APU FIRE

NOTE: The APU will automatically shut down when an APU fire is detected.

APU FIRE CONT Switch . . . . . OFF & AGENT ARM 1

"APU FIRE" ALERT REMAINS DISPLAYED

NO

APU FIRE AGENT Switch NO 1 or NO 2 . . . . . DISCH/CHECK

After 30 seconds,

"APU FIRE" ALERT REMAINS DISPLAYED

NO

Remaining APU FIRE AGENT Switch . . . . . DISCH/CHECK

APU MASTER Switch . . . . . OFF

[END]

APU MASTER Switch . . . . . OFF

[END]

CABIN ALTITUDE

Oxygen Masks ON/100%

Crew Communications . . . . . ESTABLISH

Outflow VALVE . . . . . VERIFY CLOSED

CABIN ALTITUDE CONTROLLABLE

NO

Operate cabin pressure system as required.

[END]

Perform an emergency descent. Initiate descent to 10,000 feet or minimum safe altitude, whichever is higher.

CAUTION: Descent not to exceed 10° pitch or 30° bank.

Altitude Select Knob . . . . . REDUCE/PULL

Speed Brakes . . . . . EXTEND

<u>WARNING:</u> If structural damage is suspected or turbulence is present, do not exceed .75 M/275 KIAS.

Descent Speed . . . . . ESTABLISHED (.80 M/320 KIAS)

Transponder (Unless Otherwise Required) 7700

NO SMOKE/SEAT BELTS Switches . . . . . ON

To reactivate boom mike when O2 mask is no longer required,

(CONTINUED)

CABIN ALTITUDE (Continued)

O2 Mask Doors . . . . . CLOSE

PRESS-TO-TEST AND RESET Lever . . . . . PUSH

[END]

1

CARGO SMOKE___

WARNING: ***Notify ground personnel not to open any cargo door until all passengers and crew have exited airplane and fire fighting equipment is available at airplane.***

NOTE: In addition to the "CARGO SMOKE___" alert displayed, an aural warning will sound.

Flashing CARGO SMOKE AGENT 1 DISCH Switch . . . . . PUSH

Observe LOW light illuminates.

NOTE: If CARGO SMOKE AGENT 2 DISCH switch is pushed inadvertently, AGENT 2 cylinder will discharge and associated CARGO SMOKE AGENT 1 DISCH switch will continue flashing. If so, push AGENT 1 switch.

After approximately 1 minute elapsed time,

CARGO SMOKE AGENT 1 DISCH
LOW LIGHT ILLUMINATED

NO

Approximately 6 minutes after AGENT 1 has been discharged, "DISCH CARGO AGENT" alert will be displayed on EAD and CARGO SMOKE AGENT 2 DISCH switch will flash. Push the flashing CARGO SMOKE AGENT 2 DISCH switch.

NOTES: CARGO SMOKE AGENT DISCH switch will stop flashing when DISCH light switch is pushed.

Approximately 2 hours after CARGO SMOKE AGENT 2 DISCH switch is pushed, low light will illuminate.

Land at nearest suitable airport.

[END]

Associated CARGO SMOKE AGENT 2 DISCH Switch. . . . . PUSH

Land at nearest suitable airport.

[END]

ENGINE __ FIRE
OR SEVERE DAMAGE

Throttle (Affected Engine). . . . . IDLE

When engine is idle,

2

"ENGINE___FIRE" ALERT DISPLAYED
OR SEVERE DAMAGE SUSPECTED

NO

FUEL Switch (Affected Engine). . . . . OFF

ENG FIRE Handle/AGENT Low Light
(Affected Engine) . . . . . .PULL, DISCH/CHECK

NOTE: Ensure the engine fire handle is pulled out fully to the stop before attempting to rotate the handle to the selected agent.

"ENGINE___FIRE" ALERT
DISPLAYED

NO

After 30 seconds,

"ENGINE__FIRE" ALERT REMAINS
DISPLAYED

NO

NOTE: If "ENGINE__FIRE" alert is displayed 30 seconds or more after discharging first fire agent, remaining agent should be discharged. Discharge of second agent leaves no engine fire agent for remaining engine or APU.

Remaining Agent. . . . . DISCH/CHECK

Hydraulic AUX or
TRANS Pump Switches . . . . . AS REQUIRED

HYDRAULIC PUMP Switch (Affected Engine) . . . . . OFF

Fuel Boost Pump Switches/
FUEL XFEED Lever . . . . . AS REQUIRED

APU (If Available) . . . . . .START

PACK Switch (Affected Engine) . . . . . OFF

BLEED Switch (Affected Engine) . . . . . OFF

PACK SHUTDOWN Switch. . . . . AS REQUIRED

(CONTINUED)

"ENGINE___FIRE" ALERT DISPLAYED
OR SEVERE DAMAGE SUSPECTED

NO

(CONTINUED)

Transponder . . . . . .TA

2

NOTES: For single engine approach, do not select a flap setting beyond 25°. PNF centers rudder trim at PF's command prior to landing.

The 40° flap landing field length chart is applicable to landings with one engine inoperative at 25° flaps.

If in icing conditions, refer to Abnormal Non-Alert Procedure – ANTI-ICE OPERATION WITH SINGLE PNEUMATIC SOURCE.

Land at nearest suitable airport.

[END]

BLEED Switch (Affected Engine) . . . . . OFF

PACK Switch (Affected Engine) . . . . . OFF

PACK SHUTDOWN Switch. . . . . AS REQUIRED

Transponder . . . . . .TA

Continue engine operation at Captain's discretion.

NOTES: For single engine approach, do not select a flap setting beyond 25°. PNF centers rudder trim at PF's command prior to landing

The 40° flap landing field length chart is applicable to landings with one engine inoperative at 25° flaps.

If in icing conditions, refer to Abnormal Non-Alert Procedure – ANTI-ICE OPERATION WITH SINGLE PNEUMATIC SOURCE.

Land at nearest suitable airport.

[END]

NO MASKS

PASS OXY MASK Switch . . . . . .EJECT & HOLD 3 to 5 SECONDS

CAUTION: Holding PASS OXY MASK switch in EJECT position in excess of 5 seconds may cause damage to the oxygen compartment latches.

[END]

TAIL MANF FAIL

R BLEED Switch . . . . . OFF

ISOL Switch . . . . . CLSD

R PACK Switch . . . . . OFF

TAIL AIR FOIL Anti-Ice Switch . . . . . OFF

Depart icing conditions.

Prior to final approach, add 5 knots to all minimum maneuvering and approach speeds. Do not extend flaps beyond 25/EXT as a decrease in controllability may result.

[END]

3

TAIL TEMP___HI

WING/TAIL Anti-Ice Switches. . . . . OFF

ISOL Switch . . . . . CLSD

BLEED Switch (Affected Engine). . . . . OFF

PACK Switch (Affected Engine) . . . . . OFF

Depart icing conditions.

If unable to depart icing conditions or if tail icing is suspected, prior to final approach add 5 knots to all minimum maneuvering and approach speeds. Do not extend flaps beyond 25/EXT as a decrease in airplane controllability may result.

After 2 minutes,

"TAIL TEMP___ HI" ALERT REMAINS DISPLAYED

NO

BLEED Switches (Both) . . . . . OFF

NOTE: Cabin will depressurize.

PACK Switches (Both) . . . . . OFF

NOTE: Instrument cooling fan will be commanded on.

Land at nearest suitable airport.

[END]

No further crew action required.

[END]

L BLEED Switch . . . . . OFF
ISOL Switch. . . . . CLSD
L PACK Switch . . . . . OFF
WING AIR FOIL Anti-Ice Switch . . . . . OFF
Avoid icing conditions.
[END]

3

Intentionally
Blank

AIR CONDITIONING SMOKE/FUMES

Oxygen Masks ON/100%

Crew Communications . . . . . ESTABLISH

SMOKE/FUMES IN COCKPIT

NO

L PACK Switch . . . . . OFF

SMOKE/FUMES STOP

NO

Continue flight with L PACK switch OFF.

[END]

4

L PACK Switch . . . . . AUTO

R PACK Switch. . . . . OFF

[END]

R PACK Switch . . . . . OFF

[END]

AIRSPEED UNRELIABLE

This procedure is ***not*** intended to address simple instrument malfunctions identified by an “X” flag on a display or by power loss or a blank screen.

PROCEDURE

WARNING: ***Establish control of the aircraft through pitch/thrust relationship. Disregard all alerts and warnings, except stick shaker, until after aircraft is stabilized and safe operations achieved.***

AFS OVRD and FD Switches . . . . . OFF

Aircraft Pitch/Thrust . . . . . FLAPS AND/OR SLATS EXTENDED: 10° AND 80% N1
FLAPS AND SLATS UP: 4° AND 80% N1

AIR DATA HEAT Switch (Airplanes Without Service Bulletin 717-30A003 Incorporated) . . . . . CYCLE (VERIFY ON)

Use the following tables to determine refined pitch/thrust relationship.

