LEVEL-D
Simulations

767-300ER

Non-Normal
Checklists

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Non-Normal Table of Contents

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Introduction

Non–Normal Checklist Operation

The following chapters contain procedures that are used to deal with non-normal situations. These procedures are grouped into systems categories, and are adapted for the purposes of the Level-D Simulations 767.

Non–normal checklists begin with steps to correct the situation or condition. Information for planning the remainder of the flight is included. When special tasks are required to configure the airplane for landing, the tasks are deferred to the Approach or Landing checklist.

It is not possible to develop checklists for every conceivable situation, especially those involving multiple failures. In certain unrelated multiple failure situations, the flight crew (read: YOU) may have to combine elements of more than one checklist and/or exercise judgment to determine the safest course of action. As captain you must assess the situation and use sound judgment to determine the safest course of action.

There are some situations which always require landing at the nearest suitable airport. These situations include, but are not limited to, conditions where:

- the non–normal checklist contains the words “Plan to land at the nearest suitable airport”
- cabin smoke or fire which persists
- one AC power source remaining (engine, APU, or hydraulic driven generator), or
- any other situation determined by the crew to present a significant adverse effect on safety if the flight is continued.

For a fire that cannot be positively confirmed to be completely extinguished, the earliest possible descent, landing, and evacuation should be accomplished.

Checklists prescribing an engine shutdown must be evaluated by the captain to ascertain whether an actual shutdown or operation at reduced thrust is the safest course of action. Consideration must be given to probable effects if the engine is left running at minimum required thrust.

There are no non–normal procedures associated with the loss of an engine indication, or with an automatic display of the secondary engine indications. Operate the engine normally unless an EICAS message displays or a limit is exceeded.

Non–normal checklists also assume:

- During engine start and prior to takeoff, the appropriate non–normal checklist is accomplished if an EICAS alert message is displayed.
- System controls are in the normal configuration for the phase of flight prior to the initiation of the non–normal procedures.
- Aural alerts are silenced and the system reset by the flight crew as soon as the cause of the alert is recognized.
- Indicator lights should be tested to verify suspected faults.

Non–Normal Checklist Use

The use of non–normal checklists begin when the airplane flight path and configuration are properly established. There are situations (stall warning, ground proximity PULL UP and WINDSHEAR warnings, and rejected takeoff) which require.an immediate response. However, in most cases, time is available to assess the situation before corrective action is initiated. Flight path control should never be compromised.

Since 99% of flight simmers will be operating the LDS767 on their own (without the aid of co-pilot), when a non–normal situation is evident, you (as pilot-in-command) will systematically and without delay accomplish all checklist items. Therefore, the use of non-normal checklists with the Level-D Simulations 767 will require you to complete the duties of the pilot flying and the pilot not flying.

In real world operations, the pilot flying calls for the checklist when:

- the flight path is under control
- the airplane is not in a critical stage of flight (such as takeoff or landing)
- all recall items are complete.

For those checklists containing only recall items or a combination of recall and reference items, the pilot not flying first verifies that each recall item has been accomplished. The checklist is normally read aloud during such verification, but the pilot flying is not required to respond except for items that are not in agreement with the checklist.

Checklist condition statements, reference items, including the response, or action, and any amplifying information (except for information appearing in brackets) are read aloud by the pilot not flying. The pilot flying need not repeat these items, but should acknowledge that the items were heard and understood. Appropriate action is taken by the crewmember in whose area of responsibility each control is located. After positioning the control, the crewmember taking the action also states the checklist response.

The pilot flying may also direct reference procedures to be accomplished by recall if no hazard is created by such action, or if the situation does not permit reference to a checklist.

Notes and information items are read aloud.

The pilot flying is to be made aware when deferred items exist. Accomplishment of such items may be delayed until the appropriate point during approach or landing.

PF= Pilot Flying

PNF = Pilot Not Flying

Non-Normal Workmethod

The following points describe a general method which can be followed during the resolution of most of the problems which can occur in an aircraft. It does not include any procedures as such, but provides a pattern of action which will help the captain in managing the problem.

1. Announce the Failure, Make Diagnostic

PNF or PF announces the failure (e.g. master caution, bell, indicator, flag etc.). PNF identifies the trouble (diagnostic). PF acknowledges.

2. Task Distribution by the Captain

CAPT distributes tasks according to the situation (e.g. “I HAVE CONTROL, YOU CLEAR THE NON-NORMAL”). Note: When failure occurs during T/O, the CAPT will delay his orders until out of T/O phase (ACFT stabilized flight and (or) clean configuration). If engine fire severe damage occurs during T/O phase, CAPT’s order will be given as soon as the ACFT is well established on the 1 engine out flight path.

3. Clear the Non-Normal

PNF performs the recall items (if any) and the appropriate do-list. Note: - In no case will a do-list be performed during the T/O phase. The PNF will first complete the appropriate actions (e.g. recall items and checklist) before performing the AFTER T/O CHECKLIST. The subsequent actions on the non-normal checklist will be performed after the AFTER T/O Checklist.

4. Analyze the Situation Inside

CAPT analyzes the situation re: ACFT status, cabin report, landing airport.

5. Analyze the Situation Outside

CAPT analyzes the situation according to WEATHER, NOTAMS, FUEL and LANDING AIRPORT conditions.

6. Decision

CAPT decides to land at the normal destination or to divert to a more suitable airport. CAPT announces his new decisions to the ATC. CAPT advises the purser of the situation and his decisions.

7. Charts

CAPT prepares the cockpit for landing: Charts. Landing data + bugs. Appropriate briefing: ROUTING ALTITUDES, RADIO AIDS, LANDING & G/A according to ACFT status. Check whether there is a pattern with highlights.

8. Descent Announce

Advise ATC: CAPT asks for appropriate assistance (firemen, medics, etc.) Advise dispatch or technical assistance if any. CAPT asks for assistance if required. CAPT advises the purser. CAPT must be sure that cabin preparation (if required) is completed before starting the final approach.

9. Descent Set-up/ Checklist

10. Approach Set-up/ Checklist

11. Landing Checklist.

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Air, Pneumatic Systems

APU BLEED VALVE

Condition: The APU bleed air VALVE light illuminated indicates the valve position disagrees with the commanded position.

BLEED DUCT LEAK

Condition: A DUCT LEAK light illuminated indicates a high temperature bleed air leak is detected.

ENGINE BLEED AIR SWITCH (Affected side) .....OFF

ISOLATION SWITCH (Affected side).....OFF

WING ANTI–ICE SWITCH .....OFF

[Prevents possible asymmetrical ice buildup on the wings.]

Avoid icing conditions

Caution: Flight beyond six hours with a DUCT LEAK light illuminated may result in structural damage.

Do not accomplish the following checklists

ENGINE BLEED OFF

PACK OFF

BLEED ISOLATION VALVE

Condition: The bleed isolation VALVE light illuminated indicates the valve position disagrees with the commanded position.

BODY DUCT LEAK

Condition: A DUCT LEAK light illuminated indicates a high temperature bleed air leak is detected.

CENTER ISOLATION SWITCH .....OFF

APU BLEED AIR SWITCH.....OFF

If DUCT LEAK light remains illuminated or duct pressure on either side is below 10 psi

ENGINE BLEED AIR SWITCH (Either).....OFF

WING ANTI–ICE SWITCH .....OFF

[Prevents possible asymmetrical ice buildup on the wings.]

Avoid icing conditions

CAUTION: Flight beyond six hours may result in structural damage.

Do not accomplish the following checklist:

ENGINE BLEED OFF

CABIN TEMPERATURE

Condition: A cabin temperature INOP light illuminated indicates a fault in the trim air controller, or the trim air switch is OFF.

Affected Compartment

TEMPERATURE CONTROL.....OFF

[Allows temperature to be controlled by the coolest compartment.]

If affected compartment temperature continues too warm or too cold:

TRIM AIR SWITCH .....OFF

[Shuts off trim air and schedules operating pack(s) to provide a preselected mean temperature.]

Do not accomplish the following checklist:

TRIM AIR

CARGO OVERHEAT

Condition: A cargo heat OVHT light illuminated indicates a cargo compartment temperature above the standard control range.

If cargo heat not required (animals, perishables not stowed in cargo hold)

CARGO HEAT SWITCH .....OFF

ENGINE BLEED OFF

Condition: The engine bleed air OFF light illuminated indicates the engine bleed air valve is closed for a system fault.

If wing anti–ice required

PACK CONTROL SELECTOR (Either).....OFF

ISOLATION SWITCH (Affected side)..... ON

When wing anti–ice no longer required:

LEFT AND RIGHT ISOLATION SWITCHES.....OFF

ENGINE BLEED OVERHEAT

Condition: The engine bleed air OVHT light illuminated indicates engine bleed air temperature is excessive.

ENGINE BLEED AIR SWITCH (Affected side) .....OFF, THEN ON

Select to ON after thrust is reduced for cruise. If OVHT light remains illuminated or re–illuminates:

ENGINE BLEED AIR SWITCH (Affected side) .....OFF

If wing anti–ice required

PACK CONTROL SELECTOR (Either).....OFF

ISOLATION SWITCH (Affected side)..... ON

When wing anti–ice no longer required:

LEFT AND RIGHT ISOLATION SWITCHES.....OFF

Do not accomplish the following checklist:

ENGINE BLEED OFF

EQUIPMENT COOLING

Condition: The equipment cooling NO COOLING light illuminated indicates OVRD selected and no reverse air flow through the E/E compartment avionics.

Avionics and electronic equipment and displays, no powered by standby buses, are subject to imminent failure.

Avionics and electrical equipment on standby buses are reliable for 90 minutes. Continued flight beyond 90 minutes can result in loss of essential avionics and electrical equipment.

EQUIPMENT OVERHEAT

Condition: The equipment cooling OVHT light illuminated indicates high temperature or low airflow in the equipment cooling system.

EQUIPMENT COOLING SELECTOR.....STBY

If the OVHT light re–illuminates after a five minute delay

EQUIPMENT COOLING SELECTOR..... OVRD

EQUIPMENT SMOKE

Condition: The equipment cooling SMOKE light illuminated indicates smoke is detected in the forward equipment cooling ducts.

EQUIPMENT COOLING SELECTOR..... OVRD

The SMOKE light will extinguish when smoke clears.

If NO COOLING light illuminates after a one minute delay

EQUIPMENT COOLING SELECTOR.....STBY

EQUIPMENT VALVE

Condition: The equipment cooling VALVE light illuminated indicates an equipment cooling valve is not in the commanded position.

EQUIPMENT COOLING SELECTOR.....STBY

If the VALVE light remains illuminated after 30 seconds, pressurization cannot be ensured.

FLIGHT DECK TEMPERATURE

Condition: The flight deck temperature INOP light illuminated indicates a fault in the trim air controller, or the trim air switch is OFF.

FLIGHT DECK TEMPERATURE CONTROL ..... MANUAL

Position trim air valve as required

If compartment temperature continues too warm or too cold:

TRIM AIR SWITCH .....OFF

[Shuts off trim air and schedules operating pack(s) to provide a preselected mean temperature.]

Do not accomplish the following checklist:

TRIM AIR

PACK OFF

Condition: The PACK OFF light illuminated indicates the pack valve is closed.

PACK TEMPERATURE

Condition: The pack INOP light illuminated indicates the pack is shut down due to an automatic control system fault or an overheat.

