR PRESS 2
3. 1 MISC Master Switch OFF 2
4. L ENG AIR INLET and/or L PROPELLER pushbutton RESET 2

To reset the AC Generator, press L ENG AIR INLET and/or L PROPELLER pushbuttons, checking that the FAIL light goes off and the annunciators go out from IEDS. Press the pushbutton again and check ON lights come on.

- A. If "1 AC GEN" and "1 P/D-ICE" and / or "1 E/D-ICE" comes on again:

5. Follow up the "PROPELLER DE-ICE (PROPELLER DE-ICING SYSTEM FAILURE)" and / or "ENGINE DE-ICING (ENGINE AIR INLET DE-ICING FAILURE)" Emergency Procedure.
6. 1 MISC Master Switch ON 2
7. MISC XFR PRESS 2

NOTE

If the other AC Generator also fails and cannot be recovered, the Distributor Valves heaters of the Wing and Tail De-Icing system will be lost as well as the Propeller De-Icing system.

(END)

- B. If "1 AC GEN" does not come on again:

5. 1 MISC Master Switch ON 2
6. MISC XFR PRESS 2
- B.1. If "1 AC GEN" comes on again:
7. MISC XFR PRESS 2

- | | | | |
|----|---|-------|---|
| 8. | 1 MISC Master Switch | OFF | 2 |
| 9. | L ENG AIR INLET and/or L PROPELLER pushbutton | RESET | 2 |

NOTE

LH Misc bus Group 3 and RH Misc bus Group 4 have been lost.

(END)

B.2. If "1 AC GEN" does not come on again:

7. Continue flight in normal operation.

(END)

"2 AC GEN" WITH ICE PROTECTION OFF:

- | | | | |
|----|----------------------------|-------------------|---|
| 1. | Right Propeller | CHECK UNFEATHERED | 2 |
| 2. | 2 MISC Master Switch | OFF / ON | 2 |

A. If "2 AC GEN" does not come on again:

3. Continue flight in normal operation.

(END)

B. If "2 AC GEN" comes on again:

RH Misc bus has been lost.

- | | | | |
|----|----------------------------|-----|---|
| 3. | 2 MISC Master Switch | OFF | 2 |
|----|----------------------------|-----|---|

(END)

"2 AC GEN" WITH ICE PROTECTION ON:

- | | | | |
|----|--|-------------------|---|
| 1. | Right Propeller | CHECK UNFEATHERED | 2 |
| 2. | 2 MISC Master Switch | OFF | 2 |
| 3. | R ENG AIR INLET and/or R PROPELLER pushbutton..... | RESET | 2 |

To reset the AC Generator, press R ENG AIR INLET and/or R PROPELLER pushbuttons, checking that the FAIL light goes off and the annunciators go out from IEDS. Press the pushbutton again and check ON lights come on.

A. If "2 AC GEN" and "2 P/D-ICE" and / or "2 E/D-ICE" comes on again:

4. Follow up the "PROPELLER DE-ICE (PROPELLER DE-ICING SYSTEM FAILURE)" and / or "ENGINE DE-ICING (ENGINE AIR INLET DE-ICING FAILURE)" Emergency Procedure.

- | | | | |
|----|----------------------------|----|---|
| 5. | 2 MISC Master Switch | ON | 2 |
|----|----------------------------|----|---|

NOTE

If the other AC Generator also fails and cannot be recovered, the Distributor Valves heaters of the Wing and Tail De-Icing system will be lost as well as the Propeller De-Icing system.

(END)

B. If "2 AC GEN" does not come on again:

4. 2 MISC Master Switch ON 2

B.1. If "2 AC GEN" comes on again:

5. 2 MISC Master SwitchOFF 2

6. R ENG AIR INLET and/or R PROPELLER pushbutton.....RESET 2

(END)

B.2. If "2 AC GEN" does not come on again:

5. Continue flight in normal operation.

(END)

DC GEN (DC GENERATOR FAILURE)

WARNING MASTER BELL Acoustic Warning

1 DC GEN or **2 DC GEN**

Corresponding Magnetic indicator crossed.

1. Affected Generator..... RESET / ON (MAX 2 ATTEMPTS) 2

Before trying to reset, monitor the operative generator ammeter reading and consider reducing loads. If necessary, perform a second reset.

A. If the GEN magnetic indicator is in line:

Operate normally. (END)

B. If the GEN magnetic indicator is in the crossline position:

2. Affected Generator.....OFF 2

3. BAT BUS TIE Selector.....CHECK AUTO 2

Check that the BAT BUS TIE magnetic indicator is in line. If not in line, the IEDS BUS UNTIE annunciator is on. Set the BAT BUS TIE Selector to ON. If still not in line, set it to OFF and press the GEN BUS TIE Pushbutton.

CAUTION

In case that the bar bus tie is not achieved, the battery will power the associated bars while empty or disconnected.

4. Hydraulic Pumps.....MAN / A.R. 2

When necessary, connect only the hydraulic pump corresponding to the operative generator (1 or 2).

5. Reduce electrical loads below 400 A. Refer to "LIST OF ELECTRICAL LOADS" at the "DUAL DC GENERATORS FAILURE" Emergency Procedure.

ELECTRICAL SMOKE OR FIRE IN FLIGHT

Smoke or fire from a known or unknown electrical source

NOTE

If the fire is identified, besides the procedure described, try to extinguish it by using the appropriate extinguishers.

1. Masks and GogglesON / ADJUSTED / 100% / EMERGENCY ALL

Each C/M adjusts his mask, checks that the Oxygen Switch is set to ON and both C/M set the Mixer Selector to the 100% position to avoid smoke-associated toxic emanations inhalation.

CAUTION

Oxygen masks must be correctly adjusted while the pressurized oxygen supply is used. Any leak will cause a considerable reduction on the oxygen supply duration and also on the temperature of the oxygen flowing from the mask.

NOTE

The Supply Selector will be set to EMERGENCY to clean both masks and goggles from smoke or vapour, and returned to NORMAL position once cleared.

2. MASK Pushbutton PRESS ALL

Each C/M presses the MASK pushbutton on his communications panel and, if the breathing noise is disturbing, presses the INPH HOT pushbutton and uses the PTT with the headphones or with the cockpit speakers.

3. Crew statusREPORT ALL

Each crew member reports to C/M-1 "Oxygen on".

4. Recirculating FansOFF 2

This action avoids smoke from moving from an affected zone to others that are not and aids for better diagnose about the smoke origin.

NOTE

If the windshield mists up when the Recirculating Fans are turned off, switch on the windshield heater.

5. Automatic Pilot (if engaged)..... DISENGAGE 2

6. BAT BUS TIE Selector.....OFF 2

Make sure that the GEN BUS TIE is out (ON light off)

7. BAT and GEN switches (at the pilot's choice)OFF 2

NOTE

If there is not a clear evidence of which side the smoke comes from, it is recommended to start by PNF side in order to maintain PF equipment operative.

A. If the smoke or fire signs go out:

8. Leave the battery and generator off for the rest of the flight. (END)

B. If the smoke or fire signs persist:

8. BAT and GEN switches disconnected..... ON 2

9. BAT and GEN switches (opposite side)OFF 2

10. Land at the nearest suitable airport.

11. Follow up the "SMOKE OR FIRE AT THE COCKPIT OR CARGO CABIN" Emergency Procedure.

FLIGHT CONTROL FAILURES

ELEVATOR JAMMING

The PF detects difficulties in the elevator control due to both a jammed column or Automatic Pilot elevation control blocking.

NOTE

If possible, maintain both flap and speed configuration at the failure moment.

- | | | |
|---------------------------------------|-----------------------|-----|
| 1. Automatic Pilot (if engaged) | DISENGAGE | 1 |
| 2. Control Columns | FORCE AGAINST JAMMING | 1/2 |

If necessary, PNF should help PF.

NOTE

There may be residual roominess at the Control Columns due to the control wires elasticity.

A. If the jamming goes out:

3. Continue normal operation. (END)

B. If the jamming persists:

- | | | |
|---|-------------|-----|
| 3. Control Columns | HOLD FIRMLY | 1/2 |
| 4. PITCH Control Disengage Selector | UNTIE | 2* |

Check that after around 2 seconds both corresponding control disconnection panel FWD and REAR lights come on.

- | | | |
|---|------|-----|
| 5. Pilots Functions (Depending on which is the free column) | A.R. | 1/2 |
|---|------|-----|

NOTE

The free Control Column will require bigger displacements than usual.

- | | | |
|--|------|----|
| 6. Configuration and Normal Trim | A.R. | PF |
|--|------|----|

The bigger is the difference between both columns relative position, the bigger free column oscillations. Set a flap, speed and power configurations in order to bring the free column the closest possible to the jammed one. This will help to control the aircraft.

CAUTION

If the right column has jammed, the stick pusher will be considered inoperative.

NOTE

Also hold the jammed column in case it unjams (leaving icing conditions).

7. Land at nearest suitable airport with less crosswind and turbulence, with flaps at 15° and $V_{REF} + 10$ kts or at minimum V_{TH} , whichever higher. Press the EGPWS FLAP OVRD pushbutton to avoid a nuisance warning. Refer to LANDING DISTANCE TABLE.

AILERON JAMMING

The PF detects difficulties in lateral control due to a jamming wheel or to the Automatic Pilot banking channel blocking.

- | | | |
|---------------------------------------|--------------------|------------|
| 1. Automatic Pilot (if engaged) | DISENGAGE | 1 |
| 2. IAS (if possible) | MAX 150 kts | 1 |
| A. <u>If the jamming goes out:</u> | | |
| 3. Continue normal operation. (END) | | |
| B. <u>If the jamming persists:</u> | | |
| 3. Control Wheels | HOLD FIRMLY | 1/2 |

CAUTION

The following action will involve (after aprox. 2 seconds) a sharp outward turn of the free wheel.

- | | | |
|---|--------------|------------|
| 4. ROLL Control Disengage Selector | UNTIE | 2* |
| Both control disconnection panel corresponding FWD and REAR lights come on. | | |
| 5. Pilots functions (depending on which is the free column) | A.R. | 1/2 |
| 6. Normal Trim | A.R. | PF |

CAUTION

Hold both wheels during the rest of the flight. Limit bank angle to 15° . Use the rudder as necessary.

7. Land at nearest suitable airport with less crosswind and turbulence, with flaps at 15° and $V_{REF} + 10$ kts or at minimum V_{TH} , whichever higher. Press the EGPWS FLAP OVRD pushbutton to avoid a nuisance warning. Refer to LANDING DISTANCE TABLE.

RUDDER JAMMING

The PF detects difficulties in rudder control due to:

- Pedals jammed, or
- Both Yaw Damper and Automatic Pilot disconnection and subsequent confirmation of pedals blocking.

- | | | |
|--|-----------|---|
| 1. Automatic Pilot (if engaged)..... | DISENGAGE | 1 |
| 2. Use asymmetrical power to counteract sideslip | A.R. | 1 |
| 3. Land at nearest suitable airport with less crosswind and turbulence. Check crosswind, land on the most suitable runway. | | |

AILERON FLOTATION

Sharp and simultaneous rotation of both control wheels to the same side.

If they turn to the left, the floating aileron is the right one, and vice versa.

- | | | |
|--------------------------------------|-------------|---|
| 1. Automatic Pilot (if engaged)..... | DISENGAGE | 1 |
| 2. IAS..... | MAX 150 kts | 1 |

CAUTION

If the speed is above 150 kts any increase in speed may cause unexpected roll.