CAUTION: Apply the following as required:

- ***Use CLIMB table references until airplane is at a safe altitude for the projected flight path, then level off using CRUISE table.***
- ***If in descent, ensure terrain clearance and use CLIMB and/or CRUISE table as appropriate.***

5

CLIMB AND CRUISE
BR 700-715 A1-30 Engine, 18.5K Thrust, English Units

FLIGHT PHASE	CONFIG	PRESSURE ALTITUDE	REF	WEIGHT (1000 LB)			
				130	110	90	70
CLIMB Use Max Thrust (Throttles to Max FWD Throttle Gate)	UP/RET	5000	PITCH *IAS*	9.8 *275*	10.2 *275*	11.1 *275*	13.1 *275*
		FL 100	PITCH *IAS*	9.2 *275*	9.4 *275*	10.2 *275*	11.9 *275*
		FL 150	PITCH *IAS*	6.4 *275*	6.6 *275*	7.2 *275*	8.4 *275*
		FL 200	PITCH *IAS*	5.3 *275*	5.4 *275*	5.7 *275*	6.6 *275*
CRUISE Use N1 for thrust setting		FL 100	PITCH N1 *IAS*	3.5 67.8 *275*	2.6 65.1 *275*	1.8 62.8 *275*	1.0 61.0 *275*
		FL 200	PITCH N1 *IAS*	3.1 76.6 *275*	2.3 73.7 *275*	1.5 71.3 *275*	0.7 69.4 *275*
		FL 300	PITCH N1 *IAS*	2.7 84.6 *275*	2.0 81.3 *275*	1.3 78.8 *275*	0.5 77.0 *275*
		FL 350	PITCH N1 *IAS*		2.7 84.2 *253*	1.9 80.3 *253*	1.0 77.4 *253*

(CONTINUED)

CLIMB AND CRUISE
BR 700-715 A1-30 Engines, 18.5K Thrust, Metric Units

FLGHT PHASE	CONFIG	PRESSURE ALTITUDE	REF	WEIGHT (1000 KG)			
				60	50	40	30
CLIMB Use max thrust (Throttles to Max FWD Gate)	UP/RET	5000	PITCH *IAS*	9.8 *275*	10.2 *275*	11.2 *275*	13.7 *275*
		FL 100	PITCH *IAS*	9.2 *275*	9.4 *275*	10.3 *275*	12.4 *275*
		FL 150	PITCH *IAS*	6.4 *275*	6.6 *275*	7.2 *275*	8.7 *275*
		FL 200	PITCH *IAS*	5.3 *275*	5.4 *275*	5.8 *275*	6.8 *275*
CRUISE Use N1 for thrust setting	UP/RET	FL 100	PITCH N1 *IAS*	3.6 68.1 *275*	2.6 65.1 *275*	1.7 62.6 *275*	0.8 60.8 *275*
		FL 200	PITCH N1 *IAS*	3.2 76.9 *275*	2.3 73.8 *275*	1.4 71.1 *275*	0.6 69.1 *275*
		FL 300	PITCH N1 *IAS*	2.8 85.0 *275*	2.0 81.4 *275*	1.2 78.6 *275*	0.4 76.7 *275*
		FL 350	PITCH N1 *IAS*		2.7 84.3 *253*	1.8 80.0 *253*	0.8 77.0 *253*

5

If able, fly into and maintain VMC.

Flight Instruments . . . . . COMPARE

The following will be *reliable:*

- Attitude
- N1
- Ground speed
- Radio altimeter

ABLE TO IDENTIFY UNRELIABLE AIR DATA SOURCE

NO

AIR DATA Switch
(Unreliable Side) . . . . . SELECT RELIABLE SIDE

AIR DATA RETURNS TO NORMAL

NO

AFS OVRD OFF Switch
(Reliable Side). . . . . NORMAL POSITION

Use autopilot and autothrottles associated with the reliable ADIRU.

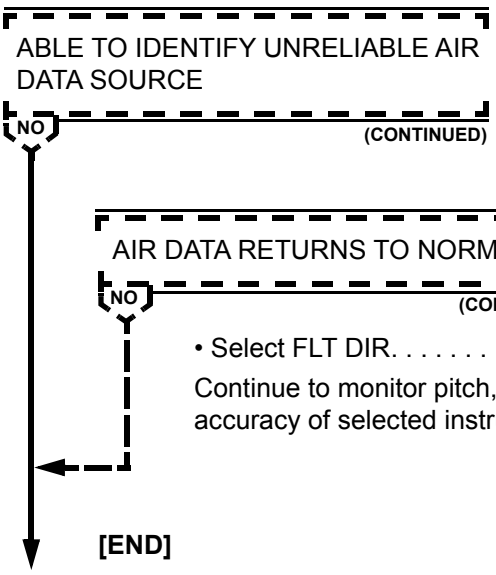
Flight Directors may be engaged using the reliable ADIRU.

If ADIRU 1 is reliable,

- Select FLT DIR . . . . . F/O ON 1

If ADIRU 2 is reliable,

(CONTINUED)



Attitude and Thrust. . . . . ADJUST

Refer to the appropriate table to maintain normal pitch attitude and thrust for phase of flight.

NOTE: Cruise flight at optimum altitudes may result in small margins between high and low speed buffet. If conditions permit, consider descending to a lower altitude which will provide greater margins. If a descent is desired, refer to DESCENT table located at the end of this procedure. After level off, refer to CRUISE table for pitch/thrust settings at the new altitude.

The following items *may* be *unreliable*. Verify correct indications and operation of these items before relying on them.

- Airspeed
- Autopilot
- Autothrottles
- EPR Limit
- FMS Predictions and VNAV Computations
- FPA
- Low Speed Thrust Protection
- Overspeed Warning and Protection
- PLI
- Static system: In addition to airspeed, static system anomalies affect the following:
  - Altimeter
  - TCAS alerts
  - Transponder mode C
  - Vertical speed
- Stick shaker
- TAS

(CONTINUED)

AIRSPEED UNRELIABLE (Continued)

- Thrust Rating Computer Calculations
- Wind Calculations (ND and MCDU)
- Windshear Alerts

Use the following tables to determine pitch/thrust relation for remainder of flight.

NOTE: IAS and vertical speed (VS) values in the following tables are approximate.

When ready for approach and landing,

- If able, maintain VMC conditions.
- Establish landing configuration early.
- Use radio altimeter.
- If able, use a runway with descent path guidance.

DESCENT AND ARRIVAL
BR 700-715 A1-30 Engines, 18.5K Thrust, English Units

FLIGHT PHASE	CONFIG	PRESSURE ALTITUDE	REF	WEIGHT (1000 LB)			
				130	110	90	70
DESCENT Use idle thrust	UP/RET	FL 350	PITCH *IAS* VS		0.1 *250* -2100	-0.7 *250* -2000	-1.8 *250* -2200
		FL 300	PITCH *IAS* VS	1.0 *250* -2100	0.2 *250* -2000	-0.8 *250* -2000	-2.0 *250* -2200
		FL 200	PITCH *IAS* VS	1.6 *250* -1800	0.6 *250* -1700	-0.5 *250* -1800	-1.8 *250* -1900
		FL 100	PITCH *IAS* VS	1.6 *250* -1600	0.5 *250* -1600	-0.7 *250* -1700	-2.1 *250* -1900
ARRIVAL LVL FLT Use N1 for thrust setting	UP/RET	5000	PITCH N1 *IAS*	4.8 62.4 *249*	4.9 58.2 *229*	4.9 54.1 *207*	5.0 49.1 *182*
	0/EXT	3000	PITCH N1 *IAS*	9.7 64.2 *195*	9.7 59.8 *179*	9.7 54.6 *162*	9.7 49.5 *143*
	0/EXT	1500	PITCH N1 *IAS*	9.7 63.2 *195*	9.7 58.6 *179*	9.7 53.6 *162*	9.7 48.5 *143*
	13/EXT	1500	PITCH N1 *IAS*	9.5 65.6 *173*	9.5 61.2 *159*	9.5 56.0 *144*	9.5 50.4 *127*
	18/EXT	1500	PITCH N1 *IAS*	8.9 66.6 *170*	8.9 62.1 *156*	8.9 57.0 *141*	8.9 51.2 *125*
	25/EXT	1500	PITCH N1 *IAS*	8.2 72.0 *167*	8.2 67.1 *153*	8.2 61.6 *139*	8.2 55.4 *122*
	40/EXT	1500	PITCH N1 *IAS*	6.6 76.7 *163*	6.6 72.3 *150*	6.6 66.4 *136*	6.6 59.8 *120*

(CONTINUED)

APPROACH AND GO AROUND
BR 700-715 A1-30 Engines, 18.5K Thrust, English Units

FLIGHT PHASE	CONFIG	PRESSURE ALTITUDE	REF	WEIGHT (1000 LB)			
				130	110	90	70
APPROACH IAS Approx Vref + 15 Use N1 for thrust setting	25/EXT GEAR DOWN	DESCENT	PITCH N1 *IAS*	4.7 60.4 *169*	4.5 56.2 *157*	4.2 52.0 *143*	3.8 47.2 *128*
	40/EXT GEAR DOWN		PITCH N1 *IAS*	3.0 67.0 *166*	2.8 62.7 *154*	2.5 58.1 *140*	2.1 52.4 *126*
	Maintain pitch and adjust power to maintain glide path.						
GO AROUND Vref 40 + 15	13/EXT	SEA LVL	PITCH *IAS*	18.0 *166*	20.2 *154*	23.3 *140*	28.1 *126*
	13/EXT	5000	PITCH *IAS*	16.8 *166*	18.7 *154*	21.6 *140*	26.0 *126*
	18/EXT	SEA LVL	PITCH *IAS*	16.8 *166*	18.9 *154*	22.1 *140*	26.9 *126*
	18/EXT	5000	PITCH *IAS*	15.5 *166*	17.5 *154*	20.4 *140*	24.8 *126*

[END]

ALL ENGINE FLAMEOUT

START PUMP Switch. . . . . ON

Windmill start envelope is Vmo to 250 KIAS. A minimum N2 of 8% is required for air start. Higher airspeeds increase N2 rpm and improve air start capability.