PACK CONTROL SELECTOR.....STBY–N

If the INOP light remains illuminated wait 5 minutes.

[Allows time for any overheat condition to cool.]

PACK RESET SWITCH .....PUSH

If the compartment temperature becomes unacceptably warm or cool with STBY–N selected:

PACK CONTROL SELECTOR..... STBY–C/STBY–W

If the INOP light will not extinguish or reilluminates:

PACK CONTROL SELECTOR.....OFF

Do not accomplish the following checklist:

PACK OFF

RECIRCULATION FAN

Condition: The recirculation fan INOP light illuminated indicates the fan is failed or not operating.

SMOKE OR FUMES AIR CONDITIONING

Condition: A concentration of air conditioning smoke or fumes is identified.

OXYGEN MASKS AND SMOKE GOGGLES (If required)..... ON

CREW COMMUNICATIONS (If required)..... ESTABLISH

RECIRCULATION FANS SWITCHES (Both).....OFF

[Removes fans as a possible source of smoke or fumes. Stops recirculation of smoke or fumes and increases fresh air flow.]

APU BLEED AIR SWITCH.....OFF

[Removes APU, if running, as a possible source of smoke or fumes.]

If smoke or fumes continues

LEFT AND RIGHT ISOLATION SWITCHES.....OFF

[Isolates left and right sides of the bleed air system.]

RIGHT PACK CONTROL SELECTOR .....OFF

[Removes right side of the air conditioning system as a possible source of smoke or fumes.]

If smoke or fumes continue:

RIGHT PACK CONTROL SELECTOR .....AUTO

[Restores right side of the air conditioning system.]

LEFT PACK CONTROL SELECTOR.....OFF

[Removes left side of the air conditioning system as a possible source of smoke or fumes.]

If smoke or fumes are persistent:

Plan to land at the nearest suitable airport.

Do not accomplish the following checklists

PACK OFF

RECIRCULATION FAN

STRUT DUCT LEAK

Condition: A DUCT LEAK light illuminated indicates a high temperature bleed air leak is detected.

ENGINE BLEED AIR SWITCH (Affected side) ..... OFF

WING ANTI–ICE SWITCH ..... OFF

[Prevents possible asymmetrical ice buildup on the wings.]

Avoid icing conditions

Do not accomplish the following checklist:

ENGINE BLEED OFF

TRIM AIR

Condition: The trim air OFF light illuminated indicates the trim air switch is OFF.

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Anti-Ice, Rain

AOA PROBE

Condition: The L or R AOA probe heat light illuminated indicates the affected probe heat is inoperative.

Flight in icing conditions may result in some erroneous flight instrument indications.

AUXILIARY PITOT

Condition: The L or R AUX PITOT probe heat light illuminated indicates the affected pitot probe heat is inoperative.

Flight in icing conditions may result in some erroneous flight instrument indications.

CAPTAIN PITOT

Condition: The CAPT PITOT probe heat light illuminated indicates the captain pitot probe heat is inoperative.

Flight in icing conditions may result in erroneous flight instrument indications.

ENGINE ANTI–ICE

Condition: The engine anti–ice VALVE light illuminated indicates the engine anti–ice valve disagrees with the switch position.

If engine anti–ice switch ON:

ENGINE BLEED AIR SWITCH (Affected side) ..... OFF

ENGINE ANTI–ICE SWITCH (Affected side)..... OFF, THEN ON

If VALVE light remains illuminated

Avoid icing conditions.

Leave the anti–ice switch ON.

[On position provides continuous ignition.]

ENGINE BLEED AIR SWITCH (Affected side) ..... ON

If engine anti–ice switch OFF:

ENGINE ANTI–ICE SWITCH (Affected engine)..... ON

[Automatically reduces the thrust limit.]

If total air temperature (TAT) is above 10 degrees C:

Avoid high thrust settings.

[Prevents engine inlet damage due to overheat.]

FIRST/OFFICER PITOT

Condition: The FO PITOT probe heat light illuminated indicates the first officer pitot probe heat is inoperative.

Flight in icing conditions may result in some erroneous flight instrument indications.

PROBE HEAT

Condition: Two or more probe heat lights illuminated indicates the affected probe heats are inoperative.

Flight in icing conditions may result in erroneous flight instrument indications.

TAT PROBE

Condition: A TAT probe heat light illuminated indicates the affected probe heat is inoperative.

Flight in icing conditions may result in erroneous flight instrument indications.

WINDOW (HEAT)

Condition: A window heat INOP light illuminated indicates the affected window is not being heated.

WINDOW HEAT SWITCH.....OFF 10 SECONDS, THEN ON

[Allows cooling period and resets controller.]

If INOP light remains illuminated:

WINDOW HEAT SWITCH.....OFF

WING ANTI–ICE

Condition: The wing anti–ice VALVE light illuminated indicates a wing anti–ice valve disagrees with the switch position.

If wing anti–ice switch ON:

WING ANTI–ICE SWITCH.....OFF

[Prevents asymmetrical ice buildup.]

Avoid icing conditions.

If wing anti–ice switch OFF:

WING ANTI–ICE SWITCH..... ON

[Automatically reduces the thrust limit.]

DEFERRED ITEMS

==> AFTER LANDING

ENGINE BLEED AIR SWITCH (Affected side).....OFF

ISOLATION VALVE SWITCH (Affected side).....OFF

[Prevents structural damage due to overheat]

Automatic Flight

AUTOPILOT

Condition: The AUTOPILOT light illuminated indicates the engaged autopilot is operating in a degraded mode.

Engaged roll and/or pitch mode may have failed.

AUTOPILOT..... DISENGAGE

AUTOPILOT DISCONNECT

Condition: The A/P DISC light illuminated indicates the autopilot has disconnected.

AUTOTHROTTLE DISCONNECT

Condition: The A/T DISC light illuminated indicates the autothrottle has disconnected.

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Electrical Systems

AC BUS OFF

Condition: A BUS OFF light illuminated indicates the AC bus is unpowered.

GENERATOR CONTROL SWITCH.....OFF, THEN ON

Attempt only one reset.

APU SELECTOR (If APU available) .....START, RELEASE TO ON

[Provides an additional source of electrical power.]

After APU running:

LEFT BUS TIE SWITCH .....OFF, THEN AUTO

Attempt only one reset.

RIGHT BUS TIE SWITCH.....OFF, THEN AUTO

Attempt only one reset.

If both BUS OFF lights were illuminated and AC power is restored:

FMC ROUTE.....ACTIVATE

FMC PERFORMANCE DATA .....ENTER

If an IRS align light is illuminated:

IRS MODE SELECTOR (Affected IRS(s) only) ..... ATT

HEADING.....ENTER

Enter heading on IRS control panel or FMC POS INIT page.

If the left BUS OFF light remains illuminated:

Flight in icing conditions may result in some erroneous flight instrument indications.

All autopilots inoperative.

Left and center flight directors inoperative.

Flap indicator inoperative.

Plan to land at the nearest suitable airport.

If the right BUS OFF light remains illuminated:

Flight in icing conditions may result in some erroneous flight instrument indications.

Right autopilot/flight director inoperative.

Plan to land at the nearest suitable airport.

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If both BUS OFF lights remain illuminated:

If engine inoperative

FUEL CROSSFEED VALVE SWITCH(ES).....OPEN

[Allows gravity flow suction feed from both left and right tanks for operating engine.]

EQUIPMENT COOLING SELECTOR..... OVRD

[Increases cooling airflow.]

FLIGHT DECK TEMPERATURE CONTROL.....MAN

Master caution inoperative.

Auto speedbrake inoperative.

Antiskid for outboard wheels inoperative.

Plan to land at the nearest suitable airport.

APU GENERATOR OFF

Condition: The APU generator OFF light illuminated indicates the APU generator control breaker is open due to a fault with the APU running.

APU GENERATOR CONTROL SWITCH .....OFF, THEN ON

Attempt only one reset.

BATTERY OFF

Condition: The battery OFF light illuminated indicates the battery switch is OFF.

BUS ISOLATED

Condition: The AC bus ISLN light illuminated indicates the bus tie breaker is open due to an AC electrical system fault.

GENERATOR DRIVE

Condition: The generator DRIVE light illuminated indicates the generator drive oil pressure is low or the generator drive oil temperature is high.

GENERATOR DRIVE DISCONNECT SWITCH.....PUSH

[Prevents generator drive damage.]

APU SELECTOR (If APU available) .....START, RELEASE TO ON

[Provides an additional source of electrical power.]

Do not accomplish the following checklist:

GENERATOR OFF

GENERATOR OFF

Condition: The generator OFF light illuminated indicates the generator control breaker is open.

GENERATOR CONTROL SWITCH.....OFF, THEN ON

Attempt only one reset.

If an engine generator control OFF light remains illuminated:

APU SELECTOR (If APU available) .....START, RELEASE TO ON

[Provides an additional source of electrical power.]

MAIN BATTERY DISCHARGE

Condition: The DISCH light illuminated indicates the main battery is discharging.

SMOKE OR FUMES OR FIRE ELECTRICAL

Condition: A concentration of electrical smoke or fumes is identified.

OXYGEN MASKS AND SMOKE GOGGLES (If required)..... ON

CREW COMMUNICATIONS (If required)..... ESTABLISH

If smoke or fumes source can be determined:

ELECTRICAL POWER (Affected equipment)..... REMOVE

If smoke or fumes source not determined:

UTILITY BUS SWITCHES (Both) .....OFF

[Removes electrical power from possible sources of smoke or fumes.

Stops recirculation of smoke or fumes by the recirculation fans and increases fresh air flow.]

Do not accomplish the following checklist:

UTILITY BUS OFF

If smoke or fumes is persistent

Plan to land at the nearest suitable airport.

STANDBY BUS OFF

Condition: The standby power bus OFF light illuminated indicates the standby AC or DC bus is unpowered.

STANDBY POWER SELECTOR ..... BAT

The battery will provide standby bus power for approximately 30 minutes.

If the standby power bus OFF light remain illuminated and right AC power is available:

STANDBY POWER SELECTOR .....AUTO

[Restores the battery charger.]

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Engines, APU

ABORTED ENGINE START

Condition: Start parameters exceeded, EGT rising rapidly approaching limit, or tailpipe fire is reported.

FUEL CONTROL SWITCH ..... CUT OFF

[Removes fuel and ignition from the engine.]

Note: If the start selector returned to AUTO allow N2 to decrease to 20% before reselecting GND.

ENGINE START SELECTOR .....GND

Motor engine for a minimum of 30 seconds.

[Expels unused fuel from the engine and cool engine components.]

If engine limit(s) not exceeded and immediate restart desired:

IGNITION SELECTOR.....BOTH

FUEL CONTROL SWITCH ..... RUN

If engine limit(s) exceeded or immediate restart not desired:

ENGINE START SELECTOR .....AUTO

APU BLEED VALVE

Condition: The APU bleed air VALVE light illuminated indicates the valve position disagrees with the commanded position.

APU BOTTLE

Condition: The APU BTL DISCH light illuminated indicates the APU fire extinguisher bottle pressure is low.

APU FAULT

Condition: The APU FAULT light illuminated indicates the APU has automatically shut down.

APU SELECTOR .....OFF, THEN ON

[Attempts to reset APU controller.]