- | | | |
|----------------------------|------------|---|
| 3. Hydraulic Pressure..... | CHECK | 2 |
| 4. Flaps..... | 10° or 15° | 2 |

Decreasing speed and extending the flaps decreases the control wheels oscillations.

Avoid unnecessary turns and limit them to banking angles of 15°. If possible, use the rudder only.

WARNING

Do not use the aileron trim tabs. Trimming will only result in an unstable balance which will easily be broken by any change in speed.

5. Land at nearest suitable airport with less crosswind and turbulence. If landing in crosswind, it is advisable that it be on the side of the floating aileron. Use flaps at 15° and $V_{REF} + 10$ kts or minimum V_{TH} , whichever higher. Press the EGPWS FLAP OVRD pushbutton to avoid a nuisance warning. Refer to "LANDING DISTANCE TABLE".

RUDDER FLOTATION

There is no control or effort on the rudder.

Possible uncontrolled movements of the sideslip indicator.

- | | | |
|--------------------------------------|-----------|---|
| 1. Automatic Pilot (if engaged)..... | DISENGAGE | 1 |
| 2. Control with banking | A.R. | 1 |

NOTE

Do not use the rudder trim. Trimming might result in a sharp change in the rudder position.

PITCH TRIM RUNAWAY

Sharp uncommanded pitching and movement in the same direction as that of the TRIM ELEV Indicator.

- | | | |
|--|------|---|
| 1. R, L ELEV Selectors guard on STBY TRIMS panel | LIFT | 1 |
| This action disables the normal trim motors, the pitch trim from the Control Wheels and the pitch auto trim functions as well. | | |
| 2. R, L ELEV Selectors on STBY TRIMS panel | A.R. | 1 |
| Avoid, as far as possible, asymmetric trim positions. | | |

AILERON TRIM RUNAWAY

Continuous rolling and movement, in the same direction, of the AILERON TRIM NORMAL Indicator.

- | | | |
|--|------|---|
| 1. AILERON Selector guard on STBY TRIMS Panel | LIFT | 1 |
| This action disables the normal roll trim movement and the control wheels roll trim as well. | | |
| 2. AILERON Selector on STBY TRIMS Panel..... | A.R. | 1 |

RUDDER TRIM RUNAWAY

Continuous yaw and movement in the same direction of the TRIM RUDDER indicator.

- | | | |
|--|------|---|
| 1. RUDDER Selector guard on STBY TRIMS Panel..... | LIFT | 1 |
| This action disables the normal trim motor, the normal trim and the rudder auto trim function. | | |
| 2. RUDDER Selector on STBY TRIMS Panel | A.R. | 1 |

RTCS FAILURES

CAUTION

RTCS EXP and/or **RTCS AUTO** and/or **RTCS MAN**

A. If the "RTCS EXP" caution comes on:

The RTCS Expansion Function has been lost.

- For landing, choose a runway with less than 20 kts of crosswind and land with flaps 15° at $V_{REF} + 10$ or minimum V_{TH} , whichever higher. Press the EGPWS FLAP OVRD pushbutton to avoid a nuisance warning. Refer to "LANDING DISTANCE TABLE".

B. If the "RTCS MAN" caution comes on:

The RTCS manual control has failed. However, as it is not being used, no action is required from the crew.

- Continue flight normally.

B.1. If "RTCS AUTO" caution comes on:

Proceed from point 4 of section C.1.

C. If the "RTCS AUTO" caution comes on:

FLIGHT CONTROL Panel MAN light flashes.

The automatic RTCS control has failed. The RTCS Expansion Function has been lost for the rest of the flight. Both rudder and elevator auto trim functions have also been lost. The travel limits will be located at the position prior to the failure, except if it occurred with the Expansion Function operative (takeoff or landing configuration), in which case limits will be set at nominal values (corresponding to the AIRSPEED SEL Selector LOW position).

- | | | |
|---|------|---|
| 1. AIRSPEED SEL Selector | A.R. | 2 |
| To recover the Limiting Function, set the AIRSPEED SEL selector to the appropriate position as a speed function according to the following table: | | |

SPEED	SELECTOR POSITION
Below 140 KIAS	LOW
Between 140 and 200 KIAS	MED
Above 200 KIAS	HIGH

Table 4-2 AIRSPEED SEL Selector Position as a speed function

NOTE

Avoid rudder pedals sudden or big displacements as well as sideslip.

- For landing, choose a runway with less than 20 kts of crosswind and land with flaps 15° at $V_{REF} + 10$ or minimum V_{TH} , whichever higher. Press the EGPWS FLAP OVRD pushbutton to avoid a nuisance warning. Refer to LANDING DISTANCE TABLE.

C.1. If the "RTCS MAN" caution comes on next:

The manual RTCS control has failed. Manual travel control will not be possible and the limits will be located at the last positions prior to the failure.

- AIRSPEED SEL selectorAUTO 2
Set the AIRSPEED SEL selector to AUTO position in order to return the rudder travel limits to their nominal values.
- Rudder travel limits (with IAS < 140 kts)CHECK 1/2
Evaluate, according to available rudder travel, if convenient to land on runways with a crosswind below 20 kts. If found not enough, select a runway with a crosswind below 8 kts.
- Land with flaps 15° and $V_{REF} + 10$ or minimum V_{TH} , whichever higher. Press the EGPWS FLAP OVRD pushbutton to avoid a nuisance warning. Refer to LANDING DISTANCE TABLE.

RBS FAILURE

Uncommanded yaw without engine failure.

Pedals sudden displacement.

- ACTR PushbuttonPRESS / OFF 2
Press the pushbutton and check that the OFF light comes on. Be ready for a possible reaction from the pedals and, if necessary, trim in yaw again.

CAUTION

Keep in mind that with the RBS disconnected, if an engine fails at low speed / high power the force on the pedals may be such (up to 270 lb / 122 kg) that it will not be possible to fully control it.

- IAS (until landing secured)MIN $V_{REF} + 35$ KIAS 1

RBS HEATER FAILURE

CAUTION

RUD HT

- | | | |
|---------------------------------|-------------|---|
| 1. STBY HEATER pushbutton | PRESS / SEC | 2 |
|---------------------------------|-------------|---|

Press the pushbutton and check that the SEC light comes on indicating the secondary heater has been connected, and the RUD HT caution goes off on the IEDS.

If the "RUD HT" caution comes on again:

2. Decrease the aircraft altitude below the icing level. If this is not possible, make frequent Rudder movements to avoid jamming of the actuator due to ice build up.

ELEVATOR TRIM (PITCH AUTOTRIM FAILURE)

CAUTION

ELEV TRIM with/without **RTCS AUTO**

One or more of the following Auto trim Modes have been lost:

- A. Flap configuration change
- B. Change of speed
- C. Power change or asymmetry
- D. Engine failure on the ground.

If the RTCS AUTO caution also comes on, all the Auto trim Modes have been lost, along with Normal Trimming from the control columns PITCH TRIM selectors.

- | | | |
|--|-------|---|
| 1. Normal Trim | CHECK | 1 |
| 2. R, L ELEV Selectors on STBY TRIMS panel | A.R. | 1 |

CAUTION

Synchronize the manual operation of both selectors by taking the trim position indicator as a reference in order to achieve while adjusting of both trims.

NOTE

Be ready for an increase in the control force during changes in aircraft configuration, speed or engine power.

If an engine fails with the C.G. at or near the forward limit, the forces will be even higher. If the aircraft is trimmed, it will be overtrimmed when the flaps are retracted.

RUDDER TRIM (RUDDER AUTOTRIM FAILURE)**CAUTION**

RUD TRIM with / without

RTCS AUTO

One or more of the following Auto trim Modes have been lost:

- A. Change of speed
- B. Power change or asymmetry
- C. Low speed engine failure

If the "RTCS AUTO" caution also displays, all the Auto trim Modes have been lost, along with Normal Trimming from the pedestal RUDDER TRIM selector.

- | | | |
|--|-------|---|
| 1. Normal Trim | CHECK | 1 |
| 2. RUDDER Selector on STBY TRIMS Panel | A.R. | 1 |

NOTE

Be ready for an increase in the trim magnitude to apply and the forces on the pedals as well if an engine fails at low speed (below 120 KIAS).

If an engine fails at high power, the force on pedals will be noticeably greater.

SWRS FAILURE

CAUTION

1 SWRS and/or **2 SWRS**

PSHR OFF light on both system control panels

NOTE

If FAIL indication is displayed on either AOA indicator, the SWRS system will work properly while 1 SWRS and/or 2 SWRS caution does not IEDS display.

The Stick-Pusher is lost. The Stick-Shaker on the side corresponding to caution has also been lost.

Avoid flight conditions close to stall.

1. PSHR DSARM pushbutton PRESS 2

When pressed check that the PSHR DSARM light in both panels comes on

If both "1 SWRS" and "2 SWRS" cautions are displayed in the IEDS:

The Stick-Pusher, both Stick-Shakers and acoustic stall warning have been lost.

FLAPS FAIL (FLAPS FAILURE)

CAUTION

FLAP FAIL

If the "FLAP ASYM" warning comes on at the same time, follow up the "FLAPS ASYM (FLAPS ASYMMETRY)" Emergency Procedure. (END)

NOTE

Do not initiate takeoff with any FLAP FAIL caution on.

1. Hydraulic Pressure.....CHECK 2
2. Flaps RESET switchRESET 2
- A. If caution goes off:
3. Continue flight operating normally. (END)
- B. If caution comes on again:
3. Flaps Lever ACCORDING TO THE INDICATOR 2
 Position the Flaps Lever in the slot according or closer to the position shown on the Indicator. Schedule the aircraft for maintenance before the next flight.
4. Land at the nearest suitable airport at $V_{REF} + 1\text{kt}$ for each flaps degree estimated below 25° , or at minimum V_{TH} , whichever higher. Press the EGPWS FLAP OVRD pushbutton to avoid a nuisance warning. Do not land with tail wind if the flaps setting is below 15° . Refers to LANDING DISTANCE TABLE.

FLAPS ASYM (FLAPS ASYMMETRY)

WARNING MASTER BELL Acoustic Warning

FLAP ASYM with/without

CAUTION

FLAP FAIL

Do not initiate the takeoff with the FLAP ASYM warning on.

NOTE

The flaps will be braked in the position reached when the FLAP ASYM warning is displayed. Subsequent operations of the lever will not cause any flaps displacement.

- | | | |
|--|----------------------------|---|
| 1. Automatic Pilot (if engaged)..... | DISENGAGE | 1 |
| 2. IAS..... | MAX 175 kts | 1 |
| A. <u>If the flaps lever has been operated without hydraulic power:</u> | | |
| 3. Flaps Lever | ACCORDING TO THE INDICATOR | 2 |
| Position Flaps Lever in the slot according, or closer, to the position shown on the Indicator. | | |
| 4. FLAPS SYS C/B (U1, A5) (one attempt only)..... | PULL | 1 |
| 5. Hydraulic Pumps | MAN / ON | 2 |

30 seconds after pulling out the circuit breaker:

WARNING

Be prepared for possible losses of lateral trim due to real asymmetry.