6

Throttles . . . . . IDLE

IGNITION Switch . . . . . ON

FUEL Switches . . . . . OFF THEN ON

ONE OR BOTH ENGINES START

NO

GEN Switch(es) . . . . . RESET/ON

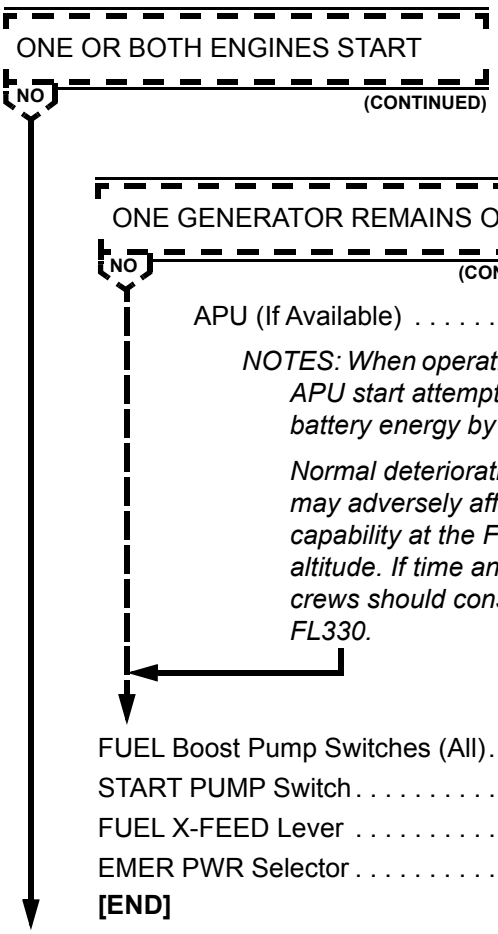
NOTE: If both generators remain off, refer to Abnormal Alert Procedures under ELEC – GEN ALL OFF OR TOTAL LOSS OF AC POWER.

ONE GENERATOR REMAINS OFF

NO

GEN Switch (Inoperative Generator) . . . . . OFF

(CONTINUED)



APU (If Available) . . . . . START

NOTES: When operating on EMER PWR, each APU start attempt will reduce remaining battery energy by approximately 3 percent.

Normal deterioration and wear of the APU may adversely affect APU starting capability at the FL370 maximum start altitude. If time and conditions permit, crews should consider descending below FL330.

FUEL Boost Pump Switches (All) . . . . . VERIFY ON
START PUMP Switch . . . . . OFF
FUEL X-FEED Lever . . . . . AS REQUIRED
EMER PWR Selector . . . . . OFF THEN ARM

[END]

Continue start attempts.

NOTE: A minimum N2 of 8% is required for air start. Higher airspeeds increase N2 rpm and improve air start capability.

If repeated start attempts are unsuccessful, refer to ABNORMAL NON-ALERT Procedure – DITCHING OR CRASH LANDING.

[END]

EMERGENCY DESCENT

CAUTION: Descent not to exceed 10° pitch or 30° bank.

NO SMOKE/SEAT BELTS Switches . . . . . ON
Altitude Select Knob . . . . . REDUCE/PULL
Commence IAS/MACH SEL descent.
Speed Brakes . . . . . .EXTEND

(CONTINUED)

STRUCTURAL DAMAGE KNOWN OR SUSPECTED

NO

Descent Speed . . . . . .ESTABLISHED (0.75 M/275 KIAS)

CAUTION: Known failures affecting structural integrity and/or turbulence may dictate more conservative speed profiles or entry maneuvers.

[END]

Descent Speed . . . . . .ESTABLISHED (0.80 M/320 KIAS)

[END]

ENGINE FAIL/SHUTDOWN IN FLIGHT

Throttle (Affected Engine) . . . . . IDLE

FUEL Switch (Affected Engine) . . . . . .OFF

NOTE: After FUEL switch is off, throttles may be used together.

Fuel Boost Pump Switches / FUEL X-FEED Lever . . . . AS REQUIRED

APU (If Available). . . . . .START

RESTART DESIRED

NO

Refer to Abnormal Non-Alert Procedure - ENGINE RESTART IN FLIGHT.

[END]

7

PACK Switch (Affected Engine) . . . . . .OFF

BLEED Switch (Affected Engine). . . . . .OFF

PACK SHUTDOWN Switch . . . . . AS REQUIRED

Transponder. . . . . TA

AUX and TRANS HYD PUMPS Switches . . . . . AS REQUIRED

NOTES: For single engine approach, do not select a flap setting beyond 25°. PNF centers rudder trim at PF's command prior to landing

The 40° flap landing field length chart is applicable to landings with one engine inoperative at 25° flaps.

If in icing conditions, refer to Abnormal Non-Alert Procedure – ANTI-ICE OPERATION WITH SINGLE PNEUMATIC SOURCE.

Land at nearest suitable airport.

[END]

REVERSER DEPLOYED OR “U/L” OR “REV” DISPLAYED IN FLIGHT

NOTE: Engine thrust will be reduced to idle whenever respective EEC detects uncommanded reverser deployment.

Take immediate corrective action as necessary to maintain airplane control.

Autopilot/Autothrottles . . . . . OFF

Throttle (Affected Engine) . . . . . IDLE

Reverser Levers . . . . . FULL DOWN (FWD IDLE)

“U/L” OR “REV” REMAINS DISPLAYED OR AIRPLANE BUFFETING OR TRIM CHANGE

NO

FUEL Switch (Affected Engine) . . . . . OFF

Refer to ENGINE FAIL/SHUTDOWN IN FLIGHT, in this section.

Set autopilot and autothrottles as desired.

Use 25° flaps for landing.

Land at nearest suitable airport.

[END]

Operate engine at idle.

Recommend autothrottles off.

Set autopilot as desired.

Use 25° flaps for landing.

7 Land at nearest suitable airport.

[END]

SMOKE / FIRE / FUMES

DIVERSION MAY BE REQUIRED.

The following steps are initial actions.

Oxygen Masks/Smoke Goggles (If Required) ON/100%

Use emergency oxygen pressure as required to purge mask of smoke / fumes.

Crew and Cabin Communications . . . . . .ESTABLISH

GALLEY Switch . . . . . OFF

Any time smoke or fumes become the greatest threat, refer to SMOKE/FUMES REMOVAL – COCKPIT UNPRESSURIZED, in this section, or to Abnormal Non-Alert procedure, CABIN SMOKE/FUMES REMOVAL, as appropriate.

SOURCE OBVIOUS AND ACCESSIBLE

NO

Isolate and extinguish the source. If possible, remove power from affected equipment by switch or circuit breaker on flight deck or in cabin.

SOURCE VISUALLY CONFIRMED EXTINGUISHED AND SMOKE / FUMES DECREASING

NO

Flight may be continued at Captain's discretion.

At Captain's discretion,

GALLEY Switch . . . . . ON

[END]

8

Diversion . . . . . INITIATE

<u>WARNING:</u> Consider an immediate landing if smoke, fire, or fumes become uncontrollable.

Consider the following:

- ***Overweight landing.***
- ***Tailwind landing.***
- ***Off-airport landing.***
- ***Ditching.***
- ***Do not delay landing in order to accomplish Emergency or Abnormal procedures.***

(CONTINUED)

LANDING IMMINENT

NO

Time permitting and at Captain's discretion, review OPERATIONAL CONSIDERATIONS, located at the end of this procedure.

[END]

Do not delay landing in an attempt to complete all of the following steps.

The following steps isolate the left side air and center electrical.

ISOL Switch. . . . . CLSD

L PACK Switch . . . . . OFF

EMER LIGHT Switch. . . . . OFF

DC BUS TIE Switch. . . . . OPEN

L and R BUS TIE Switches . . . . . OPEN

Emergency Power. . . . . VERIFY ON

CAUTION: Battery power cannot be relied upon for more than 60 minutes. Do not start APU. Battery is not being charged.

NOTE: Emergency power will be automatically activated when the left and right tie switches are opened.

Evaluate smoke/fumes for up to 2 minutes.

CAUTION: If smoke and/or fumes increase during waiting period, proceed immediately to next step.

SMOKE AND/OR FUMES DECREASE

NO

8

Time permitting and at Captain's discretion, review OPERATIONAL CONSIDERATIONS and INOPERATIVE EQUIPMENT LIST A, located at the end of this procedure.

Land at nearest suitable airport with affected equipment inoperative.

[END]

The following steps restore left side air and center electrical as well as isolate right side air and electrical.

L BUS TIE Switch . . . . . AUTO

L PACK Switch . . . . . AUTO

Observe AIR synoptic. Continue when left pack symbol is green.

R PACK Switch . . . . . OFF

ATC Switch (Transponder) . . . . . SELECT 1

Communication Radio Panel. . . . . SELECT VHF 1

NOTE: Select HF-1 if installed and required.

AUTO FLIGHT (If Desired) . . . . . SELECT AP1

(CONTINUED)

Captain's Flight Displays . . . . . VERIFY NORMAL

NOTE: DUs 4 and 5 will become unpowered. ND is selectable to DU 2 with SDCP.

R GEN Switch . . . . . OFF

NOTE: A MASTER CAUTION light will illuminate and momentary stick shaker may occur.

"SELECT FADEC ALTN" Level 2 alert may be displayed. No action is recommended until the final configuration is reached, and then only if time permits.

Evaluate smoke/fumes for up to 2 minutes.

CAUTION: If smoke and/or fumes increase during waiting period, proceed immediately to next step.

SMOKE AND/OR FUMES DECREASE

NO

Time permitting and at Captain's discretion, review OPERATIONAL CONSIDERATIONS and INOPERATIVE EQUIPMENT LIST B, located at the end of this procedure.

FADEC will not reset. Time permitting, move both FADEC mode switches to ALTN.

Land at nearest suitable airport with affected equipment inoperative.

[END]

The following actions restore right side air and electrical as well as isolate left side electrical.

R GEN Switch . . . . . ON

NOTE: It may take up to 2 minutes for the FCC to reboot and function normally. Momentary stick shaker may occur.

R PACK Switch . . . . . AUTO

ISOL Switch . . . . . AUTO

R BUS TIE Switch . . . . . AUTO

L BUS TIE Switch. . . . . OPEN

ATC Switch (Transponder). . . . . SELECT 2

AUTO FLIGHT (If Desired). . . . . .SELECT AP2

F/O's Flight Displays . . . . . VERIFY NORMAL

NOTES: Before proceeding to the next step, allow sufficient time for F/O's repowered flight instruments to resume normal function.