If the FAULT light extinguishes

APU SELECTOR .....START, RELEASE TO ON

APU FIRE

Condition: The APU fire warning light illuminated indicates fire is detected in the APU.

APU FIRE SWITCH .....PULL AND ROTATE

Rotate to the stop and hold for 1 second.

[Shuts off combustibles, shuts down the APU, and discharges the fire extinguisher bottle.]

Do not accomplish the following checklists

APU BOTTLE, APU FAULT

APU FUEL VALVE

Condition: The APU FAULT light illuminated indicates the APU fuel valve position disagrees with the commanded position.

APU SELECTOR .....OFF

Do not start the APU.

DUAL ENGINE FAILURE

Condition: Thrust or thrust lever response is lost from both engines.

ENGINE START SELECTORS (Both) .....FLT
THRUST LEVERS (Both) .....CLOSE
FUEL CONTROL SWITCHES (Both)..... CUT OFF, THEN RUN
If engine appears stalled or EGT approaches the Standby Engine Indicator placard limit:
Repeat the above step as necessary.
[Reduces EGT and improves airflow.]

Note: SEI maximum EGT limit is in–flight start EGT limit.
RAM AIR TURBINE SWITCH .....UNLKD
[Backs up automatic deployment of the RAT.]
AIRSPEED..... _____KTS
Above 35,000 feet use 240 kts.
Above 20,000 to 35,000 feet use 250 kts minimum.
20,000 feet and below use 200 kts minimum.
Note: OVSPD light and associated aural warning will indicate Vmo/Mmo exceedances.
APU SELECTOR (If APU available) ..... START, RELEASE TO ON
Do not wait for successful engine start(s) prior to starting the APU.
If both engines remain failed:
THRUST LEVERS (Both) .....CLOSE
FUEL CONTROL SWITCHES (Both)..... CUT OFF, THEN RUN
Remain approximately 30 second in each position during start attempts.
Repeat until engine start is achieved. Engine may accelerate to idle slowly.
Note: Cabin altitude warning may occur during descent. After restarting one or both engines:
FMC ROUTE.....ACTIVATE
FMC PERFORMANCE DATA .....ENTER
If an IRS align light is illuminated:
IRS MODE SELECTOR (Affected IRS(s) only) ..... ATT
HEADING.....ENTER
Enter heading on IRS control panel or FMC POS INIT page.
Note: Cabin altitude warning may occur during descent.
If one engine remains failed:
Accomplish ENGINE FAILURE OR SHUTDOWN checklist.

ENGINE ANTI–ICE

Condition: The engine anti–ice VALVE light illuminated indicates the engine anti–ice valve disagrees with the switch position.

If engine anti–ice switch ON:

ENGINE BLEED AIR SWITCH (Affected side) .....OFF

ENGINE ANTI–ICE SWITCH (Affected side).....OFF, THEN ON

If VALVE light remains illuminated

Avoid icing conditions.

Leave the anti–ice switch ON.

[On position provides continuous ignition.]

ENGINE BLEED AIR SWITCH (Affected side) ..... ON

If engine anti–ice switch OFF:

ENGINE ANTI–ICE SWITCH (Affected engine)..... ON

[Automatically reduces the thrust limit.]

If total air temperature (TAT) is above 10 degrees C:

Avoid high thrust settings.

[Prevents engine inlet damage due to overheat.]

ENGINE BLEED OFF

Condition: The engine bleed air OFF light illuminated indicates the engine bleed air valve is closed for a system fault.

If wing anti–ice required

PACK CONTROL SELECTOR (Either).....OFF

ISOLATION SWITCH (Affected side)..... ON

When wing anti–ice no longer required:

LEFT AND RIGHT ISOLATION SWITCHES.....OFF

ENGINE BLEED OVERHEAT

Condition: The engine bleed air OVHT light illuminated indicates engine bleed air temperature is excessive.

ENGINE BLEED AIR SWITCH (Affected side) .....OFF, THEN ON

Select to ON after thrust is reduced for cruise.

If OVHT light remains illuminated or re–illuminates:

ENGINE BLEED AIR SWITCH (Affected side) .....OFF

If wing anti–ice required

PACK CONTROL SELECTOR (Either).....OFF

ISOLATION SWITCH (Affected side)..... ON

When wing anti–ice no longer required:

LEFT AND RIGHT ISOLATION SWITCHES.....OFF

Do not accomplish the following checklist:

ENGINE BLEED OFF

ENGINE BOTTLE

Condition: The ENG BTL 1 DISCH or ENG BTL 2 DISCH light illuminated indicates that engine fire extinguisher bottle 1 or bottle 2 pressure is low.

ENGINE CONTROL

Condition: Faults are detected in the engine control systems.

ENGINE EEC MODE

Condition: The ALTN light illuminated indicates the electronic engine control is not receiving adequate inputs and an alternate N1 control mode is being used by the EEC to control thrust.

AUTOTHROTTLE ARM SWITCH .....OFF

[Allows thrust lever to remain where manually positioned.]

THRUST LEVERS (Both) .....RETARD TO MID POSITION

[Prevents exceeding thrust limits when selecting the alternate mode on the electronic engine controls.]

ELECTRONIC ENGINE CONTROL SWITCHES (Both).....ALTN

Select both switches to ALTN, one switch at a time.

Observe thrust limits.

ENGINE FAILURE OR SHUTDOWN

Condition: Engine has failed, engine has flamed out, or when prescribed by another non–normal procedure.

AUTOTHROTTLE ARM SWITCH .....OFF

[Autothrottle use not recommended under engine inoperative conditions.]

THRUST LEVER.....CLOSE

[Assists in recognition of affected engine.]

Engine conditions permitting, operate at idle for two minutes to allow engine to cool and stabilize.

FUEL CONTROL SWITCH ..... CUT OFF

APU SELECTOR (If APU available) ..... START, RELEASE TO ON

[Provides an additional source of electrical power.]

GROUND PROXIMITY FLAP OVERRRIDE SWITCH..... OVRD

Plan to land at the nearest suitable airport.

If wing anti–ice required

PACK CONTROL SELECTOR (Either).....OFF

ISOLATION SWITCH (Affected side)..... ON

When wing anti–ice no longer required:

LEFT AND RIGHT ISOLATION SWITCHES.....OFF

Note: Use flaps 20 and VREF 20 for landing and flaps 5 for go–around.

Do not accomplish the following checklist:

ENGINE SHUTDOWN

ENGINE FIRE OR SEVERE DAMAGE OR SEPARATION

Condition: Fire is detected in the affected engine, or airframe vibrations detected with abnormal engine indications, or the engine has separated.

AUTOTHROTTLE ARM SWITCH .....OFF

[Autothrottle use not recommended under engine inoperative conditions.]

THRUST LEVER.....CLOSE

[Assists in recognition of affected engine.]

FUEL CONTROL SWITCH ..... CUT OFF

ENGINE FIRE SWITCH.....PULL

If engine fire warning light remains illuminated:

ENGINE FIRE SWITCH.....ROTATE

Rotate to the stop and hold for 1 second.

If, after 30 seconds, engine fire warning light remains illuminated:

ENGINE FIRE SWITCH..... ROTATE TO THE OTHER BOTTLE

Rotate to the stop and hold for 1 second.

If high airframe vibration occurs and continues after engine shutdown:

Without delay, reduce airspeed and descend to a safe altitude which results in an acceptable vibration level. If high vibration returns and further airspeed reduction and descent is not practical, increasing the airspeed may reduce the vibration.

APU SELECTOR (If APU available) ..... START, RELEASE TO ON

[Provides an additional source of electrical power.]

GROUND PROXIMITY FLAP OVERRRIDE SWITCH..... OVRD

Plan to land at the nearest suitable airport.

If wing anti–ice required

PACK CONTROL SELECTOR (Either).....OFF

ISOLATION SWITCH (Affected side)..... ON

When wing anti–ice no longer required:

LEFT AND RIGHT ISOLATION SWITCHES.....OFF

Note: Use flaps 20 and VREF 20 for landing and flaps 5 for go–around.

Do not accomplish the following checklists

ENGINE BOTTLE

ENGINE SHUTDOWN

ENGINE FUEL FILTER

Condition: An impending fuel filter bypass condition exists on the affected engine.

Erratic engine operation and flameout may occur due to fuel contamination.

ENGINE FUEL VALVE

Condition: The ENG VALVE light illuminated indicates the engine fuel valve position disagrees with commanded position.

If the ENG VALVE light remains illuminated when the fuel control switch is positioned to CUT OFF, the engine may continue to run for approximately 1 minute.

On the ground:

Do not attempt engine start.

[Prevents possibility of not being able to shutdown the engine if the spar valve subsequently fails open.]

ENGINE HPSO

Condition: The engine BLEED light illuminated indicates the high pressure bleed air valve is open when commanded closed.

ENGINE BLEED AIR SWITCH (Affected side) ..... OFF

If wing anti–ice required

PACK CONTROL SELECTOR (Either) ..... OFF

ISOLATION SWITCH (Affected side) ..... ON

When wing anti–ice no longer required:

LEFT AND RIGHT ISOLATION SWITCHES ..... OFF

Do not accomplish the following checklist: ENGINE BLEED OFF

ENGINE IN–FLIGHT START

Condition: Engine start is desired after a shutdown with no fire or apparent damage.

ALTITUDE AND AIRSPEED ..... CHECK

Starts not assured outside EICAS envelope.

If X–BLD not displayed:

ENGINE START SELECTOR ..... FLT

FUEL CONTROL SWITCH ..... RUN

Abort start if EGT fails to rise in 30 seconds.

If X–BLD displayed

PACK CONTROL SELECTOR (Either) ..... OFF

[Reduces pneumatic demand.]

ISOLATION SWITCH (Affected side) ..... ON

IGNITION SELECTOR ..... BOTH

ENGINE START SELECTOR ..... GND

FUEL CONTROL SWITCH ..... RUN

Select when N2 exceeds minimum fuel on command bug.

Abort start if EGT fails to rise in 30 seconds.

After engine started:

ENGINE START SELECTOR ..... AUTO

PACK CONTROL SELECTORS (Both) ..... AUTO

LEFT AND RIGHT ISOLATION SWITCHES ..... OFF

GROUND PROXIMITY FLAP OVERRIDE SWITCH ..... OFF

ENGINE LIMIT OR SURGE OR STALL

Condition: Engine EGT or RPM are abnormal or are approaching or exceeding limits, abnormal engine noises are heard, or there is no response to thrust lever movement.

AUTOTHROTTLE ARM SWITCH .....OFF

[Allows thrust lever to remain where manually positioned.]

THRUST LEVER..... RETARD

Retard until indications remain within normal limits or the thrust lever is closed.

If indications abnormal or EGT continues to increase:

Accomplish ENGINE FAILURE OR SHUTDOWN checklist. If engine indications appear normal after shutdown, the engine may be restarted.

If indications stabilized and EGT stabilized or decreasing

THRUST LEVER.....ADVANCE

Advance slowly. Check that RPM and EGT follow thrus lever movement.

[Attempts to restore normal control of engine operation.]

If acceleration is normal

Operate engine normally or at a reduced thrust level which is surge and stall free.

If engine does not accelerate and EGT is normal:

ENGINE BLEED AIR SWITCH .....OFF

[Improves engine acceleration.]

If engine responds

ENGINE BLEED AIR SWITCH ..... ON

If engine does not respond

Continue engine operation at idle.