- | | | |
|---|-------|---|
| 6. FLAPS SYS C/B (U1, A5)..... | PRESS | 1 |
| If the FLAP ASYM warning goes off, continue normal operation. | | |
| If it does not go off, continue at Section B. | | |
| B. <u>If the flaps lever has been operated with hydraulic power:</u> | | |
| 3. Land at the nearest suitable airport at $V_{REF} + 1\text{kt}$ per flaps degree below 25° , or at minimum V_{TH} , whichever higher. Press the EGPWS FLAP OVRD pushbutton to avoid a nuisance warning. Refer to LANDING DISTANCE TABLE. | | |

FUEL SYSTEM FAILURES

FUEL LOW (LOW FUEL LEVEL)

CAUTION

1 FUEL LOW or **2 FUEL LOW**

NOTE

During a normal operation the FUEL LOW caution may display when a cross feed is performed from an empty wing auxiliary tank and when both engines are being operated above the cruise power setting. In this case, limit cross feed to the time as necessary to correct any imbalance or reduce power in one or both engines until the FUEL LOW caution goes off.

NOTE

In levelled flight this caution warns of less than 440 lb (200 kg) of fuel in the corresponding tank. Nevertheless, the indication range can be in the 400 to 485 lbs (181 to 220 kg) interval.

The Booster Pump will come on automatically.

- | | | | |
|----|--|-------|---|
| 1. | Corresponding Fuel PUMPS pushbutton | CHECK | 2 |
| | Check that the corresponding Fuel PUMPS pushbutton is in and its OFF light is off. | | |
| 2. | Fuel Quantity | CHECK | 2 |
| | Check on the IEDS that the situation does not arise from a fuel leakage. | | |

CAUTION

Perform periodical checking of the fuel indications.

CAUTION

In case of potential leakage, detected or not by the crew, take every caution while using reverse thrust during landing to prevent any potential fire.

CAUTION

Avoid sudden manoeuvres, limiting both maximum pitch and sideslip.

The minimum fuel quantity permitted for a Baulked Landing and the following Go Around and Landing is 180 lb (80 kg) in each main tank.

A. If a fuel leakage is suspected:**CAUTION**

If the leakage is big-enough follow up the "ENGINE SHUTDOWN IN-FLIGHT" Emergency Procedure.

3. Corresponding Fuel PUMPS pushbutton PRESS 2

Press and check that the corresponding Fuel PUMPS pushbutton is out and its OFF light is on.

WARNING

When flying in suction mode above the altitudes stated in the "FUEL SUCTION FEEDING ALTITUDE" table below, be ready for a possible engine flameout.

USED FUEL	Maximum Flight Altitude
JP-8 / Jet A / Jet A-1 / JP-5	13000 ft
JP-4 / Jet B	6000 ft

Table 4-3 Fuel Suction Feeding Altitude

WARNING

Engine flameout is highly probable to occur using JP-4 or Jet B fuel types when operating in suction mode above 13000 ft.

Continue operation using suction, taking note of both time and flight altitude if the maximum recommended operational altitude for this type of operation, depending on the type of fuel used, are overcome.

4. Proceed to 4 of section B.2.

B. If no fuel leakage is suspected:

3. Fuel Quantity CHECK 2

Check on the IEDS the quantity of fuel in both MAIN and AUX tanks on the affected side. If the low fuel quantity is confirmed, check the quantity of fuel on the other side in order to assess whether it is possible to cross feed.

B.1. If crossfeed is possible:

Bear in mind the NOTE at the beginning of this procedure, for, in such conditions, the FUEL LOW caution of the other side may come on.

4. X-FEED pushbutton PRESS 2

10 seconds later:

5. Corresponding Fuel PUMPS pushbutton PRESS 2

Press the pushbutton and check its OFF light comes on.

6. Land at the nearest suitable airport. (END)

B.2. If crossfeed is not possible:

4. While possible, hold a level flight attitude, monitor the fuel quantity on the affected side and be ready for a possible engine flameout.

5. Land at the nearest suitable airport.

FUEL PRESS (LOW FUEL PRESSURE)

CAUTION

1 FUEL P or **2 FUEL P**

CAUTION

Be ready for a possible engine flameout.

- | | | | |
|----|--|-------|---|
| 1. | Corresponding Fuel PUMPS Pushbutton..... | CHECK | 2 |
| | Check that the corresponding Fuel PUMPS pushbutton is in and its OFF light is off. | | |
| 2. | Fuel Quantity..... | CHECK | 2 |
| | Check the fuel gauge reading to ensure that the situation is not due to a leakage at the corresponding fuel lines. | | |

CAUTION

Check the fuel readings periodically. If a fuel leakage is detected, disconnect the corresponding fuel pump. If the leakage is big-enough, follow up the "ENGINE SHUTDOWN IN-FLIGHT" Emergency Procedure. (END)

CAUTION

In case of a possible fuel leakage that has not been detected by the crew, take extreme care while using the reverse thrust during landing to prevent any potential fire.

- | | | | |
|----|--|-------|---|
| 3. | X-FEED Pushbutton..... | PRESS | 2 |
| | <i>10 seconds later:</i> | | |
| 4. | Corresponding Fuel PUMPS Pushbutton..... | PRESS | 2 |
| A. | <u>If the "FUEL P" warning remains on:</u> | | |
| 5. | Corresponding Fuel PUMPS Pushbutton..... | PRESS | 2 |

10 seconds later:

6. X-FEED Pushbutton..... PRESS 2

If no fuel leakage is confirmed, disregard the warning. Continue normal operation monitoring engine parameters. (END)

- B. If the "FUEL P" warning goes off:

5. X-FEED Operation CONTINUE WHILE POSSIBLE

Keep flying using crossfeed while possible (bear in mind the maximum allowed asymmetry). Otherwise, press the X-FEED to continue operation using suction, taking note of both time and flight altitude if the recommended operational altitude for this type of operation, depending on the type of fuel used, are overcome.

WARNING

When flying in suction mode above the altitudes stated in the "FUEL SUCTION FEEDING ALTITUDE" table below, be ready for a possible engine flameout.

USED FUEL	Maximum Flight Altitude
JP-8 / Jet A / Jet A-1 / JP-5	13000 ft
JP-4 / Jet B	6000 ft

Table 4-4 Fuel Suction Feeding Altitude

WARNING

Engine flameout is highly probable to occur using JP-4 or Jet B fuel types when operating in suction mode above 13000 ft.

NOTE

During operation in suction mode, if there is still fuel in the auxiliary tank, consider a gravity transfer on the affected side.

FUEL COLD (FUEL FEED COLD)

CAUTION

1 FUEL C or **2 FUEL C**

NOTE: It is not considered an abnormal condition if coming on prior to start-up.

Do not takeoff with 1 FUEL C and/or 2 FUEL C annunciator(s) on.

- | | | |
|--|---------|---|
| 1. Fuel Temperature | CHECK | 2 |
| Check the IEDS fuel temperature. | | |
| A. <u>If the fuel temperature is 3°C or above:</u> | | |
| 2. Continue normal operation monitoring both engines operation. (END) | | |
| B. <u>If the fuel temperature is below 3°C:</u> | | |
| 2. Corresponding PL | ADVANCE | 1 |
| If possible, descent to warmer altitudes. | | |
| 3. Check the FUEL COLD annunciator | | 2 |
| If the annunciator remains on, the affected engine indications become abnormal, follow up the "ENGINE SHUTDOWN IN-FLIGHT" Emergency Procedure. | | |

HYDRAULIC SYSTEM FAILURES

HYDRAULIC HOT (HYDRAULIC FLUID OVERHEAT)

CAUTION

HYD HOT

CAUTION

Complete the change of flap configuration if initiated.

1. Hydraulic Pumps MAN/OFF 2

Disconnect the pumps and wait for the annunciation to go out from the IEDS.

When the annunciator has gone out:

2. Hydraulic Pumps (one at each time) CHECK 2

Switch on the pumps one at each time, and check that their pressure is within the green arc.

NOTE

Do not use any pump which gives an overpressure reading (yellow arc) during rest of flight.

When hydraulic pressure is necessary:

3. Hydraulic Pump Operative (only one) MAN / ON 2

NOTE

Do not operate both Flaps and Landing Gear simultaneously.

If the "HYD HOT" annunciator comes on again:

CAUTION

Complete the change of flap configuration if initiated.

4. Hydraulic Pump MAN / OFF 2

If the Hydraulic System gets out of order due to the "HYD HOT" caution:

5. Follow up the "LANDING GEAR EMERGENCY LOWERING" Emergency Procedure (when necessary)
6. Land at the nearest suitable airport at $V_{REF} + 1kt$ for each degree the flaps are below 25° , or at minimum V_{TH} , whichever is higher. Press the EGPWS FLAP OVRD pushbutton to avoid a nuisance warning. Refer to LANDING DISTANCE TABLE.

CAUTION

Nose wheel steering will not be available.

- 7. Follow up the "EMERGENCY BRAKING" Emergency Procedure

HYDRAULIC QUANTITY LOSS

Hydraulic quantity low or decreasing

with / without

CAUTION

1 HYD P and / or 2 HYD P and / or 3 HYD P

NOTE

A change in the hydraulic quantity indication when a subsystem is operated, does not involve any fluid loss provided that the indication stabilizes and does not continue to decrease.

CAUTION

Complete the change of flap configuration if initiated.

- | | | |
|---|---------|---|
| 1. Hydraulic Pumps..... | MAN/OFF | 2 |
| 2. Antiskid..... | OFF | 2 |
| 3. Follow up the "LANDING GEAR EMERGENCY LOWERING" Emergency Procedure (when necessary) | | |
| 4. Land at the nearest suitable airport at $V_{REF} + 1$ kt per flaps degree below 25° , or at minimum V_{TH} , whichever higher. Press the EGPWS FLAP OVRD pushbutton to avoid a nuisance warning. Refer to "LANDING DISTANCE TABLE". | | |

CAUTION

Nose wheel steering will not be available. Antiskid will not be available. Hydraulic pressure at normal brakes accumulator will normally start to decrease progressively. Hydraulic pressure at emergency brakes accumulator will be available until being used.

- 5. Follow up the "EMERGENCY BRAKING" Emergency Procedure

HYD PRESS (HYDRAULIC PRESS)

CAUTION

1 HYD P and/or 2 HYD P and/or 3 HYD P

NOTE

Without depending on the selected Mode of Functioning (AUTO / ON or MAN / ON):

The loss of a DC Generator will result in the Hydraulic Pump No. 3 disconnection, and the 3 HYD P caution will be displayed in the IEDS.

Hydraulic Pump overheating will result in its automatic disconnection. The amber O.TEMP light on the corresponding pushbutton will come on and the 1, 2 or 3 HYD P caution will be displayed in the IEDS.

- A. If all three "HYD P" annunciators come on:
 - 1. Follow up the "HYDRAULIC QUANTITY LOSS" Emergency Procedure. (END)
- B. If one or two "HYD P" annunciators come on:

CAUTION

Complete the configuration change in progress.

- 1. Operative Hydraulic Pumps MAN / ON 2
Set the Operating Mode selector to MAN and connect (by pressing the pushbuttons) the hydraulic pump(s), leaving the hydraulic pumps with the HYD P caution on (which will go out from the IEDS) disconnected.

NOTE

Do not operate both Flaps and Landing Gear simultaneously with only one Hydraulic Pump operative.

- 2. Affected Hydraulic Pump/sCHECK DISCONNECTED 2

B.1. If both Pressure and Quantity of Hydraulic Fluid are decreasing:

3. Follow up the "HYDRAULIC QUANTITY LOSS" Emergency Procedure. (END)

B.2. If both Pressure and Quantity of Hydraulic Fluid remain normal:

NOTE

Ramp/Cargo Door operation requires at least two Hydraulic Pumps connected and HYD P annunciation may appear during the opening operation if the ramp is loaded.