DU 6 will become unpowered.

L GEN Switch. . . . . OFF

NOTE: A MASTER CAUTION light will illuminate and momentary stick shaker may occur.

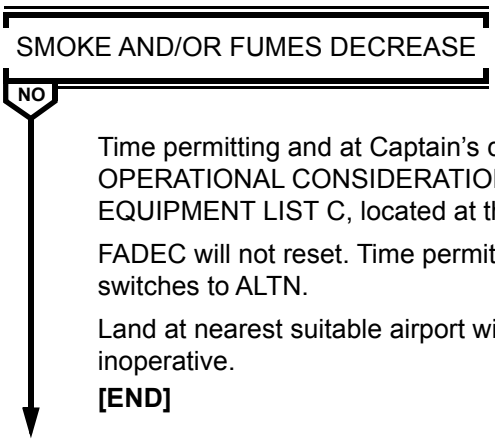
CABIN INTERPHONE Switch (Airplanes Without Service Bulletin 717-33-0019 Incorporated) . . . . . ON

NOTE: Airplanes without Service Bulletin 717-33-0019 incorporated: If required, contact flight attendant using PA.

(CONTINUED)

Evaluate smoke/fumes for up to 2 minutes.

CAUTION: If smoke and/or fumes increase during waiting period, proceed immediately to next step.



Time permitting and at Captain's discretion, review OPERATIONAL CONSIDERATIONS and INOPERATIVE EQUIPMENT LIST C, located at the end of this procedure.

FADEC will not reset. Time permitting, move both FADEC mode switches to ALTN.

Land at nearest suitable airport with affected equipment inoperative.

[END]

The following actions restore left side electrical.

L GEN Switch . . . . . ON

NOTE: It may take up to 2 minutes for the FCC to reboot and function normally. Momentary stick shaker may occur.

DC BUS TIE Switch. . . . . AUTO

L BUS TIE Switch . . . . . AUTO

EMER PWR Selector . . . . . OFF THEN ARM

EMER LIGHT Switch. . . . . ARM

If required, and if time permits, perform Abnormal Alert Procedure under ENG – SELECT FADEC ALTN.

Land at nearest suitable airport.

Time permitting and at Captain's discretion, review OPERATIONAL CONSIDERATIONS list below.

OPERATIONAL CONSIDERATIONS

- Declare an emergency.
- Accomplish SMOKE/FUMES REMOVAL procedure, in this section, or Abnormal Non-Alert procedure, CABIN SMOKE/FUMES REMOVAL, as required.
- Expedite descent/arrival.
- Request radar vector direct final approach.
- Do not delay approach and landing.
- Overweight landing may be necessary.
- Tailwind landing may be necessary.
- Off-airport landing may be necessary.
- Ditching may be necessary.
- Consider use of AUTOLAND (if available).
- Use appropriate braking for conditions.

After stopping aircraft, evaluate performing Abnormal Non-Alert procedure, PASSENGER EVACUATION.

(CONTINUED)

Inoperative Equipment List A

- Vacuum waste system.

Inoperative Equipment List B

- FCC-2 (expect MASTER CAUTION and momentary stick shaker).
- Autopilot-2.
- Autothrottles-2.
- Some anti-ice capability (depart icing conditions).
- DUs 4 and 5.
- MCDU-2.
- Comm radio-2.
- NAV radios-2.
- Weather radar.
- Autopilot and alternate longitudinal trim.
- Aileron and rudder trim.
- Stick pusher control.
- Right HYD pressure and quantity indicators.
- Right windshield wiper.
- Auto ground spoilers.

Inoperative Equipment List C

- Call chime (airplanes without Service Bulletin 717-33-0019 incorporated).
- FCC-1 (expect MASTER CAUTION and momentary stick shaker).
- Autopilot-1.
- Autothrottles-1.
- Primary stabilizer trim.
- Some anti-ice capability (depart icing conditions).
- DU 6
- TCAS.
- GPWS.
- Left windshield wiper.
- Landing gear indicator lights.
- Left HYD pressure and quantity indicators.
- Captain and F/O SIS panels.

[END]

SMOKE/FUMES REMOVAL – COCKPIT UNPRESSURIZED

Oxygen Masks ON/100%

NOTE: Use EMER as necessary to purge the mask of smoke/fumes.

Crew Communications . . . . . ESTABLISH

Airspeed . . . . . REDUCE TO 165 KIAS

Either Clearview Window . . . . . 1/2 TO 2/3 OPEN

CAUTION: Noise level with a window open may prevent crew from hearing CAWS alerts.

[END]

SPOILER FLOAT

NOTE: Spoiler float is indicated when a rapid roll occurs during extension of flaps beyond 25°.

FLAP/SLAT Handle . . . . . RETRACT TO 25/EXT

Land with flaps/slats in 25/EXT.

[END]

STABILIZER RUNAWAY

CAUTION: Avoid manual pitch inputs until the autopilot is disconnected.

NOTE: Extended trim operation may result in trim motor thermal shutdown. Trim motor operation may return after a sufficient cooling period.

Autopilot (If Engaged) . . . . . DISCONNECT

If stabilizer runaway continues,

Control Wheel Trim Switches . . . . . TRIM OPPOSITE DIRECTION OF RUNAWAY AS NECESSARY

RUNAWAY STOPPED WHEN AUTOPILOT WAS DISCONNECTED

NO

Do not reengage autopilot. Use primary trim for remainder of flight.

Do not exceed 0.78M.

[END]

STABILIZER MOVES IN OPPOSITE DIRECTION OF RUNAWAY

NO

AUTOPILOT & ALTERNATE LONGITUDINAL TRIM C/Bs D-9, D-10, D-11 (Upper EPC) . . . . . OPEN (PULL)

Continue flight using primary trim system.

Do not exceed 0.78M.

(CONTINUED)

STABILIZER MOVES IN OPPOSITE DIRECTION OF RUNAWAY

NO

(CONTINUED)

Autopilot is available, but autotrim and mach trim functions are inoperative. After trimming, autopilot may be engaged, but should be disconnected / retrimmed periodically as needed.

[END]

STABILIZER TRIM (Guarded) Switch . . . . . OFF (PUSH)

ALT LONG TRIM Switch . . . . . .RETRIM

Continue flight using alternate trim system.

Autopilot is available.

[END]

Intentionally
Blank

System	Prefix
Air	AP.10
Config	AP.20
Elec	AP.30
Eng	AP.40
Fuel	AP.50
Hyd	AP.60
Misc	AP.70
Non-Alert	AP.80

A
I
R

Intentionally
Blank

AIR SYS___PRES LO AVNCS AIR FLO OFF BLD AIR___TEMP HI BLD AIR___TEMP LO	1
BLEED AIR ___FAIL CABIN DUCT OVHT CABIN INFLO LO CABIN PRES HI CABIN PRESSURIZED CKPT DUCT OVHT PACK___OVERHEAT	2
TAIL A-ICE DISAG TAIL A-ICE OFF WING A-ICE DISAG WING A-ICE OFF	3

Intentionally
Blank

AIR SYS___PRES LO

BLEED Switch (Affected Engine) . . . . . OFF

PACK Switch (Affected Engine) . . . . . OFF

NOTE: If operating in icing conditions, refer to ABNORMAL NON-ALERT Procedure – ANTI-ICE OPERATION WITH SINGLE PNEUMATIC SOURCE.

[END]

AVNCS AIR FLO OFF

AIRPLANE ON GROUND

NO

Call maintenance.

[END]

AVIONICS COOLING Switch . . . . . OVRD

After landing, shut down all unnecessary radio and electronic equipment as soon as possible.

CAUTION: Prolonged use of electronic equipment on the ground with the avionics fan inoperative will cause overheating and could damage equipment.

[END]

BLD AIR___TEMP HI

BLEED Switch (Affected Engine) . . . . . OFF

PACK Switch (Affected Engine) . . . . . OFF

NOTE: If operating in icing conditions, refer to ABNORMAL NON-ALERT Procedure – ANTI-ICE OPERATION WITH SINGLE PNEUMATIC SOURCE.

[END]

BLD AIR___TEMP LO

Throttles . . . . . ADVANCE

"BLD AIR___TEMP LO" ALERT DISPLAYED

NO

BLEED Switch (Affected Engine) . . . . . OFF

PACK Switch (Affected Engine) . . . . . OFF

NOTE: If operating in icing conditions, refer to ABNORMAL NON-ALERT Procedure – ANTI-ICE OPERATION WITH SINGLE PNEUMATIC SOURCE.

[END]

[END]

BLEED AIR ___FAIL

BLEED Switch (Affected Engine) . . . . . OFF

PACK Switch (Affected Engine) . . . . . OFF

1 *NOTE: If operating in icing conditions, refer to ABNORMAL NON-ALERT Procedure – ANTI-ICE OPERATION WITH SINGLE PNEUMATIC SOURCE.*

[END]

CABIN DUCT OVHT

CABIN TEMP Selector . . . . . MAN COLD

[END]

CABIN INFLO LO

FLOW Switch . . . . . HIGH

Throttles (If Required) . . . . . ADVANCE

If throttles are at low power (conditions permitting) advance throttles until air conditioning pack supply is normal.

"CABIN INFLO LO" ALERT DISPLAYED/CABIN CONTINUES TO DEPRESSURIZE

NO

Descend to an altitude where adequate pressurization can be maintained.

[END]

No further crew action required.

[END]

CABIN PRES HI

CABIN PRESS SYSTEM Switch . . . . . MANUAL
CABIN PRESS MANUAL Rate Selector . . . . . CLIMB

CABIN OUTFLOW VALVE MOVES TOWARD OPEN

NO

Adjust cabin altitude to normal schedule.
[END]

Terrain and conditions permitting,
Descent (To 10,000 Feet) . . . . . INITIATE
L or R PACK Switch . . . . . OFF
When below 10,000 feet,
PACK Switches (Both) . . . . . OFF

NOTE: Cabin altitude may be below sea level. When cabin altitude indicates 2,000 feet above destination altitude, continue descent, approach and landing.