ENGINE BLEED AIR SWITCH ..... ON

ENGINE LIMIT PROTECTION

Condition: The ALTN light illuminated indicates the EEC is operating in the alternate control mode and the commanded N1 exceeds maximum N1.

THRUST LEVER..... RETARD

Retard until N1 remains within limits.

ENGINE LOW IDLE

Condition: An engine has failed to go to approach idle.

THRUST LEVER (Affected side) .....ADVANCE

Advance thrust lever until message extinguishes.

ENGINE OIL PRESSURE

Condition: The L or R ENG OIL PRESS light illuminated indicates engine oil pressure is low.

OIL PRESSURE INDICATION ..... CHECK

If oil pressure at or below red line limit:

Accomplish ENGINE FAILURE OR SHUTDOWN checklist.

If oil pressure normal:

Operate engine normally.

ENGINE OIL TEMPERATURE

Condition: The oil temperature in the amber band or the oil temperature above the red line limit indicates engine oil temperature is high.

If temperature is in amber band:

AUTOTHROTTLE ARM SWITCH .....OFF

[Allows thrust lever to remain where manually positioned.]

THRUST LEVER (Affected engine) ..... RETARD

Retard thrust lever slowly until temperature decreases.

If temperature is in the amber band for 20 minutes or reaches red line limit:

Accomplish ENGINE FAILURE OR SHUTDOWN checklist.

ENGINE OVERHEAT

Condition: The L or R ENG OVHT light illuminated indicates an overheat is detected in the engine.

ENGINE BLEED AIR SWITCH .....OFF

[Attempts to stop the flow of bleed air through the leak.]

AUTOTHROTTLE ARM SWITCH .....OFF

[Allows thrust levers to remain where manually positioned.]

THRUST LEVER..... RETARD

Retard thrust lever slowly until ENG OVHT light is no longer illuminated or thrust lever is closed.

[Reduces temperature in the nacelle and strut.]

If ENG OVHT light no longer illuminated:

Operate engine at reduced thrust level for the remainder of flight.

If ENG OVHT light remains illuminated

Accomplish ENGINE FAILURE OR SHUTDOWN checklist.

If wing anti–ice required

PACK CONTROL SELECTOR (Either).....OFF

ISOLATION SWITCH (Affected side)..... ON

When wing anti–ice no longer required:

LEFT AND RIGHT ISOLATION SWITCHES.....OFF

Do not accomplish the following checklist:

ENGINE BLEED OFF

ENGINE PRV

Condition: The engine BLEED light illuminated indicates the pressure regulating valve is open when commanded closed.

ENGINE BLEED AIR SWITCH (Affected side) .....OFF

If wing anti–ice required

PACK CONTROL SELECTOR (One) .....OFF

ISOLATION SWITCH (Affected side)..... ON

Return to OFF when wing anti–ice is no longer required.

If wing anti–ice required

PACK CONTROL SELECTOR (Either).....OFF

[Reduces bleed air demand.]

ISOLATION SWITCH (Affected side)..... ON

When wing anti–ice no longer required:

LEFT AND RIGHT ISOLATION SWITCHES.....OFF

Do not accomplish the following checklist:

ENGINE BLEED OFF

ENGINE SHUTDOWN

Condition: Engine was shutdown by the fuel control switch or fire switch.

ENGINE STARTER

Condition: The engine start VALVE light illuminated indicates the engine start valve is not in the commanded position.

Ground or in–flight start using a bleed air source may be unsuccessful.

If on the ground:

FUEL CONTROL SWITCH ..... CUT OFF

ENGINE START SELECTOR .....AUTO

[Prevents bleed air from entering starter if valve subsequently opens.]

In flight:

Increase airspeed until X–BLD no longer displayed.

[Assures sufficient air flow for windmill start.]

FUEL SPAR VALVE

Condition: The SPAR VALVE light illuminated indicates the spar valve position disagrees with commanded position.

On the ground:

Do not attempt engine start.

[Prevents possibility of not being able to shutdown the engine if the engine fuel valve subsequently fails open.]

IDLE DISAGREE

Condition: The engines are at different idle settings.

OIL FILTER

Condition: Affected engine oil filter contamination has been detected.

AUTOTHROTTLE ARM SWITCH .....OFF

[Allows thrust lever to remain where manually positioned.]

THRUST LEVER..... RETARD

Retard thrust lever until message disappears and continue operating at reduced thrust.

If OIL FILTER message remains displayed:

Accomplish ENGINE FAILURE OR SHUTDOWN checklist.

REVERSER ISOLATION VALVE

Condition: The REV ISLN light illuminated indicates a fault is detected in the affected engine reverser system.

Additional system failures may cause inflight deployment.

Expect normal reverser operation after landing.

REVERSER UNLOCKED

Condition: REV annunciation displayed and reverse thrust not intentionally selected.

REVERSE THRUST LEVER ..... DOWN

Verify reverse thrust lever is in the full down position.

With no yaw, loss of airspeed, or buffet

Operate engine normally.

With yaw, loss of airspeed, or buffet:

FLAP ..... RETRACT

[Prevents slat damage from turbulence created by the open cowl.]

AUTOTHROTTLE ARM SWITCH ..... OFF

[Autothrottle use not recommended under engine inoperative conditions.]

THRUST LEVER ..... CLOSE

FUEL CONTROL SWITCH (Affected engine) ..... CUT OFF

APU SELECTOR (If APU available) ..... START, RELEASE TO ON

[Provides an additional source of electrical power.]

GROUND PROXIMITY FLAP OVERRRIDE SWITCH ..... OVRD

Plan to land at the nearest suitable airport.

If wing anti–ice required

PACK CONTROL SELECTOR (Either) ..... OFF

ISOLATION SWITCH (Affected side) ..... ON

When wing anti–ice no longer required:

LEFT AND RIGHT ISOLATION SWITCHES ..... OFF

Use trailing edge flaps 20 and VREF 30 + 30 for landing.

DEFERRED ITEMS

==> APPROACH CHECKLIST

Use ALTERNATE FLAP OPERATION to extend trailing edge flaps.

Do not extend leading edge slats.

ENGINE START SELECTORS (Both) ..... CONT

[Provides ignition for landing with leading edge slats retracted.]

ALTERNATE FLAP OPERATION:

ALTERNATE FLAPS SELECTOR ..... SET

ALTERNATE FLAP SWITCH (Trailing edge) ..... ALTN

ALTERNATE FLAPS SELECTOR ..... SET

Extend or retract trailing edge flaps as required.

STARTER CUTOUT

Condition: The engine start VALVE light illuminated indicates the valve is open when commanded closed.

ENGINE START SELECTOR ..... AUTO

If VALVE light remains illuminated

ENGINE BLEED AIR SWITCH (Affected side) ..... OFF

[Removes bleed air source from starter.]

ISOLATION SWITCH (Affected side)..... OFF

[Removes bleed air source from starter.]

If on the ground:

GROUND AIR SOURCE (If in use)..... DISCONNECT

[Removes bleed air source from starter.]

WING ANTI–ICE SWITCH..... OFF

[Prevents possible asymmetrical ice buildup on the wings.]

Avoid icing conditions.

Do not accomplish the following checklist: ENGINE BLEED OFF

VOLCANIC ASH

Condition: Static discharge around the windshield, bright glow in the engine inlets, smoke or dust on the flight deck, or acrid odor indicates the airplane is in volcanic ash.

CAUTION: Exit volcanic ash as quickly as possible. Consider a 180° turn.

AUTOTHROTTLE ARM SWITCH ..... OFF

[Allows thrust levers to remain where manually positioned.]

THRUST LEVERS (Both) ..... CLOSE

Conditions permitting, operate engines at idle.

[Reduces possible engine damage and/or flameout by decreasing EGT.]

ENGINE START SELECTORS (Both) ..... FLT

RECIRCULATION FAN SWITCHES (Both) ..... OFF

[Increases bleed air extraction to improve engine stall margin by putting packs into high flow.]

ENGINE ANTI–ICE SWITCHES (Both) ..... ON

[Increases bleed air extraction to improve engine stall margin.]

WING ANTI–ICE SWITCH ..... ON

[Increases bleed air extraction to improve engine stall margin.]

APU SELECTOR (If APU available) ..... START, RELEASE TO ON

[Provides an electrical power source in the event one or both engines flame out.]

Note: Volcanic ash can cause non–normal system reactions such as:

- engine malfunctions, increasing EGT, engine stall or flameout
- decrease or loss of airspeed indications
- equipment overheat or smoke indications
- cargo fire indications.

Note: Engines accelerate to idle very slowly at high altitudes. This may be incorrectly interpreted as a hung start or an engine malfunction not caused by volcanic ash.

If engines flamed out or stalled, or EGT rapidly approaching or exceeding limit:

Accomplish the DUAL ENGINE FAILURE checklist.

Do not accomplish the following checklist:

RECIRCULATION FAN

Intentionally Left Blank

Fire Protection

APU BOTTLE

Condition: The APU BTL DISCH light illuminated indicates the APU fire extinguisher bottle pressure is low.

APU FIRE

Condition: The APU fire warning light illuminated indicates fire is detected in the APU.

APU FIRE SWITCH .....PULL AND ROTATE

Rotate to the stop and hold for 1 second.

[Shuts off combustibles, shuts down the APU, and discharges the fire extinguisher bottle.]

Do not accomplish the following checklists: APU BOTTLE, APU FAULT

CARGO BOTTLE

Condition: The cargo fire bottle DISCH light illuminated indicates that cargo fire extinguisher bottle 1 or bottle 2 pressure is low.

CARGO FIRE

Condition: The FWD or AFT cargo fire light illuminated indicates smoke is detected in a cargo compartment.

CARGO FIRE ARM SWITCH (Forward or aft).....ARMED

CARGO FIRE BOTTLE DISCHARGE SWITCH.....PUSH

Push and hold for 1 second.

Note: DISCH light may require approximately 30 seconds to illuminate.

PACK CONTROL SELECTOR (Either).....OFF

[Minimizes airflow around cargo compartment and slow loss of fire extinguishing agent.]

EQUIPMENT COOLING SELECTOR..... OVRD

FLIGHT DECK TEMPERATURE CONTROL..... FULL COOL

[Assists equipment cooling while operating in OVRD mode with only one air conditioning pack.]

If airplane altitude above 10,000 feet:

LANDING ALTITUDE SELECTOR.....7,500 FT

Reset landing field elevation prior to descent.

Plan to land at the nearest suitable airport.

Do not accomplish the following checklist: CARGO BOTTLE

ENGINE BOTTLE

Condition: The ENG BTL 1 DISCH or ENG BTL 2 DISCH light illuminated indicates that engine fire extinguisher bottle 1 or bottle 2 pressure is low.

ENGINE FIRE OR SEVERE DAMAGE OR SEPARATION

Condition: Fire is detected in the affected engine, or airframe vibrations detected with abnormal engine indications, or the engine has separated.

AUTOTHROTTLE ARM SWITCH .....OFF

[Autothrottle use not recommended under engine inoperative conditions.]

THRUST LEVER.....CLOSE

[Assists in recognition of affected engine.]

FUEL CONTROL SWITCH ..... CUT OFF

ENGINE FIRE SWITCH.....PULL

If engine fire warning light remains illuminated:

ENGINE FIRE SWITCH.....ROTATE

Rotate to the stop and hold for 1 second.