Do not operate the Ramp/Cargo Door simultaneously with any other subsystems.

When hydraulic pressure is not required:

3. Hydraulic Pumps Operative	OFF	2
------------------------------------	-----	---

ICE AND RAIN PROTECTION SYSTEM FAILURES

WING AND TAIL DE-ICING FAILURE

CAUTION

W&T D-ICE and/or **W&T DGRD**

A. If the "W&T D-ICE" caution comes on with/without "W&T DGRD":

1. SOV Pushbutton (under guard) PRESS 1
 W&T D-ICE will disappear from the IEDS and the OFF light on the pushbutton will come on indicating that the SOV Shut Off Valves are closed.

NOTE

The Wing and Tail De-icing System has been lost, as well as the Pressurization System Automatic Control.

2. Pressurization SystemOPERATE IN MANUAL MODE 2
 Keep flying with the Pressurization System in Manual Mode by means of the Manual Rate of Change Selector and the Cabin Altitude Manual Selector as required.

3. Leave the icing conditions as soon as possible.

If ice accretion is known or suspected, keep flying the Best Climbout Speed with an engine under ice accretion (Refer to SECTION V, for "MINIMUM AIRSPEEDS IN ICE FORMATION CONDITIONS").

With ice accretion on aircraft surfaces, landing with 23° must be performed at $V_{REF} + 30$ KIAS or at $V_{TH} + 5$ KIAS, whichever higher.

The landing distances shown in the "LANDING DISTANCES TABLE" will increase in 35% over the corresponding values with 23° flaps and ice-free aircraft. (END)

B. If only the "W&T DEGRD" caution comes on:

1. De-Icing Mode SelectorMAN 1
 The "W&T DEGRD" caution goes out from the IEDS and the automatic mode will be disconnected.
2. De-Icing Supervision Switch MON 1
3. Wing and Tail De-Icing.....OPERATE IN MANUAL MODE 1

Press each Manual De-Icing Pushbutton for 6 seconds in a sequential way leaving a 1 to 3 minutes break, depending on the icing accretion observed visually. If the system works correctly, the ON light will come on at each of them while held and will go off when released. (END)

B.1. If any ON light does not come on or stays permanently on:

4. Do not operate the faulty pushbutton.

5. Leave the icing conditions as soon as possible.

If ice accretion is known or suspected, stay above the Best Climbout Speed with an engine under ice accretion (Refer to SECTION V, for "MINIMUM AIRSPEEDS IN ICE FORMATION CONDITIONS").

With ice accretion on aircraft surface, landing with 23° flaps must be performed at $V_{REF} + 30$ KIAS or at $V_{TH} + 5$ KIAS, whichever higher. Landing distances shown in the "LANDING DISTANCES TABLE" will increase in 35% over the corresponding values with 23° flaps and ice-free aircraft.

ENGINE DE-ICING (ENGINE AIR INLET DE-ICING FAILURE)

CAUTION

1E/D-ICE and **2E/D-ICE** with **W&T D-ICE** or

1E/D-ICE and/or **2 E/D-ICE**

FAIL amber light on at the corresponding Engine Intake De-icing Pushbutton.

A. If both "E/D-ICE" caution come on simultaneously with the "W&T D-ICE" caution:

1. SOV pushbutton (under guard)..... PRESS 1

The W&T D-ICE caution will go off from the IEDS and the OFF light on the pushbutton will come on indicating that the SOV Shut Off Valves are closed

NOTE

The Wing and Tail De-Icing system has been lost as well as the Pressurization Automatic Control.

2. Engine Inlet De-Icing pushbuttons (sequentially).....RESET 1

NOTE

Reset first the related to one engine and make sure that de-icing and engine operate correctly before doing the same on the other side.

3. Leave icing conditions as soon as possible.

If ice accretion is known or suspected, keep flying the Best Climbout Speed with one engine and ice accretion (Refer to SECTION V, for "MINIMUM AIRSPEEDS IN ICE FORMATION CONDITIONS").

With ice accretion detected on aircraft surfaces, landing with 23° flaps must be performed at $V_{REF} + 30$ KIAS or at $V_{TH} + 5$ KIAS, whichever higher. Landing distances shown in the "LANDING DISTANCES TABLE" will be increased by 35% over the corresponding values with 23° flaps and aircraft ice-free.

4. Pressurization SystemOPERATE IN MANUAL MODE 2

Keep flying with Pressurization System in Manual Mode, operating both Manual Rate of Change Selector and Cabin Altitude Manual Selector as required.

A.1. If any "E/D-ICE" annunciator comes on again:

Proceed to section C.

B. If both "E/D-ICE" annunciator come on:

1. Leave icing condition as soon as possible. (END)

C. If only one "E/D-ICE" caution comes on:

1. Corresponding Engine Inlet De-Icing Pushbutton PRESS 1
2. Leave icing conditions as soon as possible.

PROPELLER DE-ICE (PROPELLER DE-ICING SYSTEM FAILURE)

CAUTION

1P/D-ICE and/or **2P/D-ICE**

FAIL amber light on the corresponding Propeller De-Icing Pushbutton on.

A. If both "1P/D-ICE" and "2P/D-ICE" come on simultaneously:

1. Propeller de-icing pushbuttons PRESS 1
2. Leave icing conditions as soon as possible. (END)

B. If only one "P/D-ICE" caution comes on:

1. Corresponding Propeller De-icing pushbutton PRESS 1

When the pushbutton is out, both ON and FAIL lights along with the IEDS P/D-ICE caution will go off.

2. Leave icing conditions as soon as possible.
3. If excessive vibrations are denoted, feather the propeller and, if persist, follow up the "ENGINE SHUTDOWN" Emergency Procedure. Do not unfeather, or restart, until leaving icing conditions and visually confirm ice has gone out.

WINDSHIELD HEATING (WINDSHIELD HEATING FAILURE)

CAUTION

WSHLD

FAIL amber light on both WINDSHIELD pushbuttons on.

Windshield Heating is lost.

NOTE

Bear in mind that this failure can appear due to right miscellaneous bus failure.

NOTE

The crew is not required to perform any action if only one FAIL light comes on in one WINDSHIELD pushbutton and no WSHLD caution light is IEDS displayed, since heating is automatically provided from the other system.

- | | | |
|---|-------|---|
| 1. L and R WINDSHIELD Pushbuttons | PRESS | 2 |
|---|-------|---|

NOTE

If visibility loss, fly below icing level whenever possible.

While at approach phase:

- | | | |
|------------------------------------|-------|-----|
| 2. Vision through the glasses..... | CHECK | ALL |
|------------------------------------|-------|-----|

A. If the vision is acceptable:

(END)

B. If the vision is not acceptable:

- | | | |
|----------------------------------|--------|---|
| 3. Passengers / Loadmaster | NOTIFY | 1 |
|----------------------------------|--------|---|

C/M-1 notifies both Loadmaster and the Passengers (if there any) the aircraft will be depressurized, and orders the C/M-2 to perform it.

- | | | |
|------------------|--------------|---|
| 4. Aircraft..... | DEPRESSURIZE | 2 |
|------------------|--------------|---|

When differential Pressure is zero:

- | | | |
|-----------------------|-------|---|
| 5. Cockpit Door | CLOSE | 2 |
|-----------------------|-------|---|

- | | | |
|-------------|--------------|---|
| 6. IAS..... | MAX 200 KIAS | 1 |
|-------------|--------------|---|

Refer to Airspeed Limitations in Section I - Operating Limitations.

- | | | |
|-----------------|------|---|
| 7. Window | OPEN | 2 |
|-----------------|------|---|

The optimal visibility is obtained with the viewers close to the window upper edge.

PITOT HEATING (PITOT HEATER FAILURE)

CAUTION

1 PITOT or **2 PITOT** or **AUX PITOT**

(corresponding pushbutton in)

1. Corresponding PITOT pushbutton..... PRESS 1

Check that OFF light comes on.

Avoid icing conditions. If icing or high humidity conditions appear, the following equipment may turn inoperative:

PITOT HEATING DISCONNECTED	INOPERATIVE SYSTEMS	REQUIRED ACTION
LEFT	C/M-1 Anemometer	Select ADS-2
	Modes FD, IAS, ALT, ALT SEL and VS	AP Disengage
RIGHT	C/M-2 Anemometer	Select ADS-1
	Modes FD, IAS, ALT, ALT SEL and VS	AP Disengage
AUXILIARY	IAS and ALT of the IESI (Reserve Instrument)	Use IAS, ALT information primary systems
	Pressurization Automatic Control, Cabin Altimeter and Differential Pressure Indicator	Avoid climbout/descent above 600/400 fpm respectively. Apply Pressurization Manual Control
	V _{MO} and Flaps Overspeed Warnings	Avoid flight or configuration close to these condition

Table 4-5 Inoperative Systems with Pitot Heating Disconnected

LANDING GEAR SYSTEM FAILURES

ABNORMAL LANDING GEAR INDICATION

Landing gear lever position not matching with one or more landing gear visual indicators and/or landing gear lever lamp.

1. Landing gear pins on board CHECK 2
2. IAS..... MAX 175 kts 1
3. Landing Gear Lever DOWN 2
4. Land at nearest suitable airport.
- A. If all landing gear visual indicators are green (down and locked):
5. Perform normal landing procedure. (END)
- B. If one or more landing gear visual indicators are not green:
5. Follow up the "LANDING GEAR EMERGENCY LOWERING" Emergency Procedure.

LANDING GEAR EMERGENCY LOWERING

1. IAS..... MAX 150 kts 1
2. Lateral Safety Pin.....PULL AND MAINTAIN 2
Pull and maintain until landing gear emergency lowering cover is fully up.
3. Landing Gear Emergency Lowering Cover LIFT 2
Keep the cover lifted until the end of flight.
4. Landing Gear Emergency Lowering LeverPULL FULLY OUT 2
Comes out some 15 cm.

NOTE

The time taken to extend the landing gear is approx. 25 seconds, but it can take longer if the OAT is very low. Maintaining a sustained turn limited to a 60° banking angle can help landing gear lowering by gravity.

When all three visual viewers have been positioned (green or not):

5. Landing Gear Lever DOWN 1/2
Set the Landing Gear Lever to DOWN so the lever position corresponds to the landing gear one and prevent a dangerous situation if the Emergency Landing Gear Extension lever guard is lowered.
6. Landing Gear Lever CHECK 1/2

A. If the landing gear lever is flashing:

One or more landing gear legs are not DOWN and LOCKED.

7. Follow up the "LANDING WITH ABNORMAL LANDING GEAR CONFIGURATION" Emergency Procedure. (END)

B. If the landing gear lever is not flashing:

All landing gear legs are DOWN and LOCKED.

7. LDG GR C/B (U1, A4).....PULL 1

This action gives additional protection against Landing Gear Lever accidental operation.

ANTISKID FAILURE (ANTISKID SYSTEM FAILURE)

CAUTION

A-SKD DGD with / without **A-SKD FLD**

A. If only the "A-SKD DGD" caution comes on:

The Anti-Skid system operates with limited functionality. Some wheel may have lost the "Anti-Skid Protection" or the "Touchdown Protection".