RAM AIR Switch. . . . . ON
After landing,
Clearview Window(s) . . . . . OPEN

NOTES: Air conditioning may be resumed for passenger comfort.

Do not close clearview window(s) after restarting air conditioning system(s).

[END]

CABIN PRESSURIZED

CABIN PRESS SYSTEM Switch . . . . . MANUAL
CABIN PRESS MANUAL Rate Selector . . . . . CLIMB

CABIN OUTFLOW VALVE INDICATES OPEN

NO

Open cabin doors when differential pressure indicates zero.
[END]

L/R PACK Switches . . . . . OFF
[END]

CKPT DUCT OVHT

CKPT TEMP Selector . . . . . MAN COLD
[END]

PACK___OVERHEAT

PACK Switch (Affected Engine) . . . . . OFF
[END]

TAIL A-ICE DISAG

CAUTION: Leading edge of horizontal stabilizer may be damaged if tail anti-ice is operated on the ground.

AIRPLANE ON GROUND

NO

2

APU AIR Switch . . . . . OFF
R BLEED Switch . . . . . OFF
ISOL Switch . . . . . CLSD
TAIL AIR FOIL Anti-Ice Switch . . . . . OFF
[END]

TAIL AIR FOIL ANTI-ICE SWITCH ON

NO

Depart icing area.
TAIL AIR FOIL Anti-Ice Switch . . . . . OFF
Use 25/EXT flaps for landing.
Prior to final approach, add 5 knots to all Vmin and Vapp speeds, not to exceed Vref + 20. Do not extend flaps beyond 25/EXT since a decrease in airplane controllability may result.
[END]

Assume tail anti-ice is on.

After landing,

R BLEED Switch . . . . . OFF
ISOL Switch. . . . . CLSD

Do not pressurize right pneumatic system.

Do not move APU AIR switch to ON.

[END]

TAIL A-ICE OFF

Depart icing conditions.

After departing icing conditions,

TAIL AIR FOIL Anti-Ice Switch. . . . . OFF

Prior to final approach, add 5 knots to all Vmin and Vapp speeds, not to exceed Vref + 20. Do not extend flaps beyond 25/EXT since a decrease in airplane controllability may result.

[END]

WING A-ICE DISAG

CAUTION: Slats may be damaged if wing anti-ice is operated on the ground.

AIRPLANE ON GROUND

NO

L BLEED Switch . . . . . OFF
ISOL Switch . . . . . CLSD
WING AIR FOIL Anti-Ice Switch . . . . . OFF
[END]

WING AIR FOIL ANTI-ICE SWITCH ON

NO

Depart icing area.
WING AIR FOIL Anti-Ice Switch . . . . . OFF
[END]

After landing,
L BLEED Switch. . . . . OFF
ISOL Switch . . . . . CLSD
Assume wing anti-ice is on.
Do not pressurize left pneumatic system.
[END]

WING A-ICE OFF

WING AIR FOIL Anti-Ice Switch. . . . . OFF
Avoid icing conditions.
[END]

3

3

Intentionally
Blank

System	Prefix
Air	AP.10
Config	AP.20
Elec	AP.30
Eng	AP.40
Fuel	AP.50
Hyd	AP.60
Misc	AP.70
Non-Alert	AP.80

CONFIG

CONFIG

Intentionally
Blank

ANTISKID___FAIL	1
BRAKE OVERHEAT ELEVATOR SPLIT FLAP DISAG	2
GEAR DOOR OPEN	3
RUDDER LIM FAIL SLAT DISAG	4

Intentionally
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ANTISKID___FAIL

Landing Performance. . . . . CHECK

Perform normal landing.

Brakes . . . . . APPLY SMOOTHLY AND GRADUALLY 1

CAUTION: Do not initiate manual braking until nosewheel is on the runway and the ground spoilers have fully deployed.

Use maximum landing flaps. Consider reducing airplane weight. Select longest runway available for existing conditions. Use full reverse thrust while applying brakes smoothly and gradually until a moderate deceleration is felt. This manual braking technique is intended to prevent wheel lock up and blown tires. Refer to ESTIMATED LANDING DISTANCE tables located at the end of this procedure.

40/EXT ESTIMATED LANDING DISTANCE (FEET)
DRY RUNWAY

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	**70**	**80**	**90**	**100**	**110**	**120**
Vref Speeds (KIAS)	112	118	125	132	138	144
S.L. STD=15°C Landing Distance	4520	4830	5150	5500	5890	6360
2000 FT STD=11°C Landing Distance	4690	5030	5370	5770	6230	6730
4000 FT STD=7°C Landing Distance	4880	5240	5620	6090	6610	7160
6000 FT STD=3°C Landing Distance	5090	5470	5920	6460	7030	7630
8000 FT STD=–1°C Landing Distance	5300	5730	6260	6870	7490	8150
10000 FT STD=–5°C Landing Distance	5560	6050	6660	7320	7990	8710

NOTE: Full Reverse Thrust (two engines at maximum reverse thrust to 80 KIAS, then idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Braking, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–10
ABOVE standard day	+36

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–50
DOWNHILL	+50

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–16
TAILWIND	+50

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+36

(CONTINUED)

40/EXT ESTIMATED LANDING DISTANCE (FEET)
GOOD REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

1

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	112	118	125	132	138	144
S.L. STD=15°C Landing Distance	5590	5990	6400	6830	7300	7820
2000 FT STD=11°C Landing Distance	5830	6250	6690	7180	7700	8260
4000 FT STD=7°C Landing Distance	6080	6540	7020	7570	8150	8760
6000 FT STD=3°C Landing Distance	6370	6840	7390	8000	8640	9300
8000 FT STD=–1°C Landing Distance	6660	7200	7810	8480	9170	9890
10000 FT STD=–5°C Landing Distance	6990	7590	8270	9000	9750	10540

NOTE: Full Reverse Thrust (two engines at maximum reverse thrust to 80 KIAS, then idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Braking, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD – 20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–14
ABOVE standard day	+44

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–158
DOWNHILL	+170

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–28
TAILWIND	+98

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+44

(CONTINUED)

40/EXT ESTIMATED LANDING DISTANCE (FEET)
GOOD TO MEDIUM REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	**70**	**80**	**90**	**100**	**110**	**120**
Vref Speeds (KIAS)	112	118	125	132	138	144
S.L. STD=15°C Landing Distance	6510	7000	7500	8030	8605	9240
2000 FT STD=11°C Landing Distance	6815	7330	7860	8435	9055	9730
4000 FT STD=7°C Landing Distance	7145	7695	8265	8885	9555	10280
6000 FT STD=3°C Landing Distance	7510	8085	8710	9385	10105	10880
8000 FT STD=–1°C Landing Distance	7900	8530	9210	9930	10700	11485
10000 FT STD=–5°C Landing Distance	8335	9020	9750	10530	11320	††

†† Landing distance exceeds 12000 feet

NOTE: Full Reverse Thrust (two engines at maximum reverse thrust to 80 KIAS, then idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Braking, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD – 20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–16
ABOVE standard day	+53

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–277
DOWNHILL	+326

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–40
TAILWIND	+134

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+53

(CONTINUED)

40/EXT ESTIMATED LANDING DISTANCE (FEET)
MEDIUM REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	**70**	**80**	**90**	**100**	**110**	**120**
Vref Speeds (KIAS)	112	118	125	132	138	144
S.L. STD=15°C Landing Distance	7430	8010	8600	9230	9910	10660
2000 FT STD=11°C Landing Distance	7800	8410	9030	9690	10410	11200
4000 FT STD=7°C Landing Distance	8210	8850	9510	10200	10960	11800
6000 FT STD=3°C Landing Distance	8650	9330	10030	10770	11570	12460
8000 FT STD=–1°C Landing Distance	9140	9860	10610	11380	12230	††
10000 FT STD=–5°C Landing Distance	9680	10450	11230	12060	††	††

†† Landing distance exceeds 12000 feet

NOTE: Full Reverse Thrust (two engines at maximum reverse thrust to 80 KIAS, then idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Braking, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–18
ABOVE standard day	+62

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–396
DOWNHILL	+482

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–52
TAILWIND	+170

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+62

(CONTINUED)

40/EXT ESTIMATED LANDING DISTANCE (FEET) MEDIUM TO POOR REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	**70**	**80**	**90**	**100**	**110**	**120**
Vref Speeds (KIAS)	112	118	125	132	138	144
S.L. STD=15°C Landing Distance	8740	9445	10170	10915	11685	††
2000 FT STD=11°C Landing Distance	9175	9920	10685	11470	††	††
4000 FT STD=7°C Landing Distance	9665	10450	11245	12055	††	††
6000 FT STD=3°C Landing Distance	10190	11000	11825	††	††	††
8000 FT STD=–1°C Landing Distance	10740	11575	12435	††	††	††
10000 FT STD=–5°C Landing Distance	11315	12180	††	††	††	††

†† Landing distance exceeds 12000 feet

NOTE: Full Reverse Thrust (two engines at maximum reverse thrust to 80 KIAS, then idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Braking, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD – 20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–21
ABOVE standard day	+74

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–702
DOWNHILL	+1024

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–69
TAILWIND	+243

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+74

(CONTINUED)

40/EXT ESTIMATED LANDING DISTANCE (FEET)
POOR REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	**70**	**80**	**90**	**100**	**110**	**120**
Vref Speeds (KIAS)	112	118	125	132	138	144
S.L. STD=15°C Landing Distance	10050	10880	11740	††	††	††
2000 FT STD=11°C Landing Distance	10550	11430	††	††	††	††
4000 FT STD=7°C Landing Distance	11120	††	††	††	††	††
6000 FT STD=3°C Landing Distance	11730	††	††	††	††	††
8000 FT STD=–1°C Landing Distance	††	††	††	††	††	††
10000 FT STD=–5°C Landing Distance	††	††	††	††	††	††

†† Landing distance exceeds 12000 feet.