If, after 30 seconds, engine fire warning light remains illuminated:

ENGINE FIRE SWITCH..... ROTATE TO THE OTHER BOTTLE

Rotate to the stop and hold for 1 second.

If high airframe vibration occurs and continues after engine shutdown:

Without delay, reduce airspeed and descend to a safe altitude which results in an acceptable vibration level. If high vibration returns and further airspeed reduction and descent is not practical, increasing the airspeed may reduce the vibration.

APU SELECTOR (If APU available) ..... START, RELEASE TO ON

[Provides an additional source of electrical power.]

GROUND PROXIMITY FLAP OVERRRIDE SWITCH..... OVRD

Plan to land at the nearest suitable airport.

If wing anti–ice required

PACK CONTROL SELECTOR (Either).....OFF

ISOLATION SWITCH (Affected side)..... ON

When wing anti–ice no longer required:

LEFT AND RIGHT ISOLATION SWITCHES.....OFF

Note: Use flaps 20 and VREF 20 for landing and flaps 5 for go–around.

Do not accomplish the following checklists

ENGINE BOTTLE

ENGINE SHUTDOWN

ENGINE OVERHEAT

Condition: The L or R ENG OVHT light illuminated indicates an overheat is detected in the engine.

ENGINE BLEED AIR SWITCH .....OFF

[Attempts to stop the flow of bleed air through the leak.]

AUTOTHROTTLE ARM SWITCH .....OFF

[Allows thrust levers to remain where manually positioned.]

THRUST LEVER..... RETARD

Retard thrust lever slowly until ENG OVHT light is no longer illuminated or thrust lever is closed.

[Reduces temperature in the nacelle and strut.]

If ENG OVHT light no longer illuminated:

Operate engine at reduced thrust level for the remainder of flight.

If ENG OVHT light remains illuminated

Accomplish ENGINE FAILURE OR SHUTDOWN checklist.

If wing anti–ice required

PACK CONTROL SELECTOR (Either).....OFF

ISOLATION SWITCH (Affected side)..... ON

When wing anti–ice no longer required:

LEFT AND RIGHT ISOLATION SWITCHES.....OFF

Do not accomplish the following checklist:

ENGINE BLEED OFF

FIRE/OVERHEAT SYSTEM

Condition: The fire/overheat system FAIL light illuminated indicates an engine, APU, or cargo fire or overheat detection system is inoperative.

FIRE/OVERHEAT SYSTEM FAIL RESET SWITCH .....PUSH

[Resets fault monitoring for the remaining systems.]

SMOKE OR FUMES AIR CONDITIONING

Condition: A concentration of air conditioning smoke or fumes is identified.

OXYGEN MASKS AND SMOKE GOGGLES (If required)..... ON

CREW COMMUNICATIONS (If required)..... ESTABLISH

RECIRCULATION FANS SWITCHES (Both).....OFF

[Removes fans as a possible source of smoke or fumes. Stops recirculation of smoke or fumes and increases fresh air flow.]

APU BLEED AIR SWITCH.....OFF

[Removes APU, if running, as a possible source of smoke or fumes.]

If smoke or fumes continues

LEFT AND RIGHT ISOLATION SWITCHES.....OFF

[Isolates left and right sides of the bleed air system.]

RIGHT PACK CONTROL SELECTOR .....OFF

[Removes right side of the air conditioning system as a possible source of smoke or fumes.]

If smoke or fumes continue:

RIGHT PACK CONTROL SELECTOR .....AUTO

[Restores right side of the air conditioning system.]

LEFT PACK CONTROL SELECTOR.....OFF

[Removes left side of the air conditioning system as a possible source of smoke or fumes.]

If smoke or fumes are persistent:

Plan to land at the nearest suitable airport.

Do not accomplish the following checklists

PACK OFF

RECIRCULATION FAN

SMOKE OR FUMES OR FIRE ELECTRICAL

Condition: A concentration of electrical smoke or fumes is identified.

OXYGEN MASKS AND SMOKE GOGGLES (If required)..... ON

CREW COMMUNICATIONS (If required ..... ESTABLISH

If smoke or fumes source can be determined:

ELECTRICAL POWER (Affected equipment)..... REMOVE

If smoke or fumes source not determined:

UTILITY BUS SWITCHES (Both) .....OFF

[Removes electrical power from possible sources of smoke or fumes. Stops recirculation of smoke or fumes by the recirculation fans and increases fresh air flow.]

Do not accomplish the following checklist:

UTILITY BUS OFF

If smoke or fumes is persistent

Plan to land at the nearest suitable airport.

SMOKE OR FUMES REMOVAL

Condition: Smoke or fumes removal is required.

WARNING:Do not turn an operating pack OFF. Selecting packs OFF will result in increased smoke concentrations.

OXYGEN MASKS AND SMOKE GOGGLES (If required)..... ON

CREW COMMUNICATIONS (If required)..... ESTABLISH

FLIGHT DECK DOOR .....CLOSE

[Prevents smoke or fumes from penetrating onto flight deck.]

EQUIPMENT COOLING SELECTOR..... OVRD

RECIRCULATION FAN SWITCHES (Both).....OFF

[Stops recirculation of smoke or fumes and increases fresh air flow.]

LANDING ALTITUDE SELECTOR.....9,500 FEET

CABIN ALTITUDE AUTO RATE CONTROL ..... MAX

[Increases the ventilation rate.]

Do not accomplish the following checklist:

RERCIRCLATION FAN

If smoke or fumes is persistent

Descend to 9,500 feet or below as soon as conditions permit.

At 9,500 feet:

CABIN ALTITUDE MODE SELECTOR.....MAN

CABIN ALTITUDE MANUAL CONTROL.....CLIMB

Position outflow valve fully open.

[Depressurizes the airplane and provides maximum ventilation rate.]

Plan to land at the nearest suitable airport.

Do not accomplish the following checklist:

CABIN AUTOMATIC INOPERATIVE

When smoke has dissipated:

EQUIPMENT COOLING SELECTOR.....STBY

WHEEL WELL FIRE

Condition: The WHL WELL FIRE light illuminated indicates a fire is detected in a main wheel well.

Observe gear EXTEND OR EXTENDED limit speed (270K/.82M).

LANDING GEAR LEVER ..... DOWN

[Attempts to remove and extinguish the fire source.]

Plan to land at the nearest suitable airport.

Note: Do not use FMC fuel predictions with gear extended.

Flight with gear down increases fuel consumption and decreases climb performance. Refer to Gear Down performance tables in Performance–Inflight chapter for flight planning.

If landing gear must be retracted for airplane performance

When WHL WELL FIRE light is no longer illuminated:

Wait 20 minutes.

[Attempts to ensure that wheel well fire is extinguished.]

LANDING GEAR LEVER ..... UP, THEN OFF

Flight Controls

AILERON LOCKOUT

Condition: The AIL LOCK light illuminated indicates an aileron lockout actuator disagrees with the commanded position.

ALL FLAPS AND SLATS UP LANDING

Condition: Leading edge slats and trailing edge flaps cannot be extended.

Accomplish this checklist only when directed by the LEADING EDGE SLAT ASYMMETRY checklist.

Do not slow below VREF 30 + 80 until established on final approach.

Limit bank angle to 15 degrees below VREF 30 + 80.

Reduced tail clearance on landing.

ENGINE START SELECTORS (Both) .....CONT

Use VREF 30 + 50 for landing.

AUTO SPEEDBRAKE

Condition: The AUTO SPDBRK light illuminated indicates a fault is detected in the automatic speedbrake system.

Do not arm speedbrake lever.

[Prevents inadvertent inflight extension.]

Manually extend speedbrakes after landing.

FLAP LOAD RELIEF

Condition: The TRAILING EDGE light illuminated indicates the flap load relief system fails to operate when required.

Check flap position and maintain the appropriate speed.

FLAPS

Condition: The CONFIG light illuminated indicates the flaps are not in a takeoff position when either engine's thrust is in the takeoff range on the ground.

FLIGHT CONTROL VALVES

Condition: The flight control shutoff OFF lights illuminated indicate two or more flight control valves are closed.

All switches must be ON for flight.

JAMMED OR RESTRICTED FLIGHT CONTROLS

Condition: Jammed or restricted flight controls is experienced in roll, pitch, or yaw

JAMMED OR RESTRICTED SYSTEM..... OVERPOWER

Use maximum force, including a combined effort of both pilots, if required.

Do not turn off any flight control hydraulic power switch.

If freezing water is the suspected cause:

Consider descent to warmer air if conditions permit and reattempt to override the jammed or restricted controls.

If the faulty system cannot be overpowered:

Use operative flight controls, trim, and thrust as required for airplane control.

LEADING EDGE SLAT ASYMMETRY

Condition: The LEADING EDGE light illuminated indicates the leading edge slats are not symmetrically extended.

CAUTION: Do not arm the leading edge (LE) alternate flaps switch.

Note: Do not use FMC fuel predictions with flaps extended.

GROUND PROXIMITY FLAP OVERRIDE SWITCH ..... OVRD

If indicated flap position greater than 20:

Use current flaps and VREF 30 + 20 for landing.

If indicated flap position 20 or less:

Use trailing edge flaps 20 and VREF 30 + 30 for landing.

ENGINE START SELECTORS (Both) ..... CONT

FLAP LEVER ..... SET

Extend or retract trailing edge flaps as required.

If unable to extend or retract trailing edge flaps using flap lever

ALTERNATE FLAPS SELECTOR ..... SET

Position to agree with flap lever.

TRAILING EDGE (TE) ALTERNATE FLAPS SWITCH ..... ALTN

ALTERNATE FLAPS SELECTOR ..... SET

Extend or retract trailing edge flaps as required.

Note: Flap indicator may not move until flaps 5 or greater is selected.

Note: Autothrottle may disconnect during alternate flap extension.

If unable to extend trailing edge flaps and the flap indicator is less than 5:

Do not accomplish the following checklists

TRAILING EDGE FLAP ASYMMETRY

TRAILING EDGE FLAP DISAGREE

Accomplish the ALL FLAPS AND SLATS UP LANDING checklist.

LEADING EDGE SLAT DISAGREE

Condition: The LEADING EDGE light illuminated indicates the leading edge slat positions disagree with commanded position.

GROUND PROXIMITY FLAP OVERRIDE SWITCH ..... OVRD

If indicated flap position greater than 20:

Use current flaps and VREF 20 for landing.

If indicated flap position 20 or less:

Use flaps 20 and VREF 20 for landing.

ALTERNATE FLAPS SELECTOR ..... SET

If flap lever position 20 or less, position selector to agree with flap lever.

If flap lever position greater than 20, position selector to 20.

LEADING EDGE (LE) ALTERNATE FLAPS SWITCH

(MAX 210 KTS)..... ALTN

[Prevents possible slat damage if slats extend beyond the takeoff position.]

If, after selecting ALTN, the LEADING EDGE light remains illuminated:

LEADING EDGE (LE) ALTERNATE FLAPS SWITCH ..... OFF

Accomplish the LEADING EDGE SLAT ASYMMETRY checklist.

ALTERNATE FLAPS SELECTOR 20

Extend or retract leading edge slats as required.

FLAP LEVER ..... SET

Extend or retract trailing edge flaps as required.

If trailing edge flaps fail to extend or retract using flap lever

Do not accomplish the TRAILING EDGE FLAP DISAGREE checklist.