1. Antiskid..... RESET (OFF / ON) 2

A.1. If caution goes off:

Keep on normal operation. (END)

A.2. If caution remains on:

2. Antiskid..... KEEP CONNECTED
3. Brake smoothly to avoid wheel bursting at touch down.

NOTE

It is not advisable to taxi with one Main Landing Gear wheel not inflated. (END)

B. If both cautions come on simultaneously:

1. Antiskid..... RESET (OFF / ON) 2

B.1. If both cautions go off:

Keep on normal operation. (END)

B.2. If both cautions remain on:

Antiskid, as well as all its protections, has been lost. Use reverse power carefully only during landing run initial phase. Once the aircraft is firmly grounded, operate brakes smoothly and intermittently to prevent wheels from locking. However, if both tires on Main Landing Gear same side burst only operate brakes at the opposite side.

NOTE

Do not taxi if both tires on the Main Landing Gear same side are not inflated.

The required landing distance depends on both braking technique and runway conditions. This should be considered while runway selecting for landing. See the table below for Landing Distances without Antiskid.

LANDING DISTANCE WITHOUT ANTISKID

(SL, OAT Std. From 50 ft over threshold. No factor with reverse thrust)

		LANDING DISTANCE FROM 50FT									
FLAP	RUNWAY	LANDING WEIGHT (x 1000 kg)									
		12	14	16	17	18	19	20	21	22	23.2
23°	DRY	2720	2720	2825	2920	3000	3085	3179	3275	3375	3500
	WET	2965	2965	3085	3210	3310	3430	3545	3660	3790	3960
15°	DRY	2990	2990	3105	3210	3295	3395	3500	3600	3715	3850
	WET	3305	3305	3450	3575	3680	3810	3960	4070	4299	4355
10°	DRY	3125	3125	3250	3355	3445	3545	3655	3770	3885	4020
	WET	3470	3470	3625	3760	3885	4005	4125	4295	4425	4590
0°	DRY	3395	3395	3525	3645	3750	3855	3965	4095	4220	4380
	WET	3825	3825	3980	4120	4270	4395	4525	4665	4895	5065

Correction over SL Std. OAT.

ALTITUDE: Add 50 ft. for each 1000 ft. of altitude.

OAT: Add 50 ft. for each 10°C above 15°C

Without Reverse: add 200 ft.

Table 4-6 Landing distance without Antiskid

PNEUMATIC SYSTEM FAILURES

BLEED O.TEMP

Air-Conditioning Panel amber BLEED O.TEMP light on.

NOTE

HPSOV at the affected side has closed automatically. The Pack is still bled through the LP intake and the Pressure Regulator Valve (PRSOV) at lower temperature.

Wait a few seconds before resetting the system.

- | | | |
|----------------------------------|-------|---|
| 1. BLEED O.TEMP Pushbutton | PRESS | 2 |
|----------------------------------|-------|---|

If the overtemperature condition has gone out, the BLEED O.TEMP light will go off, thus initiating the system readjustment. HPSOV valve will go back to its normal functioning.

CAUTION

If it comes on again, do not touch the BLEED O.TEMP pushbutton as it would open the HPSOV Valve again.

WING OVERHEAT

WARNING

 MASTER BELL Acoustic Warning

WING OVHT

One or both bleed magnetic indicator/s crossed

- | | | |
|---------------------------|-------|-----|
| 1. Engine parameters..... | CHECK | 1/2 |
|---------------------------|-------|-----|

Check ITT, torque (TQ), oil pressure and oil temperature.

- | | | |
|---|--------|-----|
| 2. Affected PL (Crossed magnetic indicator side/s) (if necessary) | RETARD | 1/2 |
|---|--------|-----|

Retard to prevent exceeding engines limits (ITT) and try to force the WING OVHT warning go off.

- | | | |
|---------------|---------|---|
| 3. Clock..... | RUNNING | 2 |
|---------------|---------|---|

A. If only one magnetic indicator is at the cross-line position:

- | | | |
|-------------------------------------|-----|---|
| 4. Corresponding Bleed Switch | OFF | 2 |
|-------------------------------------|-----|---|

NOTE

Do not try to reconnect the bleed switch on again.

A.1. If the "WING OVHT" warning goes off before 2 minutes:

5. Affected PL..... OPERATE KEEPING LIGHT OFF 1
(END)

A.2. If the "WING OVHT" warning remains on after 2 minutes:

5. Bleed Magnetic Indicators CHECK 2

A.2.1. If only one magnetic indicator is at the cross-line position:

6. Follow up the corresponding "ENGINE SHUTDOWN" Emergency Procedure.

A.2.2. If both magnetic indicators are at the cross-line position:

6. Proceed to section B.

B. If both magnetic indicators are at the cross-line position:**CAUTION**

If both magnetic indicators are at the cross-line position, Cabin pressure loss will start immediately. Get ready for an Emergency Descent.

4. Bleed Switches.....OFF 2

After "WING OVHT" warning has gone off:

5. Left Bleed Switch ON 2

B.1. If the "WING OVHT" warning comes on:

6. Left Bleed SwitchOFF 2

7. Right Bleed Switch..... ON 2

8. Continue flight with left bleed switch off.

(END)

B.2. If the "WING OVHT" remains off:

6. Continue flight with right bleed switch off.

POWER PLANT SYSTEM FAILURES

ENGINE FIRE OR SEVERE DAMAGE IN FLIGHT

WARNING MASTER BELL Acoustic Warning

and some or all of the following indications:

1 E/FIRE or **2 E/FIRE** FIRE BELL Acoustic Warning

FIRE Light on Fire Handle

and/or

Noise or structural vibrations with abnormal and/or inconsistent engine indications.

WARNING

If performing a Continued Takeoff, wait until a positive rate of climb is reached, operate the landing gear lever up and wait until V_2 is reached before going on with the procedure.

- | | | |
|--|------------------------|------------|
| 1. FFL (affected engine)..... | DIRECTLY TO OFF | 2 * |
| 2. Fire Handle (affected engine) | PULLED | 2 * |
| Check that the READY lights come on. | | |
| 3. Clock..... | RUNNING | 2 |
| A. <u>If all fire indications go off before 10 seconds:</u> | | |
| 4. Land immediately in the nearest suitable airport. | | |
| 5. Follow up the "ENGINE SHUTDOWN IN-FLIGHT" Emergency Procedure. (END) | | |
| B. <u>If any fire indication persists after 10 seconds:</u> | | |
| 4. Fire Handle (affected engine) | TURN TO DISCH 1 | 2 * |
| Fully turn the Fire Handle <u>to the left</u> (DISCH 1) and check that the corresponding EMPTY light comes on. | | |
| B.1. <u>If all fire indication go off before 40 seconds:</u> | | |
| 5. Land immediately in the nearest suitable airport. | | |
| 6. Follow up the "ENGINE SHUTDOWN IN-FLIGHT" Emergency Procedure. (END) | | |
| B.2. <u>If any fire indication persists after 40 seconds:</u> | | |
| 5. Fire Handle (affected engine) | TURN TO DISCH 2 | 2 * |
| Fully turn the Fire Handle <u>to the right</u> (DISCH 2) and check that the other EMPTY light comes on. | | |
| 6. Land immediately at the nearest suitable airport. | | |

7. Follow up the "ENGINE SHUTDOWN IN-FLIGHT" Emergency Procedure.

ENGINE FLAMEOUT

Power loss, ITT decrease and NH decrease with or without sudden yawing.

NOTE

Autoignition is activated between 64% and 30% of NH with propeller unfeathered. A NH decrease below 40% indicates autoignition has failed.

- | | | |
|---|-----------------|----|
| 1. PL (affected engine)..... | FI | 1 |
| 2. FFL (affected engine, <u>when dropping below 30% NH</u>) | DIRECTLY TO OFF | 2* |
| 3. Follow up the corresponding "ENGINE SHUTDOWN" Emergency Procedure. | | |

DUAL ENGINE FAILURE

Engine starting in flight is only guaranteed within the flight envelop limits as reflected at the end of the "ENGINE RESTART IN-FLIGHT" Emergency Procedure.

NOTE

Autoignition is activated between 64% and 30% NH with propeller unfeathered. Any NH indication drop below 40% indicates autoignition has failed.

- | | | |
|---|-----------------|----|
| 1. Automatic Pilot (if connected)..... | DISENGAGE | 1 |
| 2. PLs | FI | 1 |
| 3. FFLs (when dropping below 30% NH) | DIRECTLY TO OFF | 2* |
| 4. AOA (in clean configuration)..... | 0.66 units | 1 |
| 5. NP (both engines) | CHECK NPs < 3% | 2 |
| If NPs are equal or above 3%, use the Auxiliary Feathering Electrical Pump. | | |
| 6. ATC | NOTIFY | 2 |
| 7. Hydraulic Pumps | MAN / A.R. | 2 |
| 8. Non-essential electrical loads | DISCONNECT | 2 |

NOTE

Non-essential electrical loads are: Windshield Heating, Pitot No. 2 Anti-icing, Avionics Master Switch No. 2, COMSEC No. 2, Fans, Internal Lights.

CAUTION

The minimum altitude to achieve re-starting and apply maximum power is 800 ft AGL.

WARNING

Do not restart an engine if previously has been shutdown due to fire or severe damage.

9. Engine Starting (in BAT Mode)PERFORM 2

NOTE

If more than two re-starting attempts are required, bear in mind the battery charge as required for descent and landing.

If neither engine starts:

10. Non-essential electrical loadsDISCONNECT 2

NOTE

When it is decided not to attempt to restart again, disconnect as soon as possible the following equipment: Pitot No. 1 Anti-icing, Inverter, Fuel Pumps, non-required instruments lightning, C/M-1 Avionics using the Avionics switches and the relevant C/Bs.

11. Flaps (use only one hydraulic pump).....A.R. 2

Flaps extension will require at least 20V at the batteries.

12. Landing Gear Emergency LoweringA.R. 2

CAUTION

Do not extend the landing gear if there is no convenient ground to land on.

ENGINE SHUTDOWN IN-FLIGHT

NOTE

To extend service life of the engine, and only if conditions permit, disconnect the affected engine bleed, retard the affected engine PL to FI and allow engine cool down for about 2 minutes before to continuing with the procedure.

CAUTION

Note that if any battery is disconnected or inoperative, the engine cannot be restarted.

- | | | |
|--|-----------------|-----|
| 1. PL (affected engine)..... | FI | 1 |
| 2. FFL (affected engine)..... | DIRECTLY TO OFF | 2 * |
| 3. NP (affected engine)..... | CHECK NP < 3% | 2 |
| If NPs are higher than or equal to 3% use the auxiliary feathering pump.
Decreasing the aircraft speed also helps reducing NPs. | | |
| 4. PRS Selector..... | MCT | 2 |
| 5. Fuel PUMP (affected engine) | A.R. | 2 * |

CAUTION

If the engine shutdown is a result of the "ENGINE FIRE OR SEVERE DAMAGE IN FLIGHT" Emergency Procedure, press the affected engine Fuel PUMP pushbutton.

- | | | |
|---|---------------|---|
| 6. Electrical System | CHECK BUS TIE | 2 |
| If the BAT BUS TIE magnetic indicator is not in line, set its selector to ON. If still not in line, set the selector to OFF and press the GEN BUS TIE pushbutton. | | |
| 7. Generator (affected engine)..... | OFF | 2 |
| 8. Hydraulic Pumps..... | MAN / A.R. | 2 |
| When necessary, connect only the hydraulic pump corresponding to the operative generator (1 or 2). | | |
| 9. Reduce electrical loads to below 400 A. Refer to "LIST OF LOADS" in the "DUAL DC GENERATORS FAILURE" Emergency Procedure. | | |
| 10. Bleed switch (affected engine)..... | OFF | 2 |

A. If restarting is advisable:**WARNING**

Do not restart an engine if previously shutdown due to fire or severe damage.