NOTE: Full Reverse Thrust (two engines at maximum reverse thrust to 80 KIAS, then idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Braking, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–24
ABOVE standard day	+86

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–1008
DOWNHILL	+1566

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–86
TAILWIND	+316

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+86

[END]

BRAKE OVERHEAT

NOTE: "BRAKE OVERHEAT" alert displays when any one brake temperature exceeds 260°C and extinguishes when brakes cool to 230°C.

AIRPLANE ON GROUND

NO

Stop airplane as soon as practical. Do not set parking brake.

***WARNING:* Ground crew must remain clear of main gear. Fuse plugs may melt.**

NOTE: Brakes, wheels and tires will require maintenance inspection before next flight.

[END]

(CONTINUED)

AIRPLANE ON GROUND

NO (CONTINUED)

Flight conditions permitting, extend gear until 5 minutes after “BRAKE OVERHEAT” alert extinguishes.

[END]

2

ELEVATOR SPLIT

Airspeed . . . . . REDUCE

CAUTION: Avoid abrupt elevator inputs.

"ELEVATOR SPLIT" ALERT DISPLAYED BELOW 240 KIAS

NO

Do not exceed 240 KIAS.

[END]

Do not exceed speed at which alert extinguished.

[END]

FLAP DISAG

Return FLAP/SLAT handle to position where alert was not displayed or, if alert remains displayed, select the most symmetrical configuration and land.

NOTE: Refer to LANDING REFERENCE SPEEDS, VREF table in the PERFORMANCE section of the QRH.

FINAL FLAP SETTING 25° OR MORE

NO

Perform normal landing.

[END]

Refer to ESTIMATED LANDING DISTANCE tables located at the end of this procedure.

NOTE: Auto Ground Spoilers are inoperative with flaps less than 25 degrees. Ground spoilers must be manually deployed.

GND PROX WARN Switch . . . . . FLAP OVRD

Prior to 50 feet AGL,

Autothrottles . . . . . .DISCONNECT

NOTE: Autothrottle retard mode is not available when flaps are less than 25°.

(CONTINUED)

2

0/RET ESTIMATED LANDING DISTANCE (FEET)
DRY RUNWAY

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	158	170	180	190	*199	*208
S.L. STD=15°C Landing Distance	4240	4630	5010	5380	5780	**
2000 FT STD=11°C Landing Distance	4420	4820	5230	5620	6040	**
4000 FT STD=7°C Landing Distance	4610	5030	5460	5880	**	**
6000 FT STD=3°C Landing Distance	4810	5260	5700	6140	**	**
8000 FT STD=–1°C Landing Distance	5020	5490	5970	6430	**	**
10000 FT STD=–5°C Landing Distance	5250	5750	6250	6780	**	**

* Exceeds Tire Limit Speed.

** Maximum Brake Energy Limit.

NOTE: Full Reverse Thrust (two engines at maximum reverse thrust to 80 KIAS, then idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Anti-Skid Braking, Manual Spoiler Deployment, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–10
ABOVE standard day	+34

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–50
DOWNHILL	+50

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–16
TAILWIND	+50

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+34

(CONTINUED)

0/RET ESTIMATED LANDING DISTANCE (FEET)
GOOD REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	**70**	**80**	**90**	**100**	**110**	**120**
Vref Speeds (KIAS)	158	170	180	190	*199	*208
S.L. STD=15°C Landing Distance	5450	6110	6790	7500	8210	**
2000 FT STD=11°C Landing Distance	5760	6460	7200	7950	8720	**
4000 FT STD=7°C Landing Distance	6090	6850	7640	8440	**	**
6000 FT STD=3°C Landing Distance	6450	7270	8110	8980	**	**
8000 FT STD=–1°C Landing Distance	6840	7720	8630	9580	**	**
10000 FT STD=–5°C Landing Distance	7280	8230	9210	**	**	**

* Exceeds Tire Limit Speed.

** Maximum Brake Energy Limit.

NOTE: Full Reverse Thrust (two engines at maximum reverse thrust to 80 KIAS, then idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Anti-Skid Braking, Manual Spoiler Deployment, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–14
ABOVE standard day	+50

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–176
DOWNHILL	+50

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–32
TAILWIND	+108

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+50

(CONTINUED)

0/RET ESTIMATED LANDING DISTANCE (FEET) GOOD TO MEDIUM REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	158	170	180	190	*199	*208
S.L. STD=15°C Landing Distance	6340	7145	7980	8850	9720	**
2000 FT STD=11°C Landing Distance	6710	7570	8460	9385	10320	**
4000 FT STD=7°C Landing Distance	7105	8030	8980	9965	**	**
6000 FT STD=3°C Landing Distance	7535	8525	9540	10600	**	††
8000 FT STD=–1°C Landing Distance	8010	9065	10155	11245	††	††
10000 FT STD=–5°C Landing Distance	8530	9670	10840	††	††	††

* Exceeds Tire Limit Speed.

** Maximum Brake Energy Limit.

†† Landing distance exceeds 12000 feet.

NOTE: Full Reverse Thrust (two engines at maximum reverse thrust to 80 KIAS, then idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Anti-Skid Braking, Manual Spoiler Deployment, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–17
ABOVE standard day	+59

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–308
DOWNHILL	+293

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–45
TAILWIND	+148

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+59

(CONTINUED)

0/RET ESTIMATED LANDING DISTANCE (FEET)
MEDIUM REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	**70**	**80**	**90**	**100**	**110**	**120**
Vref Speeds (KIAS)	158	170	180	190	*199	*208
S.L. STD=15°C Landing Distance	7230	8180	9170	10200	11230	††
2000 FT STD=11°C Landing Distance	7660	8680	9720	10820	11920	††
4000 FT STD=7°C Landing Distance	8120	9210	10320	11490	††	††
6000 FT STD=3°C Landing Distance	8620	9780	10970	††	††	††
8000 FT STD=–1°C Landing Distance	9180	10410	11680	††	††	††
10000 FT STD=–5°C Landing Distance	9780	11110	††	††	††	††

* Exceeds Tire Limit Speed.

†† Landing distance exceeds 12000 feet.

NOTE: Full Reverse Thrust (two engines at maximum reverse thrust to 80 KIAS, then idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Anti-Skid Braking, Manual Spoiler Deployment, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–20
ABOVE standard day	+68

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–440
DOWNHILL	+536

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–58
TAILWIND	+188

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+68

(CONTINUED)

0/RET ESTIMATED LANDING DISTANCE (FEET) MEDIUM TO POOR REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	**70**	**80**	**90**	**100**	**110**	**120**
Vref Speeds (KIAS)	158	170	180	190	*199	*208
S.L. STD=15°C Landing Distance	8490	9655	10840	††	††	††
2000 FT STD=11°C Landing Distance	9005	10250	11505	††	††	††
4000 FT STD=7°C Landing Distance	9555	10860	††	††	††	††
6000 FT STD=3°C Landing Distance	10150	11835	††	††	††	††
8000 FT STD=–1°C Landing Distance	10810	††	††	††	††	††
10000 FT STD=–5°C Landing Distance	11470	††	††	††	††	††

* Exceeds Tire Limit Speed.

†† Landing distance exceeds 12000 feet.

NOTE: Full Reverse Thrust (two engines at maximum reverse thrust to 80 KIAS, then idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Anti-Skid Braking, Manual Spoiler Deployment, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–24
ABOVE standard day	+82

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–782
DOWNHILL	+1142

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–77
TAILWIND	+270

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+82

(CONTINUED)

0/RET ESTIMATED LANDING DISTANCE (FEET)
POOR REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	**70**	**80**	**90**	**100**	**110**	**120**
Vref Speeds (KIAS)	158	170	180	190	*199	*208
S.L. STD=15°C Landing Distance	9750	11130	††	††	††	††
2000 FT STD=11°C Landing Distance	10350	11820	††	††	††	††
4000 FT STD=7°C Landing Distance	10990	††	††	††	††	††
6000 FT STD=3°C Landing Distance	11680	††	††	††	††	††
8000 FT STD=–1°C Landing Distance	††	††	††	††	††	††
10000 FT STD=–5°C Landing Distance	††	††	††	††	††	††

* Exceeds Tire Limit Speed.

†† Landing distance exceeds 12000 feet.

NOTE: Full Reverse Thrust (two engines at maximum reverse thrust to 80 KIAS, then idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Anti-Skid Braking, Manual Spoiler Deployment, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–28
ABOVE standard day	+96

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–1124
DOWNHILL	+1748

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–96
TAILWIND	+352

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+96

[END]

GEAR DOOR OPEN

NOTE: This procedure should be used when hydraulic pressure is normal and gear handle is down.

(CONTINUED)

GEAR DOOR OPEN (Continued)

Emergency Gear Extension Lever . . . . . .PULL FULL UP/LATCHED

Raise cover, forcibly pull emergency gear extension lever to full up position and check holding latch is engaged.

NOTE: Nosewheel steering to left will be restricted.

CAUTION: Stop airplane straight ahead on runway and establish communication with maintenance personnel. Do not stow emergency gear extension lever or move airplane unless directed to do so by maintenance. Maintenance personnel must close and latch main gear doors manually. Landing gear pins must be installed prior to taxi or tow.

3

[END]

RUDDER LIM FAIL

Avoid abrupt rudder inputs.

Avoid high sideslips if flaps are less than 5 degrees.

[END]

SLAT DISAG

NOTE: If slat asymmetry is indicated any time by a lateral trim change, return FLAP/SLAT handle to the last position where slats were symmetrical.

ALERT DISPLAYED DURING ATTEMPTED EXTENSION

NO

FLAP/SLAT Handle . . . . . UP/RET

Refer to Abnormal Non-Alert Procedure – NO FLAP/NO SLAT OR NO FLAPS/SLATS EXTENDED LANDING.