TRAILING EDGE (TE) ALTERNATE FLAPS SWITCH ..... ALTN

RUDDER RATIO

Condition: The RUDDER RATIO light illuminated indicates the rudder ratio system has failed.

Above 160 knots, avoid large or abrupt rudder inputs.

If normal left hydraulic system pressure is available

Crosswind limit is 15 knots.

Do not attempt autoland.

SPEEDBRAKES EXTENDED

Condition: The SPEED BRAKES light illuminated indicates the speedbrakes are extended when the flaps are in a landing position, or when the radio altitude is 800 feet or below.

SPOILERS [WARNING]

Condition: The CONFIG light illuminated indicates the speedbrake lever is not DOWN when either engine's thrust is in the takeoff range on the ground.

SPOILERS [ADVISORY]

Condition: The SPOILERS light illuminated indicates that one or more spoiler pairs are inoperative.

Roll rate may be reduced inflight.

Speedbrake effectiveness may be reduced in flight and during landing.

STABILIZER

Condition: The CONFIG light illuminated indicates the stabilizer is not within the green band with either engine's thrust in the takeoff range on the ground.

STABILIZER TRIM

Condition: The STAB TRIM light illuminated indicates the stabilizer trim rate is one–half of the normal control wheel stabilizer trim switch rate.

If normal stabilizer trim rate desired:

ALTERNATE STABILIZER TRIM LEVERS (Both) ..... PUSH

Push and hold when trim is desired.

[May allow stabilizer to trim at the normal rate.]

TAIL HYDRAULIC VALVE

Condition: A tail flight control shutoff OFF light illuminated indicates the tail flight control valve is closed.

All switches must be ON for flight.

TRAILING EDGE FLAP ASYMMETRY

Condition: The TRAILING EDGE light illuminated indicates the trailing edge flaps are not symmetrically extended.

CAUTION: Do not arm the TRAILING EDGE (TE) ALTERNATE FLAPS switch.

Note: Do not use FMC fuel predictions with flaps extended.

GROUND PROXIMITY FLAP OVERRIDE SWITCH ..... OVRD

If indicated flap position at or greater than 20:

Use VREF 20 for landing.

If indicated flap position between 5 and 20:

Use VREF 30 + 20 for landing.

If indicated flap position 5 or less

Use VREF 30 + 30 for landing.

Note: Reduced tail clearance on landing.

ENGINE START SELECTORS ..... CONT

TRAILING EDGE FLAP DISAGREE

Condition: The TRAILING EDGE light illuminated indicates the trailing edge flap positions disagree with commanded position.

GROUND PROXIMITY FLAP OVERRIDE SWITCH ..... OVRD

If indicated flap position greater than 20:

Use current flaps and VREF 20 for landing.

If indicated flap position 20 or less:

Use flaps 20 and VREF 20 for landing.

ALTERNATE FLAPS SELECTOR ..... SET

If flap lever position 20 or less, position selector to agree with flap lever.

If flap lever position greater than 20, position selector to 20.

TRAILING EDGE (TE) ALTERNATE FLAPS SWITCH ..... ALTN

If, after selecting ALTN, the TRAILING EDGE light remains illuminated:

TRAILING EDGE (TE) ALTERNATE FLAPS SWITCH ..... OFF

Accomplish the TRAILING EDGE FLAP ASYMMETRY checklist.

ALTERNATE FLAPS SELECTOR ..... SET

Extend or retract trailing edge flaps as required.

FLAP LEVER ..... SET

Position to agree with alternate flaps selector.

[Extends or retracts leading edge slats.]

If leading edge slats fail to extend or retract using flap lever

LEADING EDGE (LE) ALTERNATE FLAPS SWITCH ..... ALTN

UNSCHEDULED STABILIZER TRIM

Condition: The UNSCHED STAB TRIM light illuminated indicates uncommanded stabilizer motion is detected.

STABILIZER TRIM CUT OUT SWITCHES (Both) ..... CUT OUT

[Prevents subsequent uncommanded or inappropriate stabilizer motion.]

AUTOPILOT DISENGAGE SWITCH ..... PUSH

Higher than normal control column force may be required to prevent unwanted pitch change during autopilot disengagement.

CENTER STABILIZER TRIM CUT OUT SWITCH ..... NORM

Verify proper stabilizer trim movement.

If unscheduled trim occurs:

CENTER STABILIZER TRIM CUT OUT SWITCH ..... CUT OUT

LEFT STABILIZER TRIM CUT OUT SWITCH ..... NORM

Verify proper stabilizer trim movement.

If unscheduled trim occurs:

LEFT STABILIZER TRIM CUT OUT SWITCH ..... CUT OUT

Do not accomplish the following checklist:

STABILIZER TRIM

WING HYDRAULIC VALVE

Condition: A wing flight control shutoff OFF light illuminated indicates the wing flight control valve is closed.

All switches must be ON for flight.

YAW DAMPER

Condition: The yaw damper INOP light illuminated indicates the yaw damper is inoperative.

YAW DAMPER SWITCH.....OFF

Flight Instrument, Displays

AIRSPEED UNRELIABLE

Condition: Airspeed/Mach indication is suspected to be unreliable.

One or more of the following may be evidence of unreliable airspeed/Mach indication:

- speed/altitude information not consistent with pitch attitude and thrust setting
- speed/airspeed/mach failure flags
- blank or fluctuating airspeed displays
- variation between captain and first officer airspeed displays
- amber line through one or more ADI flight mode annunciations
- overspeed indications
- radome damage or loss
- simultaneous overspeed and stall warnings
- display of one or more of the following EICAS messages:

AILERON LOCKOUT	OVERSPEED
CAPT PITOT	R AUX PITOT
F/O PITOT	PROBE HEAT
L AUX PITOT	RUDDER RATIO

PITCH ATTITUDE AND THRUST ..... CHECK

If pitch attitude or thrust is not normal for phase of flight:

AUTOPILOT ..... DISENGAGE

AUTOTHROTTLE ..... DISCONNECT

FLIGHT DIRECTOR ..... OFF

ATTITUDE AND THRUST ..... ADJUST

Establish normal pitch attitude and thrust setting for phase of flight.

Altitude information, vertical speed information, limit EPR, Reference EPR, and EPR bug may be unreliable.

SPEED INDICATION ..... CROSS CHECK

Cross check captain and first officer airspeed indications and standby airspeed indicator. An airspeed display differing by more than 15 knots from the standby indicator should be considered unreliable.

If the reliable airspeed data source can be determined:

AIR DATA SOURCE SWITCH (Unreliable side) ..... ALTN

Invalid overspeed warning and invalid input to AFDS and autothrottle may occur or continue.

If the reliable airspeed data source cannot be determined

ATTITUDE AND THRUST ..... ADJUST

Maintain normal pitch attitude and thrust setting for phase of flight.

...Continued NEXT PAGE

DEFERRED ITEMS

==> LANDING PREPARATION

Maintain visual conditions if possible.

Establish landing configuration early.

Use electronic and visual glideslope indicators, where available, for approach and landing.

Refer to IRS ground speed on the CDU POS REF page and reported wind on approach.

ATTITUDE DISAGREE

Condition: Captain's and first officer's attitude indications disagree.

INSTRUMENT SWITCH

Condition: Both EFI switches are in the ALTN position.

Both ADIs and HSIs are displaying information from the center symbol generator.

Flight Management, Navigation

FMC FAIL

Condition: The FMC FAIL light illuminated indicated the FMC has failed.

If a single FMC failed:

NAVIGATION SOURCE SELECTOR

(Select operable FMC)..... FMC–L OR –R

Position both pilots HSI range selectors in the same position.

If both FMCs failed:

Select autopilot roll and pitch modes appropriate for the desired flight path.

[LNAV and VNAV modes fail when both FMCs fail.]

NAVIGATION SOURCE SELECTOR (Captain)..... CDU–L

NAVIGATION SOURCE SELECTOR (First Officer)..... CDU–R

Route modifications must be entered into both CDUs. Enter any new waypoints by latitude and longitude.

Manually tune navigation radios.

Refer to Performance–Inflight chapter for VREF speed and other applicable performance information.

FMC MESSAGE

Condition: The FMC light illuminated indicates a message in the FMC scratchpad.

If the CDU message is FUEL DISAGREE–PROG 2 or INSUFFICIENT FUEL:

Accomplish the following checklist:

FUEL LEAK

For all other messages:

Take action as required by the message.

IRS DC FAIL

Condition: The IRS DC FAIL light illuminated indicates the IRS DC backup power has failed and the IRS AC normal power is being used.

IRS FAULT

Condition: The IRS FAULT light illuminated indicates an IRS faul is detected.

If the left IRS FAULT light is illuminated

CAPTAIN'S IRS INSTRUMENT

SOURCE SELECT SWITCH ..... ALTN

If the right IRS FAULT light is illuminated:

FIRST OFFICER'S IRS INSTRUMENT

SOURCE SELECT SWITCH ..... ALTN

IRS ON DC

Condition: The IRS ON DC light illuminated indicates the IRS AC normal power has failed and the IRS DC backup power is being used.

Intentionally Left Blank

Fuel System

FUEL CONFIGURATION

Condition: The FUEL CONFIG light illuminated indicates both center pump switches are OFF with fuel in the centertank, or a fuel imbalance between main tanks, or fuelquantity is low in either main tank.

If leak is suspected:

Accomplish the FUEL LEAK checklist.

If fuel imbalance has occurred without indications of a fuel leak:

CROSSFEED SWITCH ..... ON

[Allows fuel from the high tank to feed both engines.]

FORWARD AND AFT FUEL PUMP SWITCHES

(Low tank) .....OFF

[Allows fuel from the high tank to feed both engines.]

When fuel balancing complete:

FORWARD AND AFT FUEL PUMP SWITCHES

(All)..... ON

[Restores fuel feed from the low tank.]

CROSSFEED SWITCH .....OFF

[Restores main tank–to–engine fuel feed.]

If fuel quantity is low in either main tank

Accomplish the LOW FUEL checklist.

FUEL CROSSFEED

Condition: The VALVE light illuminated indicates the crossfeed valve position disagrees with commanded position.

If VALVE is failed closed, vary engine thrust as required tomaintain fuel balance, flight conditions permitting.

FUEL JETTISON

Condition: Fuel jettison must be accomplished.

FUEL JETTISON SELECTOR ..... ON

FUEL JETTISON NOZZLE SWITCHES (Both) ..... ON

Fuel jettison is from center tank only.

Time required to empty full center tank is approximately 30 minutes.

When jettison is complete:

FUEL JETTISON NOZZLE SWITCHES (Both) .....OFF

FUEL JETTISON SELECTOR .....OFF

DEFERRED ITEMS

APPROACH CHECKLIST

Verify VREF speed for new gross weight.

FUEL JETTISON NOZZLE

Condition: The Fuel Jettison Nozzle VALVE light illuminated in flight indicates the associated fuel nozzle valve is not in the commanded position. The VALVE ligh illuminated on the ground indicates one or both fuel nozzle valves are open.

In flight:

If Fuel Jettison Nozzle switch ON:

Fuel jettison time will be extended.

If Fuel Jettison Nozzle switch OFF:

Fuel Jettison Nozzle valve failed open.

On ground:

FUEL JETTISON NOZZLE SWITCHES .....OFF

FUEL LEAK

Condition: An inflight fuel leak suspected or confirmed.