11. Follow up the "ENGINE RESTART IN-FLIGHT" Emergency Procedure. (END)

B. If restarting is not advisable:

11. Monitor fuel imbalance. If required, apply fuel crossfeed only if there are no fire indications.
12. Land at the nearest suitable airport with flaps at 15° and $V_{REF} + 15$ or minimum V_{TH} , whichever higher. Press the EGPWS FLAP OVRD pushbutton to avoid a nuisance warning. Refer to LANDING DISTANCE TABLE.

GO-AROUND (1 ENGINE)

- | | | |
|--|---------------------|---|
| 1. GO-AROUND..... | ANNOUNCE | 1 |
| 2. PL (operative engine) | MAX AUTO | 1 |
| 3. Bleed switches | OFF | 2 |
| 4. Speed | $V_{REF} + 12$ KIAS | 1 |
| 5. Flaps | T/OFF | 2 |
| 6. Landing Gear (positive rate of climb) | RETRACT | 2 |
| 7. Continue operation as if performing a normal takeoff. | | |

ENGINE RESTART IN-FLIGHT

Engine restart in flight is only guaranteed within the flight envelop limits as reflected at the end of this procedure.

WARNING

Do not restart an engine if previously shutdown due to fire or severe damage.

CAUTION

Do not attempt an engine restart in flight with the autofeather system armed.

NOTE

Before following up this procedure complete the "ENGINE SHUTDOWN IN-FLIGHT" Emergency Procedure.

NOTE

Engine restart in-flight with the autopilot engaged may cause AP disengagement.

- | | | |
|---|----------|---|
| 1. Batteries | CHECK ON | 2 |
| 2. Fuel PUMP pushbutton (affected engine) | RUN | 2 |
| 3. MODE SEL Selector | X-START | 2 |

Whenever possible, X-START mode shall be used to restart the engine.

NOTE

The BUS UNTIE warning will come on during the cross-start. Disregard it until the procedure has been completed.

NOTE

If BATtery start is used, related DC GEN warning will come on when Engine MODE SElector is set to BAT. Disregard it until the procedure has been completed.

- | | | |
|--|-------------------|---|
| 4. ENGINE SEL Selector | TO ENGINE STOPPED | 2 |
| Check START pushbutton ARM green light comes on. | | |
| 5. Corresponding IGN Pushbutton..... | PRESS / ARM | 2 |
| Check that ARM light comes on. | | |
| 6. Corresponding START Pushbutton | PRESS | 2 |
| Check that the NH starts increasing. | | |
| 7. Corresponding FFL (at 10% minimum NH) | START | 2 |

NOTE

If the residual ITT is higher than 250°C, move FFL to START at 15% NH.

8. Relight OBSERVE 1/2

Monitor the in-flight start sequence and limitations.

NOTE

Bear in mind during engine restarts in-flight the FLAP FAIL Caution can come on. Disregard any FLAP FAIL caution in this situation and, after engine restarts, use the Flap RESET Switch to reset the FLAP FAIL Caution.

A. If the engine is started successfully:

9. Oil Pressure and Temperature (affected engine) CHECK 2

NOTE

Unless power is required immediately, unfeather the propeller only when the oil temperature is in the green band.

10. FFL (affected engine) RUN 2

Check the propeller unfeathering (NPs in green band).

11. PRS A.R. 2

12. PLs A.R. 1

13. ENGINE START Panel RESTABLISH 2

Press the IGN pushbutton. Set ENGINE SEL to OFF and MODE SEL to OFF.

14. Generator (affected engine) RESET / ON 2

15. Bleed switch (affected engine) ON 2

16. Disconnected Electrical Loads RESET 2

17. Hydraulic Pumps AUTO 2

(END)

B. If the engine is not started successfully:

9. FFL OFF 2

10. ENGINE START Panel RESTABLISH 2

Release the IGN pushbutton. Set the ENGINE SEL selector to OFF and the MODE SEL to OFF.

11. Fuel PUMP Pushbutton (affected engine) A.R. 2

12. Land at the nearest suitable airport with Flaps at 15° and $V_{REF} + 15$ or minimum V_{TH} , whichever higher. Press the EGPWS FLAP OVRD pushbutton to avoid a nuisance warning. Refer to "LANDING DISTANCE TABLE".

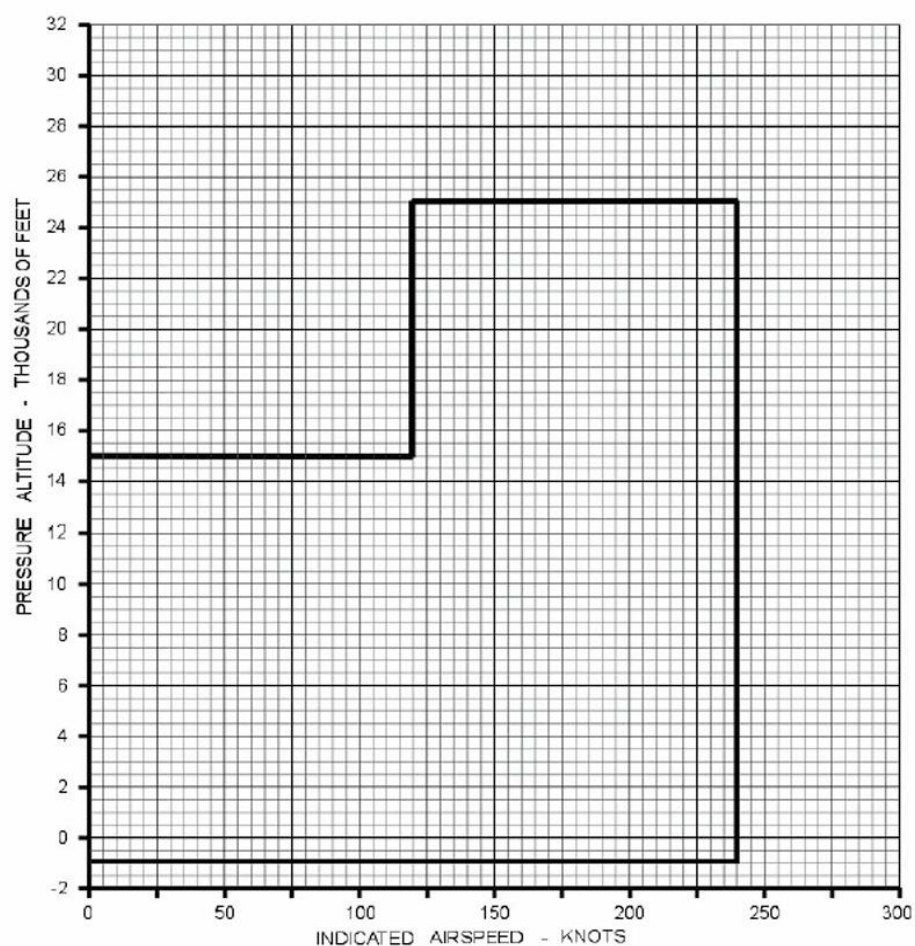


Figure 4-1 In-flight Engine Restart Envelope

AUTOFEATHER FAILURE

WARNING MASTER BELL Acoustic Warning

AUTFTR

APR lost.

1. Autofeather/APROFF 2

The AUTFTR warning goes off from the IEDS. Be ready in case of an Engine Failure.

(END)

If an engine fails:

Be ready to counteract adverse yaw if an engine fails during Takeoff or Go around.

2. FFL (affected engine)..... **DIRECTLY TO OFF** 2 *
3. PL (operative engine) **ADVANCE ABOVE MAX AUTO** 1

Move PL to 112% TQ or 800°C ITT is reached, whichever happens first, until the manoeuvre is completed.

4. Follow up the corresponding "ENGINE SHUTDOWN" Emergency Procedure.

NL OVERSPEED

WARNING MASTER BELL Acoustic Warning

1 NL OVSP and/or **2 NL OVSP**

Warning appears when exceeding 106.5% NL.

1. **Corresponding PL**.....**RETARD** 1

If NLs decreasing is not possible below 106.5%, follow up the corresponding "ENGINE SHUTDOWN" Emergency Procedure.

LOW OIL PRESSURE

Do not initiate the takeoff with oil pressure indication out of the green zone.

A. Oil pressure between 40 and 54 PSI (lower yellow band):

1. Corresponding PLADJUST 1

If reaching the green zone is not possible, keep on normal operation monitoring both oil temperature and ITT. If abnormal indications are confirmed and power is not required, follow up the corresponding "ENGINE SHUTDOWN" Emergency Procedure. (END)

B. Oil pressure below 40 PSI (lower red band):

WARNING MASTER BELL Acoustic Warning

1 E/OIL P or **2 E/OIL P**

1. If power is not required, immediately follow up the corresponding "ENGINE SHUTDOWN" Emergency Procedure.

HIGH OIL PRESSURE

Oil Pressure above 65 PSI.

Do not initiate the takeoff with oil pressure indication out of the green zone.

A. Oil pressure between 66 and 100 PSI (upper yellow band):

1. PLRETARD 1

If reaching the green band is not possible, keep on normal operation monitoring both oil temperature and ITT. If abnormal indications and/or engine vibrations are confirmed and power is not required, follow up the "ENGINE SHUTDOWN" Emergency Procedure. (END)

B. Oil pressure above 100 PSI (upper red band):

1. Reduce power if possible, and if power is not required, immediately follow up the corresponding "ENGINE SHUTDOWN" Emergency Procedure.

LOW OIL TEMPERATURE

ENG OIL Temperature below 45°C (white mark)

CAUTION

Do not initiate the takeoff with oil temperature below 0°,
or below 45°C in icing conditions.

1. Corresponding PL ADVANCE 1
If it is not possible to keep the temperature above 45°C, avoid icing conditions.
2. If the temperature drops below -40°C, follow up the corresponding "ENGINE SHUTDOWN" Emergency Procedure.

HIGH OIL TEMPERATURE

Oil Temperature above 125°C.

1. Corresponding PL RETARD 1
- A. Oil temperature between 126°C and 140°C (upper yellow range):
 2. Monitor oil pressure and any possible engine vibrations.
If oil temperature stays in the yellow band for up to 20 minutes and power is not required, follow up the corresponding "ENGINE SHUTDOWN" Emergency Procedure. (END)
If at any time oil pressure oscillations and/or engine vibrations occur, follow up the corresponding "ENGINE SHUTDOWN" Emergency Procedure. (END)
- B. Oil temperature above 140°C (upper red range):
 2. If power is not required, follow up the corresponding "ENGINE SHUTDOWN" Emergency Procedure.

EEC FAILURE

CAUTION

1 EEC and/or **2 EEC**

There is no response to PL demands for increased power and only a limited power reduction is available

Do not initiate takeoff with 1 EEC and/or 2 EEC caution on.

WARNING

In case of double EEC failure, apply the following procedure to one engine and, once PL control has been achieved, proceed with the other EEC.

NOTE

The EEC failure may also force the ELEV TRIM and RUD TRIM warnings IEDS-displayed. Disregard these warnings until procedure is completed.