[END]

FLAP/SLAT Handle 0/EXT

Plan normal flap/slat landing.

[END]

System	Prefix
Air	AP.10
Config	AP.20
Elec	AP.30
Eng	AP.40
Fuel	AP.50
Hyd	AP.60
Misc	AP.70
Non-Alert	AP.80

4

ELEC

Intentionally
Blank

Intentionally
Blank

BUS DC XFER OFF

DISPLAY UNIT 2 AND/OR STANDBY INSTRUMENT OPERATING

NO

NOTE: The DC transfer bus sensing circuit has failed.

No further crew action required.

[END]

Land at nearest suitable airport.

CAUTION: Do not attempt to reset the DC TRANSFER BUS FEED circuit breakers if either or both are tripped (opened).

Engine and APU fire/overheat detection and fire extinguishing systems are inoperative.

Cargo smoke detection and fire extinguishing systems are inoperative.

Parking brake may be used, but will not hold the airplane after hydraulic systems are shut down. Confirm with ground personnel that airplane has been properly chocked before shutting down engines and hydraulic pumps.

When ready to shut down engines,

Respective Engine Fire Handle . . . . . PULL

[END]

BUS AC EMER OFF

EMER PWR Selector . . . . . OFF

MCDU 1, AND/OR VOR 1 OPERATING

NO

NOTE: The AC emergency bus sensing circuit has failed.

No further crew action required.

[END]

Land at nearest suitable airport.

CAUTION: Do not attempt to reset EMER AC BUS FEED circuit breaker if it is tripped (opened).

Captain's SISP APPR Switch. . . . . CAPT ON 2

Captain's SISP VOR Switch. . . . . CAPT ON 2

[END]

BUS DC EMER OFF

EMER PWR Selector . . . . . OFF

(CONTINUED)

DISPLAY UNITS 1 AND/OR 3 OPERATING

NO

1

NOTE: The DC emergency bus sensing circuit has failed.

No further crew action required.

[END]

EMER LT Switch . . . . . OFF

Land at nearest suitable airport.

CAUTION: Do not attempt to reset EMER DC BUS FEED circuit breaker if it is tripped (opened).

Captain's pitot heat is inoperative. Use First Officer's airspeed as erroneous airspeed indications may occur on the Captain's PFD. "IAS" comparator message will be displayed on the PFDs if the computed difference between ADIRU 1 and ADIRU 2 airspeed exceeds a predetermined tolerance. Erroneous airspeed indications may cause abnormal autopilot/autothrottle operation. MISC flashing reminder message will be displayed on the EAD. "PITOT CAPT FAIL" level 1 alert will be displayed on the MISC S/D page.

If use of autopilot is desired and available, use AP 2 due to Captain's pitot not being heated.

When required,

EMERGENCY LIGHT Switch
(Forward Flight Attendant's Station) . . . . . .ARM/ON

[END]

GEN L OFF

NOTE: Airplane on ground: If alert remains displayed after one reset attempt, move affected generator switch to off and contact maintenance.

L GEN Switch . . . . . .RESET/ON

"GEN L OFF" ALERT REMAINS DISPLAYED

NO

L GEN Switch . . . . . OFF

ELEC SYNOPTIC DISPLAYS LEFT AC AND DC BUS SYMBOLS GREEN

NO

APU (If Available) . . . . . START

Refer to Volume II, Supplemental Procedures, ENG/APU – APU INFLIGHT START.

(CONTINUED)

"GEN L OFF" ALERT REMAINS DISPLAYED

NO

(CONTINUED)

ELEC SYNOPTIC DISPLAYS LEFT AC AND DC BUS SYMBOLS GREEN

NO

(CONTINUED)

If APU generator is available, continue flight with engine driven generator inoperative.

If APU generator is **not** available, land at nearest suitable airport.

[END]

ELEC SYNOPTIC DISPLAYS LEFT AC BUS SYMBOL AMBER AND LEFT DC BUS SYMBOL GREEN

NO

Land at nearest suitable airport.

CAUTION: False stall warnings (stick shaker, klaxon, "STALL" voice) may occur when "GEN L OFF" alert is displayed and left ac bus is not powered. If warnings occur, check airplane flight condition to determine if indications are valid.

If "FUEL QTY SYS FAIL" alert is displayed, pushing QTY A/B switch may restore fuel quantity indications and extinguish alert.

NOTES: Primary stabilizer trim is inoperative.

Multiple Level 2 and Level 1 alerts will be displayed when left ac bus is unpowered.

No further crew action required.

[END]

ELEC SYNOPTIC DISPLAYS LEFT AC AND DC BUS SYMBOLS AMBER

EMER PWR Selector . . . . . .ON

CAUTION: Battery power cannot be relied upon for more than 60 minutes. Do <u>not</u> start APU. Battery is not being charged.

CABIN INTERPHONE Switch (Airplanes Without Service Bulletin 717-33-0019 Incorporated) . . . . . .ON

NOTE: <u>Airplanes without Service Bulletin 717-33-0019 incorporated</u>: If required, contact flight attendant using PA.

(CONTINUED)

2

"GEN L OFF" ALERT REMAINS DISPLAYED

NO (CONTINUED)

Land at nearest suitable airport.

2

CAUTION: False stall warnings (stick shaker, klaxon, "STALL" voice) may occur when "GEN L OFF" alert is displayed and left ac and dc buses are not powered. If warnings occur, check airplane flight condition to determine if indications are valid.

If "FUEL QTY SYS FAIL" alert is displayed, pushing QTY A/B switch may restore fuel quantity indications and extinguish alert.

NOTES: Primary stabilizer trim is inoperative.

Vmin (amber foot) may be unreliable.

Inboard spoilers will be inoperative.

Multiple Level 1 and Level 2 alerts will be displayed.

When ready to land,

Refer to LANDING REFERENCE SPEEDS (KIAS) chart in Performance section.

Gear Handle . . . . . DOWN

Gear lights will not be illuminated.

After 30 seconds,

Emergency Gear Extension Lever . . . . . RAISE/LATCH

Verify gear indications on CONFIG page.

Before landing and time permitting, Emergency Gear Extension Lever may be stowed to retract and latch the main gear doors. Gear indications on CONFIG page will **not** be available after lever is stowed.

If Emergency Gear Extension Lever is not stowed, nosewheel steering to left will be restricted.

Stop on runway. Do not taxi. Verify gear doors are closed before continuing.

[END]

No further crew action required.

[END]

GEN R OFF

NOTE: <u>Airplane on ground</u>: If alert remains displayed after one reset attempt, move affected generator switch to off and contact maintenance.

R GEN Switch . . . . . RESET/ON

(CONTINUED)

"GEN R OFF" ALERT REMAINS DISPLAYED

NO

R GEN Switch . . . . . OFF

ELEC SYNOPTIC DISPLAYS RIGHT AC AND DC BUS SYMBOLS GREEN

NO

APU (If Available) . . . . . .START

Refer to Volume II, Supplemental Procedures, ENG/APU – APU INFLIGHT START.

If APU generator is available, continue flight with engine driven generator inoperative.

If APU generator is **not** available, land at nearest suitable airport.

[END]

ELEC SYNOPTIC DISPLAYS RIGHT AC BUS SYMBOL AMBER AND RIGHT DC BUS SYMBOL GREEN

NO

Land at nearest suitable airport.

CAUTION: False stall warnings (stick shaker, klaxon, "STALL" voice) may occur when "GEN R OFF" alert is displayed and right ac bus is not powered. If warnings occur, check airplane flight condition to determine if indications are valid.

If "FUEL QTY SYS FAIL" alert is displayed, pushing QTY A/B switch may restore fuel quantity indications and extinguish alert.

NOTES: Autopilot stabilizer trim, as well as alternate trim switch, are inoperative.

Multiple Level 2 and Level 1 alerts will be displayed when right ac bus is unpowered.

No further crew action required.

[END]

ELEC SYNOPTIC DISPLAYS RIGHT AC AND DC BUS SYMBOLS AMBER

Land at nearest suitable airport.

(CONTINUED)

3

"GEN R OFF" ALERT REMAINS DISPLAYED

NO

(CONTINUED)

CAUTION: False stall warnings (stick shaker, klaxon, "STALL" voice) may occur when "GEN R OFF" alert is displayed and right ac and dc buses are not powered. If warnings occur, check airplane flight condition to determine if indications are valid.

3

If "FUEL QTY SYS FAIL" alert is displayed, pushing QTY A/B switch may restore fuel quantity indications and extinguish alert.

NOTES: Autopilot stabilizer trim and alternate trim switches are inoperative.

Aileron and rudder trim are inoperative.

Vmin (amber foot) may be unreliable.

Outboard spoilers are inoperative.

Multiple Level 1 and Level 2 alerts will be displayed.

When ready to land,

Refer to LANDING REFERENCE SPEEDS (KIAS) chart in Performance chapter.

[END]

No further crew action required.

[END]

GEN ALL OFF

OR TOTAL LOSS OF AC POWER

EMER PWR Selector . . . . . ON

CABIN INTERPHONE Switch (Airplanes Without Service Bulletin 717-33-0019 Incorporated) . . . . . ON

NOTE: Airplanes without Service Bulletin 717-33-0019 incorporated: If required, contact flight attendant using PA.

GEN Switches (All) . . . . . .RESET/ON

GENERATOR BUS(ES) RESTORED

NO

EMER PWR Selector . . . . . .OFF then ARM

[END]

CABIN PRESS SYSTEM Switch. . . . . MANUAL

NOTES: Use emergency power as required. Battery power cannot be relied upon for more than 60 minutes.

Cabin pressure must be manually controlled to maintain desired cabin altitude.