One or more of the following may be evidence of a fuel leak:

- visual observation of fuel spray from strut/engine
- excessive engine fuel flow
- total fuel quantity decreasing at an abnormal rate
- FUEL CONFIG EICAS message
- FUEL DISAGREE–PROG 2 message on the CDUscratchpad
- INSUFFICIENT FUEL message on the CDU scratchpad

If FUEL DISAGREE–PROG 2 CDU message is displayed:

PROGRESS PAGE 2.....SELECT

FUEL QUANTITIES .....COMPARE

Compare TOTALIZER and CALCULATED fuel quantity values for indications of fuel leak.

If INSUFFICIENT FUEL CDU message is displayed

Confirm FMC route is correct.

PROGRESS PAGE 1.....SELECT

DESTINATION FUEL ESTIMATE ..... CHECK

Verify adequate fuel available to complete flight.

If engine fuel leak suspected:

CENTER FUEL PUMP SWITCHES (Both).....OFF

FUEL CONFIG message is displayed with fuel in the center tank.

CROSSFEED SWITCH .....OFF

Identify fuel leak at an engine by observing one main wing fuel tank quantity decreasing faster than the other. An increase in fuel imbalance of approximately 500 kg or more in 30 minutes should be considered a fuel leak. Conditions permitting, visually check for engine fuel leak.

If no engine fuel leak:

Resume normal fuel management.

...Continued Next Page

If FUEL DISAGREE–PROG 2 CDU message displayed:

TOTALIZER or CALCULATED.....SELECT USE

Select most accurate indication.

If engine fuel leak confirmed

PROGRESS PAGE 2.....SELECT

TOTALIZER .....SELECT USE

Use TOTALIZER to determine fuel remaining.

Accomplish the ENGINE FAILURE OR SHUTDOWN checklist.

[Stops fuel leak and allows all remaining fuel to be used for the operating engine.]

Note: Plan to balance fuel when the FUEL CONFIG message is displayed.

FUEL PUMP

Condition: A fuel pump PRESS light illuminated indicates fuel pump output pressure is low.

Do not reset any tripped fuel pump circuit breaker.

If either center pump PRESS light illuminated:

PUMP SWITCH (Affected pump).....OFF

CROSSFEED SWITCH ..... ON

[Prevents fuel imbalance by feeding both engines from the same center fuel pump.]

When center tank fuel depleted:

CROSSFEED SWITCH .....OFF

If both center pump PRESS lights illuminated:

PUMP SWITCHES (Both).....OFF

CROSSFEED SWITCH .....OFF

Check available left and right main tank quantity is sufficient for the planned flight.

[Center tank fuel is not available.]

If either a left or a right main pump PRESS light illuminated:

Continue normal operation.

FUEL SPAR VALVE

Condition: The SPAR VALVE light illuminated indicates the sparvalve position disagrees with commanded position.

On the ground:

Do not attempt engine start.

[Prevents possibility of not being able to shutdown the engine if the engine fuel valve subsequently fails open.]

FUEL SYSTEM PRESSURE

Condition: All fuel pumps have low output pressure or all fuel pumps on one side have low output pressure and the crossfeed switch is off.

Thrust from the affected engine may deteriorate during climb at high altitude. If required thrust cannot be maintained, open the crossfeed valve.

Note: Continued operation with the crossfeed valve open will result in a progressive fuel imbalance due to both engines feeding from the same main tank.

LOW FUEL

Condition: The FUEL CONFIG light illuminated indicates fuel quantity is low in either left or right main tank.

CROSSFEED VALVE SWITCH ..... ON

[Ensures fuel is available to both engines if the low tank empties.]

FUEL PUMP SWITCHES (All) ..... ON

[Ensures all fuel is available for use.]

Note: Avoid high nose up attitude and excessive acceleration.

Hydraulic System

DEMAND HYDRAULIC OVERHEAT

Condition: The demand pump OVHT light illuminated indicates the demand pump temperature is high.

DEMAND PUMP SELECTOR.....OFF

[Attempts to eliminate source of overheat.]

Do not accomplish the following checklist:

HYDRAULIC DEMAND PUMP

HYDRAULIC DEMAND PUMP

Condition: The demand pump PRESS light illuminated indicates the demand pump output pressure is low.

DEMAND PUMP SELECTOR..... ON

If PRESS light remains illuminated:

DEMAND PUMP SELECTOR.....OFF

[Avoids system contamination and/or pump damage.]

HYDRAULIC (1 OR 2) OVERHEAT

Condition: The electric primary pump OVHT light illuminated indicates the electric pump temperature is high.

ELECTRIC PRIMARY PUMP SWITCH .....OFF

[Attempts to eliminate source of overheat.]

Do not accomplish the following checklist:

HYDRAULIC PRIMARY (1 OR 2)

HYDRAULIC PRIMARY (1 OR 2)

Condition: The electric primary pump PRESS light illuminated indicates the electric pump output pressure is low.

ELECTRIC PRIMARY PUMP SWITCH .....OFF

[Avoids system contamination and/or pump damage.]

HYDRAULIC PRIMARY PUMP

Condition: The engine primary pump PRESS light illuminated indicates the engine pump output pressure is low.

ENGINE PRIMARY PUMP SWITCH .....OFF

[Avoids system contamination and/or pump damage.]

HYDRAULIC QUANTITY

Condition: The QTY light illuminated indicates hydraulic quantity is low.

HYDRAULIC SYSTEM PRESSURE (C ONLY)

Condition: Only the center hydraulic SYS PRESS light illuminated indicates center hydraulic system pressure is low.

DEMAND PUMP SELECTOR (Center) ..... ON

If SYS PRESS light remains illuminated:

DEMAND PUMP SELECTOR (Center) .....OFF

ELECTRIC PRIMARY PUMP SWITCHES (Both).....OFF

[Avoids system contamination and/or pump damage.]

Note: Inoperative items:

- C autopilot
- R autopilot stabilizer trim.
- automatic speedbrake

Use flaps 20 and VREF 20 for landing.

DEFERRED ITEMS

==> APPROACH CHECKLIST

GROUND PROXIMITY FLAP OVERRIDE SWITCH ..... OVRD

ALTERNATE FLAPS SELECTOR .....SET

Position to agree with flap lever.

ALTERNATE FLAPS SWITCHES.....ALTN

ALTERNATE FLAPS SELECTOR .....SET

Extend or retract flaps as required.

LANDING GEAR LEVER.....OFF

[Prevents gear door interference during extension.]

ALTERNATE GEAR EXTENSION SWITCH (Max 250Kt/.75M) ....DN

After gear down lights illuminate:

LANDING GEAR LEVER.....DN

RESERVE BRAKES/STEERING SWITCH..... ON

[Provides nose wheel steering and reserve brakes capability.]

If center electric primary hydraulic pump PRESS light remains illuminated:

Accomplish the RESERVE BRAKE VALVE checklist.

Do not accomplish the following checklists

GEAR DOORS

HYDRAULIC DEMAND PUMP

HYDRAULIC PRIMARY (1 OR 2)

HYDRAULIC SYSTEM PRESSURE (L ONLY)

Condition: Only the left hydraulic SYS PRESS light illuminated indicates left hydraulic system pressure is low.

DEMAND PUMP SELECTOR (Left) ..... ON

If SYS PRESS light remains illuminated:

DEMAND PUMP SELECTOR (Left) .....OFF

ENGINE PRIMARY PUMP SWITCH (Left).....OFF

[Avoids system contamination and/or pump damage.]

Note: Inoperative items:

- L autopilot
- L thrust reverser.

Do not accomplish the following checklist:

HYDRAULIC DEMAND PUMP

HYDRAULIC PRIMARY PUMP

HYDRAULIC SYSTEM PRESSURE (R ONLY)

Condition: Only the right hydraulic SYS PRESS light illuminated indicates right hydraulic system pressure is low.

DEMAND PUMP SELECTOR (Right)..... ON

If SYS PRESS light remains illuminated:

DEMAND PUMP SELECTOR (Right).....OFF

ENGINE PRIMARY PUMP SWITCH (Right).....OFF

[Avoids system contamination and/or pump damage.]

Note: Inoperative items:

- R autopilot
- auto brakes
- R thrust reverser.

Do not accomplish the following checklist:

HYDRAULIC DEMAND PUMP

HYDRAULIC PRIMARY PUMP

HYDRAULIC SYSTEM PRESSURE (L AND C)

Condition: Both the left and center hydraulic SYS PRESS lights illuminated indicate left and center hydraulic system pressures are low.

DEMAND PUMP SELECTORS (Left and Center) ..... ON

If SYS PRESS lights remain illuminated:

DEMAND PUMP SELECTORS (Left and Center) .....OFF

ELECTRIC PRIMARY PUMP SWITCHES (Both).....OFF

ENGINE PRIMARY PUMP SWITCH (Left).....OFF

[Avoids system contamination and/or pump damage.]

Note: Inoperative items:

- automatic speedbrakes
- L thrust reverser
- elevator feel
- all autopilots.

Crosswind limit is 20 knots.

Use flaps 20 and VREF 30 + 20 for landing.

DEFERRED ITEMS

==> APPROACH CHECKLIST

GROUND PROXIMITY FLAP OVERRIDE SWITCH ..... OVRD

ALTERNATE FLAPS SELECTOR ..... SET

Position to agree with flap lever.

ALTERNATE FLAPS SWITCHES..... ALTN

ALTERNATE FLAPS SELECTOR ..... SET

Extend or retract flaps as required.

LANDING GEAR LEVER.....OFF

[Prevents gear door interference during extension.]

ALTERNATE GEAR EXTENSION SWITCH (Max 250Kt/.75M) ....DN

After gear down lights illuminate:

LANDING GEAR LEVER.....DN

RESERVE BRAKES/STEERING SWITCH..... ON

[Provides nose wheel steering and reserve brakes capability.]

If center electric primary hydraulic pump PRESS light remains illuminated:

Accomplish the RESERVE BRAKE VALVE checklist.

Do not accomplish the following checklists

GEAR DOORS

HYDRAULIC DEMAND PUMP

HYDRAULIC PRIMARY (1 OR 2)

HYDRAULIC SYSTEM PRESSURE (L AND R)

Condition: Both the left and right hydraulic SYS PRESS lights illuminated indicate left and right hydraulic system pressures are low.

DEMAND PUMP SELECTORS (Left and Right) ..... ON

If SYS PRESS lights remain illuminated:

DEMAND PUMP SELECTORS (Left and Right) .....OFF

ENGINE PRIMARY PUMP SWITCHES (Left and Right).....OFF

[Avoids system contamination an/or pump damage.]

Note: Inoperative items

- auto brakes
- both thrust reversers
- L and R autopilots

Crosswind limit is 20 knots.

Use flaps 20 and VREF 30 + 20 for landing.

GROUND PROXIMITY FLAP OVERRIDE SWITCH ..... OVRD

Do not accomplish the following checklists

HYDRAULIC DEMAND PUMP

HYDRAULIC PRIMARY PUMP

HYDRAULIC SYSTEM PRESSURE (R AND C)

Condition: Both the right and center hydraulic SYS PRESS lights illuminated indicate right and center hydraulic system pressures are low.

DEMAND PUMP SELECTORS (Right and Center)..... ON

If SYS PRESS lights remain illuminated:

DEMAND PUMP SELECTORS (Right and Center).....OFF

ELECTRIC PRIMARY PUMP SWITCHES (Both).....OFF

ENGINE PRIMARY PUMP SWITCH (Right).....OFF

[Avoids system contamination and/or pump damage.]