CAUTION

Avoid aggressive PL handling and take a minimum of 10 second for full PL movement especially when above 10000 ft., unless there are other factors requiring the PL to be moved more quickly.

1. Corresponding PLFI 1
This action will set the Engine Control to Manual Mode.

CAUTION

Do not try to reset EEC if the PL is not in FI position. Otherwise, the engine operational limits may be exceeded.

2. Corresponding EECRESET 2
To reset EEC, press the corresponding pushbutton of the ENGINE section at the ELECTRONIC CONTROL / STATUS panel, and check that MAN light comes on and the corresponding 1, 2 EEC caution goes off from the IEDS. Press it again.
A. If the "1, 2 EEC" caution does not come on again:
3. Keep flying in normal operation. (END)
B. If the "1, 2 EEC" caution comes on again:
3. PRS Selector..... TOGA 2

4. Corresponding EECDISCONNECT 2

Press the corresponding pushbutton of the ENGINE section at the ELECTRONIC CONTROL / STATUS panel, and check that MAN light comes on and the corresponding 1, 2 EEC annunciation goes off from the IEDS.

CAUTION

The EEC disconnection means both autoignition and APR have been lost. The RBS function can be degraded.

5. Corresponding PLA.R. 1

Set the corresponding Power Lever to the required power setting without exceeding the engine limitations. Avoid PL sudden changes.

CAUTION

Reverse power on the affected engine will be degraded (asymmetric reverse power) and it will only be available at PL positions close to MAX REV. If necessary, apply reverse thrust progressively.

At low taxiing speeds, the alternator may stop working. Avoid NP values in the lower yellow band.

NOTE

If the affected engine parameters cannot be maintained within the operating limits, follow up the "ENGINE SHUTDOWN" Emergency Procedure.

NOTE

Once landed, if propeller brake is required, do not exceed the NH limits as shown on following graph for Propeller Brake operation with the EEC disconnected.

MAX ALLOWABLE % NH IN HOTEL MODE WITH EEC INOPERATIVE

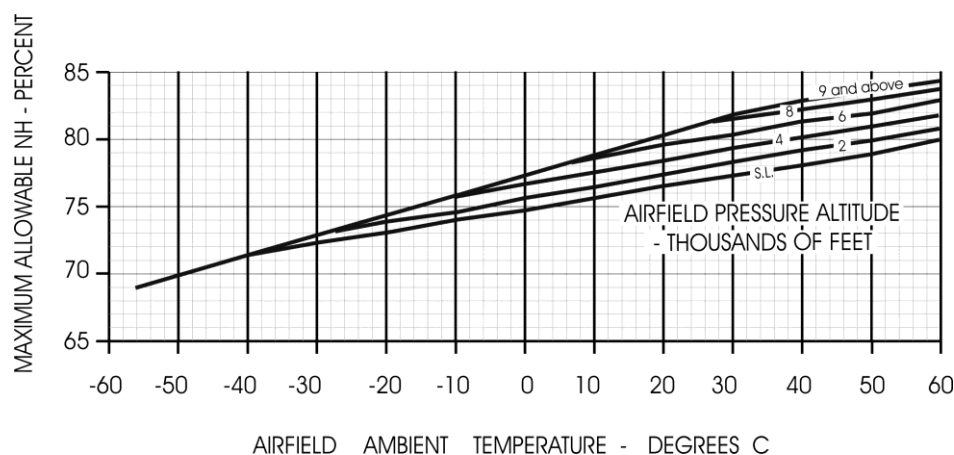


Figure 4-2 Max NH in hotel mode

EPC FAILURE

CAUTION

1 EPC or 2 EPC

Propeller NP within upper amber band potential indication.

Both SLPS and OSG take over propeller controlling. Thus, while in-flight propeller speed will normally reach $103 \pm 1\%$ NP (upper amber band).

Do not initiate takeoff with the 1 EPC and/or 2 EPC caution on.

1. PRS Selector..... TOGA 2

Set the PRS selector to TOGA in order to select 100% NP on the unaffected engine and minimize the power asymmetry.

2. Corresponding EPC (once only).....RESET 2

To reset the EPC, press the corresponding pushbutton of the PROPELLER section at the ELECTRONIC CONTROL STATUS panel, verifying that the OFF light comes on and the corresponding 1, 2 EPC caution goes off from the IEDS. Press it off again.

- A. If the "1, 2 EPC" caution does not come on again:

3. Keep flying in normal operation. (END)

- B. If the "1, 2 EPC" caution comes on again:

3. Corresponding EPC.....DISCONNECT 2

Keep flying while propeller operating with EPC disconnected.

CAUTION

If OSG is not able enough to keep the propeller NP in flight at $103 \pm 1\%$, it will operate the fuel control to keep the propeller NP at 106% (red band). Even so, the flight can be on in this status ("GET HOME" CAPABILITY).

At Landing:

CAUTION

Do not use reverse thrust on the affected side. Take extreme caution while using reverse thrust on the opposite side.

After Landing and While Taxiing:

4. FFL (affected engine).....START 2

NOTE

At PL retarded position the affected engine NPs may drop to the lower yellow range. To avoid this situation feather the propeller.

FIRE DETECTION SYSTEM FAILURE**CAUTION**

1 FIRE DET and/or **2 FIRE DET**

The system is not able to detect an engine fire status or overheat condition.

1. Land at nearest suitable airport.

UNSAFE PROPELLER BRAKE

WARNING MASTER BELL Acoustic Warning

PROP BRK

with or without UNLKD Light on

1. **Left FFL** **DIRECTLY TO OFF** 2 *
- If the C/M-2 is not at the cockpit, the C/M-1 will perform the action.
2. Propeller Brake (if connected)DISCONNECT 2
- If the C/M-2 is not at the cockpit, the C/M-1 will perform the action.
3. Follow up the corresponding "ENGINE SHUTDOWN" Emergency Procedure.

POWER PLANT INDICATION FAILURE

A. The TQ, NH or NP indication box flashes:

The corresponding indication of the primary sensor has failed. The IEDS is using the Back-Up signal as provided by the corresponding EEC.

Keep flying in normal operation. (END)

B. Fluctuations not displayed at the remaining parameters or the numerical indication displays flashing dashes:

The flashing dashes indicate that the corresponding sensor is sending an invalid signal to the IEDS or that the signal has been lost.

B.1. If the affected reading is TQ, NH, ITT or NP:

- | | | |
|------------------------|-------|---|
| 1. SWP Pushbutton..... | PRESS | 2 |
|------------------------|-------|---|

Press SWP on the IEDS or at the pedestal to change the IEDS screens.

NOTE

The IEDS screens change means also the change of the microprocessor which generates both Primary and Secondary Visualizations. Thus, it is intended to distinguish if the failure is due to the corresponding sensor or to the microprocessor.

B.1.1. If the anomaly goes out:

Keep flying while monitoring both engines readings. (END)

B.1.2. If the anomaly persists:

- | | | |
|---------------------------|----------|---|
| 2. SWP Pushbutton..... | PRESS | 2 |
| 3. Corresponding PL | EQUALIZE | 1 |

Take opposite side PL as a reference to the failed indication one.

Keep flying while monitoring regularly the indications of the same engine that referred with the affected indication in order to try to compensate its loss. (END)

B.2. If the affected indication is any other:

Keep flying while monitoring regularly the indications of the same engine that referred with the affected indication in order to try to compensate its loss. (END)

C. "FUEL FLOW" with reading failure:

The Fuel Used reading will also be incorrect. Keep flying while taking the remaining fuel indications as a reference. (END)

D. Abnormal TQ, ITT, NP, NH or fuel flow readings from both engines simultaneously:

The problem is probably due to failure of one of the IEDS processor.

- | | | |
|-------------------------|-------|---|
| 1. SWP pushbutton | PRESS | 2 |
|-------------------------|-------|---|

Press the SWP pushbutton on the IEDS or at the pedestal panel to change the IEDS screens.

NOTE

IEDS screens change means also the change of the microprocessor which generates both Primary and Secondary Visualizations. Thus, it is intended to distinguish if the failure is due to the corresponding sensor or to the microprocessor.

D.1. If the anomaly goes out:

Keep flying while monitoring both engines parameters. (END)

D.2. If the anomaly persists:

- | | | |
|-------------------------|-------|---|
| 2. SWP pushbutton | PRESS | 2 |
|-------------------------|-------|---|

- | | | |
|------------------|------|---|
| 3. Both PLs..... | A.R. | 1 |
|------------------|------|---|

Adjust the power on both engines to within operating limits.

(END)

E. Both vertical scale and TQ cursor flashing:

The EEC is not able to control the HBOV Valve at the corresponding engine.

- | | | |
|---------------------------|--------|---|
| 1. Corresponding PL | ADJUST | 1 |
|---------------------------|--------|---|

Adjust the PL to avoid exceeding the engine limitations.

- | | | |
|----------------------------|-------|---|
| 2. Corresponding EEC | RESET | 2 |
|----------------------------|-------|---|

Reset the EEC to force the failure goes out. To reset the EEC, press the corresponding pushbutton of the ENGINE section at the ELECTRONIC CONTROL / STATUS checking that MAN light comes on and that the corresponding 1,2 EEC caution goes off from the IEDS. Press it off again.

E.1. If the flashing goes off:

Keep flying in normal operation. (END)

E.2. If the flashing persists:

Avoid sharp changes in the Power Lever position above 10000 ft and, once the flight is over, notify the failure to the maintenance personnel.

IEDS FAILURE

Defective symbols and/or suspect indications are displayed.

- | | | |
|-------------------------|-------|---|
| 1. TST pushbutton | PRESS | 2 |
|-------------------------|-------|---|

NOTE

Press and hold the IEDS TST pushbutton until the test ends.

- | | | |
|-------------------------------|-------|---|
| 2. "BIT STATUS" message | CHECK | 2 |
|-------------------------------|-------|---|

A. If the BIT result is "PASSED":

- | | | |
|-------------------------|-------|---|
| 3. SWP pushbutton | PRESS | 2 |
|-------------------------|-------|---|

Press the IEDS SWP pushbutton or at the pedestal panel to change the IEDS screens.

A.1. If the anomaly goes off:

4. IEDS operation is still under suspect. Keep flying in this condition. (END)

A.2. If the anomaly persists:

- | | | |
|-------------------------|-------|---|
| 4. SWP pushbutton | PRESS | 2 |
|-------------------------|-------|---|

Press the IEDS SWP pushbutton or at the pedestal panel to change the IEDS screens again and return to the initial configuration.

- | | | |
|-----------------------|-------|---|
| 5. C Pushbutton | PRESS | 2 |
|-----------------------|-------|---|

Press IEDS-C or at the pedestal panel to switch to the composite display mode and keep flying using the unaffected screen in composite mode. (END)

B. If the BIT result is "FAILED":

- | | | |
|-----------------------|-------|---|
| 3. C Pushbutton | PRESS | 2 |
|-----------------------|-------|---|

Press IEDS-C or at the pedestal panel to switch to the composite display mode and keep flying using the unaffected display in composite mode.

AVIONIC SYSTEM FAILURES

ACP FAILURE

ACP not responding

or

communications not responding

NOTE

If C/M-3 ACP or FR10 ACP not responding or communication is not possible through one of these ACPs, proceed to step 2 of section B.

NOTE

In case of ACP power drop, the ACP backlight will be removed and control will be disabled.

NOTE

In case of REU failure, related ACP normal operation is lost.

1. EMG pushbuttonPRESS / CHECK 1/2

Check EMG pushbutton light is on.

A. If EMG pushbutton light is on:

Integrated audio control system is already in emergency mode.

2. CommunicationsCHECK 1/2

Check communication is possible while PTT pushbutton is pressed.

A.1. If communication is possible:

Continue operation in emergency mode.

(END)

A.2. If communication is not possible:

Proceed to step 2 of section B.

B. If EMG pushbutton light is off:

2. Affected ACP C/B OUT / IN 1/2

If C/M-1 ACP is failed, reset (pull out and in) ICS PLT C/B (U2, C-7) and ICS PLT C/B (U2, E-4).

If C/M-2 ACP is failed, reset (pull out and in) ICS CPLT C/B (U2, C-12) and ICS CPLT C/B (U2, E-15).

If C/M-3 ACP is failed, reset (pull out and in) ICS CM3 C/B (U2, B-4).

If FR10 ACP is failed, reset (pull out and in) ICS CAB FWD C/B (U2, B-3).

NOTE

This step will reset the failed ACP. If communications through failed ACP is not possible, failed ACP is lost.

DISPLAY UNIT FAILURE

A. In case of PFD or ND failure:

1. Corresponding Bright Selector.....OFF 1/2

This way, if the PFD was the affected display, it will be shown on the ND.

2. Corresponding Bright Selector (after some minutes) ON 1/2

If the display has been reset correctly. (END)

If the display does not reset, set the selector back to OFF. (END)

B. White "DU HOT" annunciator displayed:

1. Bright Selector..... REDUCE TO A MINIMUM 1/2

If the annunciation changes to amber, the display will disconnect automatically.

NOTE

If the display is not required, leave it off for a while to reduce its temperature.

IOP FAILURE

All the NAV/COM indications will be lost, except RA.

or

The DH values and the corresponding side speed marks will be lost.

A. If all the NAV/COM indications are lost (except RA):

The "MASTER" IOP is failed.

1. RAD PRCSR Selector.....SELECT THE OPERATIVE SIDE 1/2

Continue flying with the operative side indications. (END)

B. If DH values and speed marks on the corresponding side are lost:

The "SLAVE" IOP is failed.

1. Continue flying with the operative side indications 1/2

ICP FAILURE

Altitude indication, barometric correction, DH and speed reference flags will be lost at one side screen.

1. ADS selectorSELECT THE OPERATIVE SIDE 1/2

Both PFDs and NDs will use the same air data source (altitude and speed). An ADC1 or ADC2 annunciation will be displayed on the corresponding screen, depending on which has been selected.

NOTE

Barometric adjustment will be controlled with the ICP of the selected side (ICP1 when both sides are connected to 1 and ICP2 when both sides are connected to 2).

EFIS CONTROL PANEL FAILURE

The functions associated to the failed EFCP controls will be lost.

Both PFD and ND associated to the failed EFCP change to the following fix modes:

- PFD/ND Bright in 50%
- IMG BRT Radar bright relation in 1/1
- RANGE in 40 NM
- ND FORMAT display mode in ROSE
- IMG radar mode in W_X ON
- TCAS mode in AUTO
- ND OR orientation mode in HEADING UP
- If the failure is at the pilot's side: ADF 1 in needle 1 and VOR 2 in needle 2
- If the failure is at the copilot's side: VOR 1 in needle 1 and ADF 2 in needle 2

HEADING FAILURE

"HDG FAIL" is displayed in one EHSI and in the related ND.

NOTE

The AP is automatically disengaged.

1. AHRS Selector SELECT THE OPERATIVE SIDE 1/2

Both EHSI and ND will use the same heading reference and both EADI will use the same attitude reference. The HDG1/ATT1 or HDG2/ATT2 annunciators will be displayed, depending on the AHRS selection. When the AHRS is in GYRO mode, the annunciator will change from HDG to DG.

2. HSI/SEL Selector SELECT THE OPERATIVE SIDE 1/2

If the AHRS failed was the one selected in the HSI/SEL, the FD is lost. To recover the FD, select the operative AHRS on the HSI/SEL selector.

If AHRS1 is the one failed: TCAS, WXR, left FD and left AP fail.

If AHRS2 is the one failed: WXR, right FD and right AP fail.

If both AHRS are failed: TCAS, WXR, FD, AP and EGPWS fail.

HEADING MISMATCH

"HDG" is displayed in both EHSI and both ND.

1. Invalid Heading Source IDENTIFY 1/2

Identify the invalid heading source by checking with the Standby Magnetic Compass.

WARNING

When the compass is used, ensure that the windshield heating is off.

2. GYROSCOPIC COMPASS SYNCHRONIZE MANUALLY 1/2

A. If synchronizing is successful:

(END)

B. If synchronizing is not successful:

3. AHRS SelectorSELECT THE VALID HEADING SOURCE 1/2

Both EHSI and NDs will use the same heading reference and both EADI will use the same attitude reference. The HDG1/ATT1 or HDG2/ATT2 annunciators will be displayed, depending on the AHRS selection. When the AHRS is in GYRO mode, the annunciator will change from HDG to DG.

The WXR fails.

ATTITUDE FAILURE

"ATT FAIL" is displayed in one EADI.

NOTE

The AP is automatically disengaged.

1. AHRS SelectorSELECT THE OPERATIVE SIDE 1/2

Both EADI will use the same attitude reference and both EHSI and NDs will use the same heading reference. The HDG1/ATT1 or HDG2/ATT2 will be displayed depending on the AHRS selection. When the AHRS is in GYRO mode, the annunciation will change from HDG to DG.

2. HSI/SEL SelectorSELECT THE OPERATIVE SIDE 1/2

If the AHRS failed was the one selected in the HSI/SEL, the FD is lost. To recover the FD, select the operative AHRS in the HSI/SEL selector.

If AHRS1 is the one failed: TCAS (intruders not displayed), left FD and left AP fail.

If AHRS2 is the one failed: WXR, right FD and right AP fail.

If both AHRS are failed: TCAS (intruders not displayed), WXR, FD, AP and EGPWS fail.

ATTITUDE MISMATCH

"PITCH" and/or "ROLL" are displayed in both EADIs.

NOTE

The AP is automatically disengaged, and the WXR fails.

1. Invalid Attitude Source IDENTIFY 1/2

Identify the invalid attitude source by checking with the IESI.

2. AHRS selector..... SELECT THE VALID ATTITUDE SOURCE 1/2

Both EADI will use the same attitude source reference and both EHSI and NDs will use the same heading reference. The HDG1/ATT1 or HDG2/ATT2 annunciators will be displayed, depending on the AHRS selection. When the AHRS is in GYRO mode, the annunciation will change from HDG to DG.

IVSI FAILURE (INERTIAL VERTICAL SPEED INDICATION FAILURE)

"IVSI FAIL" is displayed in the Vertical Speed Area in one PFD.

1. Continue the flight with the operative side indications 1/2

AIRSPEED FAILURE

"IAS FAIL" is displayed at a PFD airspeed indicator and at the related ND.

NOTE

The AP is automatically disengaged.

1. ADS selector SELECT THE OPERATIVE SIDE 1/2

Both PFD and ND will use the same air data source (altitude and speed). An ADC1 or ADC2 annunciator will be DU-displayed, depending on which has been selected.

AIRSPEED MISMATCH

"IAS" is displayed at both airspeed indicators and the related NDs.

NOTE

The AP is automatically disengaged.

1. ADS selector 1 - 2 1/2

This verification is performed checking with the standby IESI in order to determine which source is not functioning correctly.

2. ADS selector SELECT THE OPERATIVE SIDE 1/2

Both PFD and ND will use the same air data source (altitude and speed). An ADC1 or ADC2 annunciator will be DU-displayed, depending on which has been selected.

NOTE

Barometric correction will be controlled with the ICP of the selected side (ICP1 when both sides are connected to 1 and ICP2 when both sides are connected to 2).

WARNING

Pilots must be aware of standby airspeed indication error when flying with sideslip.

ALTITUDE FAILURE

"ALT FAIL" is displayed at one PFD altimeter and the corresponding ND.

NOTE

The AP is automatically disengaged.

1. ADS selector SELECT THE OPERATIVE SIDE 1/2

Both PFDs and NDs will use the same air data source (altitude and speed). An ADC1 or ADC2 annunciator will be DU displayed, depending on which has been selected.

ALTITUDE MISMATCH

"ALT" is displayed at both altimeters and ND.

NOTE

The AP is automatically disengaged.

1. ADS selector 1 - 2 1/2

This verification is performed checking with the standby IESI in order to determine which source is not functioning correctly.

2. ADS selector SELECT THE OPERATIVE SIDE 1/2

Both PFD and ND will use the same air data source (altitude and speed). An ADC1 or ADC2 annunciator will be DU-displayed, depending on which has been selected.

NOTE

Barometric correction will be controlled with the ICP of the selected side (ICP1 when both sides are connected to 1 and ICP2 when both sides are connected to 2).

WARNING

Pilots must be aware of the standby altitude indication error when flying with sideslip.

CHECK PFD WARNING (PRIMARY FLIGHT PARAMETERS INCORRECT DISPLAY)

"CHECK PFD1" displayed at PFD1 and ND1

or

"CHECK PFD2" displayed at PFD2 and ND2.

and

"HDG" or "PITCH" or "ROLL" or "IAS" or "ALT" are PFD-displayed

depending on which parameter is incorrect

There is a difference between the value that must appear at a PFD and the value that really appears, due to a screen internal failure.

- | | | | |
|----|---------------|-------|-----|
| 1. | Displays..... | CHECK | 1/2 |
|----|---------------|-------|-----|

The screens are checked by comparing with the other PFD and with the IESI.

- | | | | |
|----|---|-----|-----|
| 2. | Bright selector on the corresponding PFD..... | OFF | 1/2 |
|----|---|-----|-----|

In this way the PFD-displayed information will be ND-transferred and this will be lost.

AVIONIC DATA LOST

Some avionic data will be lost because of voltage drops on avionic bars.

A. If EFIS is lost:

Wait until IOP PBIT finishes.

NOTE

Pilot PFD primary parameters (Attitude, Heading, Altitude and Speed) remain.

- | | | | |
|----|----------------------|-----------|-----|
| 1. | EFIS parameters..... | RE-SELECT | 1/2 |
|----|----------------------|-----------|-----|

(END)

B. If FMS is lost:

Wait until FMS2 and MCDUs PBIT finish.

- | | | | |
|----|--------------------------|------------------------------|---|
| 1. | FMS1 fail messages | RESET ALL (EXCEPT CROSSTALK) | 1 |
|----|--------------------------|------------------------------|---|

Reset all FMS1 fail messages except CROSS TALK INIT PRESS CTK TO CONFIRM.

2. FMS1 CTK key..... PRESS 1

The data transfer duration is over 60 seconds and is announced on MCDUs with CROSSTALK INIT message in scratchpad.

(END)

- C. If IRS/GPS is lost:

NOTE

IRS/GPS1 maintains the navigation mode.

Wait 10-15 minutes until IRS/GPS2 alignment procedure finishes, so inertial data is available in FMS2.

(END)

- D. If navigation is lost:

Wait until IOP and MCDUs PBIT finish.

NOTE

Previous parameters, frequencies, channels and selections remain.

(END)

- E. If AFCS is lost:

Wait until AFCS PBIT finishes.

1. Flight Director Mode/Automatic PilotA.R. 1