Note: Inoperative items:

- automatic speedbrake
- R thrust reverser
- R and C autopilots
- normal brakes
- primary source to alternate brakes
- auto brakes

Crosswind limit is 20 knots.

Use flaps 20 and VREF 30 + 20 for landing.

... Continued Next Page

HYDRAULIC SYSTEM PRESSURE (R AND C) Continued...

DEFERRED ITEMS

==> APPROACH CHECKLIST

GROUND PROXIMITY FLAP OVERRIDE SWITCH ..... OVRD

ALTERNATE FLAPS SELECTOR ..... SET

Position to agree with flap lever.

ALTERNATE FLAPS SWITCHES ..... ALTN

ALTERNATE FLAPS SELECTOR ..... SET

Extend or retract flaps as required.

LANDING GEAR LEVER ..... OFF

[Prevents gear door interference during extension.]

ALTERNATE GEAR EXTENSION SWITCH (Max 250Kt/.75M) .... DN

After gear down lights illuminate:

LANDING GEAR LEVER ..... DN

RESERVE BRAKES/STEERING SWITCH..... ON

[Provides nose wheel steering and reserve brakes capability.]

If center electric primary hydraulic pump PRESS light remains illuminated:

Accomplish the RESERVE BRAKE VALVE checklist.

Do not accomplish the following checklists

GEAR DOORS

HYDRAULIC DEMAND PUMP

HYDRAULIC PRIMARY (1 OR 2)

HYDRAULIC PRIMARY PUMP

PRIMARY HYDRAULIC OVERHEAT

Condition: The engine primary pump OVHT light illuminated indicates the engine pump temperature is high.

ENGINE PRIMARY PUMP SWITCH ..... OFF

[Attempts to eliminate source of overheat.]

Do not accomplish the following checklist:

HYDRAULIC PRIMARY PUMP

RAT UNLOCKED

Condition: The RAT UNLKD light illuminated indicates the ram air turbine is not stowed and locked.

Landing Gear

ANTISKID

Condition: The ANTISKID light illuminated indicates a fault is detected in the antiskid system.

Use minimum braking consistent with runway conditions to reduce possibility of tire blowout.

ANTISKID OFF

Condition: The ANTISKID light illuminated indicates the antiskid system is inoperative.

Use minimum braking consistent with runway conditions to reduce possibility of tire blowout.

AUTOBRAKES

Condition: The AUTO BRAKES light illuminated indicates the autobrakes are disarmed or inoperative.

AUTO BRAKES SELECTOR ..... RESELECT

If AUTO BRAKES light re–illuminates:

AUTO BRAKES SELECTOR ..... OFF

BRAKE SOURCE

Condition: The BRAKE SOURCE light illuminated indicates the normal and alternate brake system pressures are low.

RESERVE BRAKES/STEERING SWITCH..... ON

If BRAKE SOURCE light remains illuminated

AUTO BRAKES SELECTOR ..... OFF

Only accumulator pressure is available for braking.

During landing rollout, apply steady, increasing brake pressure and hold to a full stop. Do not taxi.

DRAG BRACE

Condition: The GEAR light illuminated indicates the main gear drag brace is not locked down.

Note: Do not use FMC fuel predictions with gear extended.

Observe gear EXTEND OR EXTENDED limit speed (270K/.82M).

Increase airspeed until GEAR light extinguishes.

If DRAG BRACE message remains displayed

Use flaps 30 for landing.

[Provides slowest landing speed.]

Do not arm speedbrake lever.

Manually extend speedbrakes after landing.

[Allows coordinated speedbrake extension.]

GROUND PROXIMITY/CONFIGURATION

GEAR OVERRIDE SWITCH..... OVRD

...Continued Next Page

When at pattern altitude:

PACK CONTROL SELECTORS (Both) .....OFF

[Ensures cabin depressurization prior to landing.]

FUEL PUMP SWITCHES (All) .....OFF

[Reduces possibility of fire.]

Do not accomplish the following checklists

FUEL SYSTEM PRESSURE

PACK OFF

GEAR DISAGREE

Condition: The GEAR light illuminated indicates the gear position disagrees with landing gear lever position.

Note: Do not use FMC fuel predictions with gear extended.

If landing gear lever UP:Observe gear EXTEND OR EXTENDED limit speed (270K/.82M).

Flight with gear down increases fuel consumption and decreases climb performance. Refer to Gear Down performance tables in Performance–Inflight chapter for flight planning.

If landing gear lever DN and all gear down (green) lights illuminated:

Accomplish normal landing.

If landing gear lever DN and any gear down (green) light not illuminated:

LANDING GEAR LEVER.....OFF

ALTERNATE GEAR EXTEND SWITCH (Maximum 250K/.75M)...DN

If all gear down lights illuminate

LANDING GEAR LEVER.....DN

If any gear down (green) light not illuminated:

Plan to land on available gear.

LANDING GEAR LEVER.....DN

GROUND PROXIMITY/CONFIGURATION

GEAR OVERRIDE SWITCH..... OVRD

Use flaps 30 for landing.

[Provides slowest landing speed.]

Do not arm speedbrake lever.

Manually extend speedbrakes after landing.

[Allows coordinated speedbrake extension.]

When at pattern altitude:

PACK CONTROL SELECTORS (Both) .....OFF

[Ensures cabin depressurization prior to landing.]

FUEL PUMP SWITCHES (All) .....OFF

[Reduces possibility of fire.]

Do not accomplish the following checklists

CABIN AUTOMATIC INOPERATIVE

FUEL SYSTEM PRESSURE

PACK OFF

GEAR DOORS

Condition: The DOORS light illuminated indicates one or more gear doors are not closed.

Note: Do not use FMC fuel predictions with gear extended.

If landing gear lever UP or DN:

Observe gear EXTEND OR EXTENDED limit speed (270K/.82M).

The gear doors may close when airspeed is reduced to normal flap extension speed.

If landing gear lever OFF:

LANDING GEAR LEVER ..... UP

GEAR LEVER WILL NOT MOVE UP

Condition: Landing gear lever cannot be positioned to up.

LEVER LOCK OVERRIDE SWITCH ..... PUSH AND HOLD

LANDING GEAR LEVER ..... UP

[Landing gear is automatically tilted permitting proper gear retraction.]

GEAR NOT DOWN

Condition: The CONFIG light illuminated indicates any gear is not down and locked with either thrust lever closed below 800 feet radio altitude or when flaps are in a landing position.

PARKING BRAKE [WARNING]

Condition: The CONFIG light illuminated indicates the parking brake is set when either engine's thrust is in the takeoff range on the ground.

PARKING BRAKE [ADVISORY]

Condition: The PARK BRAKE light illuminated indicates the parking brake is set.

Antiskid is inoperative.

RESERVE BRAKE VALVE

Condition: The reserve brakes and steering VALVE light illuminated indicates a reserve brake valve(s) position disagrees with the commanded position.

If center hydraulic system is inoperative:

Nose wheel steering is inoperative.

If center and right hydraulic systems are inoperative

Nose wheel steering is inoperative.

Only accumulator pressure is available for brakes.

Apply steady, increasing brake pressure and hold to a full stop. Do not taxi.

SIDE BRACE

Condition: The GEAR light illuminated indicates the main gear side brace is not locked down.

Note: Do not use FMC fuel predictions with gear extended.

Observe gear EXTEND OR EXTENDED limit speed (270K/.82M).

Decrease airspeed until GEAR light extinguishes (VREF minimum).

If SIDE BRACE message remains displayed

Use flaps 30 for landing.

[Provides slowest landing speed.]

Do not arm speedbrake lever.

Manually extend speedbrakes after landing.

[Allows coordinated speedbrake extension.]

GROUND PROXIMITY/CONFIGURATION

GEAR OVERRIDE SWITCH..... OVRD

When at pattern altitude:

PACK CONTROL SELECTORS (Both) .....OFF

[Ensures cabin depressurization prior to landing.]

FUEL PUMP SWITCHES (All) .....OFF

[Reduces possibility of fire.]

Do not accomplish the following checklists

FUEL SYSTEM PRESSURE

PACK OFF

TAILSKID

Condition: The TAILSKID light illuminated indicates the tailskid position disagrees with landing gear lever position.

WHEEL WELL FIRE

Condition: The WHL WELL FIRE light illuminated indicates a fire is detected in a main wheel well.

Observe gear EXTEND OR EXTENDED limit speed (270K/.82M).

LANDING GEAR LEVER.....DN

[Attempts to remove and extinguish the fire source.]

Plan to land at the nearest suitable airport.

Note: Do not use FMC fuel predictions with gear extended.

Flight with gear down increases fuel consumption and decreases climb performance. Refer to Gear Down performance tables in Performance–Inflight chapter for flight planning.

If landing gear must be retracted for airplane performance

When WHL WELL FIRE light is no longer illuminated:

Wait 20 minutes.

[Attempts to ensure that wheel well fire is extinguished.]

LANDING GEAR LEVER..... UP, THEN OFF

Warning Systems

ALTITUDE ALERT

Condition: The ALT ALERT light illuminated indicates the airplane has deviated from the selected altitude.

ALTITUDE CALLOUTS

Condition: Altitude callouts are no longer provided.

EICAS CONTROL PANEL

Condition: The EICAS control panel is inoperative.

EICAS DISPLAY

Condition: One EICAS CRT is inoperative.

FLAPS

Condition: The CONFIG light illuminated indicates the flaps are not in a takeoff position when either engine's thrust is in the takeoff range on the ground.

GEAR NOT DOWN

Condition: The CONFIG light illuminated indicates any landing gear is not down and locked with either thrust lever closed below 800 feet radio altitude or when flaps are in a landing position.

GROUND PROXIMITY

Condition: The GND PROX light illuminated indicates a ground proximity caution exists.

An advisory aural indicates the associated ground proximity condition.

GROUND PROXIMITY SYSTEM

Condition: Ground proximity alerts may not be provided.

Some or all ground proximity alerts are not available.

Ground proximity alerts which occur are valid.

OVERSPEED

Condition: The OVSPD light illuminated indicates airspeed has exceeded Vmo/Mmo.

PARKING BRAKE [WARNING]

Condition: The CONFIG light illuminated indicates the parking brake is set when either engine's thrust is in the takeoff range on the ground.

SPOILERS [WARNING]

Condition: The CONFIG light illuminated indicates the speedbrake lever is not DOWN when either engine's thrust is in the takeoff range on the ground.

STABILIZER

Condition: The CONFIG light illuminated indicates the stabilizer is not within the green band with either engine's thrust in the takeoff range on the ground.

TCAS

Condition: The TCAS system is inoperative.

TCAS FAIL

Condition: The TCAS system has failed.

TCAS OFF

Condition: The TCAS system is off.

TERRAIN OVERRIDE

Condition: Ground proximity terrain override switch is in OVRD.

Look–ahead terrain alerts and the terrain display are not provided.

TERRAIN POSITION

Condition: Terrain position data has been lost.

Position data for the terrain map and look-ahead terrain alerts are lost. Ground proximity alerts which occur are valid.

WINDSHEAR SYSTEM

Condition: Windshear alerts may not be provided.

Some or all windshear alerts are not available.

Windshear alerts which occur are still valid.