(CONTINUED)

With all generators off, the following systems and indications will be inoperative:

- *Call chime (airplanes without Service Bulletin 717-33-0019 incorporated).*
- *Stall warning system.*
- *Slat and gear position indications.*
- *Stabilizer trim and position indications.*
- *Automatic cockpit/cabin temperature control.*
- *Flight director/autopilot/autothrottle.*
- *Ground proximity warning system.*
- *Speed brakes and ground spoilers.*
- *Thrust reversers.*
- *On the ground, engine idle speed will be in flight idle.*
- *Cabin pressurization control (manual available).* **4**

Land at nearest suitable airport.

Prior to landing,

AIRPLANE IN TRIM WITH LANDING FLAPS SET

NO

Continue approach and land with selected flaps.

[END]

Use FLAPS 40 for landing and increase Vref by 20 knots.

Refer to ESTIMATED LANDING DISTANCE tables, located at the end of this procedure.

NOTE: If conditions require, refer to Abnormal Non-Alert Procedure – STABILIZER INOPERATIVE.

Do not reduce thrust until landing flare has been initiated and sink rate has been reduced.

Make positive main gear touchdown to minimize float and take positive action to lower nose to runway.

(CONTINUED)

40/EXT ESTIMATED LANDING DISTANCE (FEET)
DRY RUNWAY

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	132	138	145	152	158	164
S.L. STD=15°C Landing Distance	6020	6140	6360	6680	7020	7360
2000 FT STD=11°C Landing Distance	6210	6380	6670	7010	7370	7730
4000 FT STD=7°C Landing Distance	6430	6670	7000	7360	7740	8130
6000 FT STD=3°C Landing Distance	6690	6990	7350	7740	8140	8550
8000 FT STD=–1°C Landing Distance	7010	7350	7730	8140	8550	8990
10000 FT STD=–5°C Landing Distance	7360	7720	8130	8550	8990	9470

NOTE: Maximum Manual Braking, High Idle Thrust To Stop, Reversers and Spoilers Not Available, Standard Day, No Wind, Zero Slope, Air Run Distance is approximately 1500 feet.

4

CORRECTIONS:

TEMPERATURE: Valid from STD – 20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–12
ABOVE standard day	+44

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–64
DOWNHILL	+64

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–18
TAILWIND	+62

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+44

(CONTINUED)

40/EXT ESTIMATED LANDING DISTANCE (FEET)
GOOD REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	132	138	145	152	158	164
S.L. STD=15°C Landing Distance	8350	8760	9290	9920	10620	11340
2000 FT STD=11°C Landing Distance	8680	9170	9800	10520	11290	††
4000 FT STD=7°C Landing Distance	9060	9670	10390	11190	††	††
6000 FT STD=3°C Landing Distance	9510	10230	11050	11920	††	††
8000 FT STD=–1°C Landing Distance	10080	10880	11790	††	††	††
10000 FT STD=–5°C Landing Distance	10660	11580	††	††	††	††

†† Landing distance exceeds 12000 feet.

NOTE: Maximum Manual Braking, High Idle Thrust To Stop, Reversers and Spoilers Not Available, Standard Day, No Wind, Zero Slope, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–20
ABOVE standard day	+66

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–236
DOWNHILL	+254

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–42
TAILWIND	+144

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+66

(CONTINUED)

40/EXT ESTIMATED LANDING DISTANCE (FEET)
GOOD TO MEDIUM REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	132	138	145	152	158	164
S.L. STD=15°C Landing Distance	9890	10395	10960	11575	††	††
2000 FT STD=11°C Landing Distance	10375	10920	11535	††	††	††
4000 FT STD=7°C Landing Distance	10860	11445	††	††	††	††
6000 FT STD=3°C Landing Distance	11345	††	††	††	††	††
8000 FT STD=–1°C Landing Distance	11830	††	††	††	††	††
10000 FT STD=–5°C Landing Distance	††	††	††	††	††	††

†† Landing distance exceeds 12000 feet.

NOTE: Maximum Manual Braking, High Idle Thrust To Stop, Reversers and Spoilers Not Available, Standard Day, No Wind, Zero Slope, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–23
ABOVE standard day	+79

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–418
DOWNHILL	+492

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–61
TAILWIND	+200

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+79

(CONTINUED)

40/EXT ESTIMATED LANDING DISTANCE (FEET)
MEDIUM REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	132	138	145	152	158	164
S.L. STD=15°C Landing Distance	11430	††	††	††	††	††
2000 FT STD=11°C to 10000 FT STD=–5°C Landing Distance	††	††	††	††	††	††

†† Landing distance exceeds 12000 feet.

NOTE: Maximum Manual Braking, High Idle Thrust To Stop, Reversers and Spoilers Not Available, Standard Day, No Wind, Zero Slope, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD – 20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–26
ABOVE standard day	+92

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–600
DOWNHILL	+730

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–80
TAILWIND	+256

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+92

5

40/EXT ESTIMATED LANDING DISTANCE (FEET)
MEDIUM TO POOR REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	132	138	145	152	158	164
All Elevations/All Temps Landing Distance	††	††	††	††	††	††

†† Landing distance exceeds 12000 feet.

NOTE: Maximum Manual Braking, High Idle Thrust To Stop, Reversers and Spoilers Not Available, Standard Day, No Wind, Zero Slope, Air Run Distance is approximately 1500 feet.

40/EXT ESTIMATED LANDING DISTANCE (FEET)
POOR REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	132	138	145	152	158	164
All Elevations/All Temps Landing Distance	††	††	††	††	††	††

†† Landing distance exceeds 12000 feet.

NOTE: Maximum Manual Braking, High Idle Thrust To Stop, Reversers and Spoilers Not Available, Standard Day, No Wind, Zero Slope, Air Run Distance is approximately 1500 feet.

[END]

GEN APU OFF

APU Generator Switch. . . . . RESET/ON

(CONTINUED)

"GEN APU OFF" ALERT REMAINS DISPLAYED

NO

APU Generator Switch . . . . . OFF
APU MASTER Switch . . . . . OFF
[END]

No further crew action required.
[END]

INTERIM PROCEDURE 717-QRH-0001
REASON FOR INTERIM PROCEDURE: "BUS AC GS OFF" – Procedure is designed to provide a method to preserve the emergency lighting system battery packs so that the system is available for use, if required. This Level 1 alert is currently under consideration to be upgraded to a Level 2 alert at a future date.

5

BUS AC GS OFF

(Interim Procedure)

EMER PWR ON LEVEL 1 ALERT DISPLAYED

NO

EMER PWR Selector . . . . . ON
Land at nearest suitable airport.

NOTES: The AC ground service bus is unpowered.

With this bus unpowered, the following issues apply:

- *Emergency lights will be illuminated. Rotating the EMER PWR selector to ON is necessary to restore power to the emergency lighting system "ARM & FLIGHT CHARGE" circuit which will extinguish the emergency lights, preserving the system for use in the event it is needed for an after landing emergency.*
- *Emergency AC bus is being powered by the ship's battery and inverter. The emergency power system is designed to provide power for approximately one hour. This is the last remaining source of power for the emergency AC bus.*
- *Battery charger is not powered. The "BATT CHARGER FAIL" Level 1 alert is inhibited when the "BUS AC GS OFF " Level 1 alert is displayed.*
- *Right main fuel tank aft boost pump is not powered. Expect the "TNK R AFT PMP LO" level 1 alert to be displayed.*
- *Floor and circuit breaker panel lights are not powered.*

(CONTINUED)

EMER PWR ON LEVEL 1 ALERT DISPLAYED

NO

(CONTINUED)

- *Cabin standby lights will be illuminated and cannot be extinguished.*
- *Forward aisle, aft aisle, entry, galley area and attendant lights are not powered.*
- *If forward entrance stairway is installed, its lights are not powered*
- *Ground flood lights are not powered.*
- *Wingtip position and strobe lights are not powered.*

[END]

EMER LT Switch . . . . . OFF

Contact the forward flight attendant and advise that person to verify the EMERGENCY LIGHT guarded switch on the forward attendant's panel is in the OFF position.

NOTES: Selecting the emergency lights off is necessary to avoid depletion of the emergency light battery packs.

"EMER LTS DISARM" Level 0 alert will be displayed until the EMER LT switch is returned to the ARM position prior to landing.

When the emergency lights have been selected off, the ground charging circuit will allow the emergency lighting batteries to be slowly charged while the DC transfer bus remains powered.

Cabin standby lights will be illuminated and cannot be extinguished.

The ground service bus sensing circuit has failed. All systems except emergency lighting should operate normally.

6

Just prior to FAF (approximately 3 minutes prior to landing on a visual approach),

EMER PWR Selector . . . . . ON

NOTE: EMER PWR selector must be in the ON position to enable arming of the emergency lights.

EMER LT Switch . . . . . ARM

After parking and when all passengers and cabin crew have exited the airplane,

EMER LT Switch . . . . . OFF

NOTE: EMER LT switch should be moved to OFF when all passengers and cabin crew have exited the airplane.

(CONTINUED)

BUS AC GS OFF (Interim Procedure) (Continued)

EMER PWR Selector . . . . . OFF

NOTE: EMER PWR selector should be selected to the OFF position after the EMER LT switch is selected to OFF to avoid further depletion of the airplane battery.

[END]

END INTERIM PROCEDURE 717-QRH-0001

6

System	Prefix
Air	AP.10
Config	AP.20
Elec	AP.30
Eng	AP.40
Fuel	AP.50
Hyd	AP.60
Misc	AP.70
Non-Alert	AP.80

Intentionally
Blank

ENG

APU EGT HI APU FAULT	1
ENG___COMP STALL ENG___OIL PRES LO ENG___OIL TEMP HI	2
ENG___RPM HI ENG___RPM LO ENG___TGT HI ENG___BRG OVHT SELECT FADEC ALTN	3
START VLV___OPEN	4

Intentionally
Blank

APU EGT HI

APU DESIRED FOR FLIGHT

NO

Continue APU operation. Monitor RPM and EGT.

NOTE: APU will automatically shut down 10 minutes after landing.

[END]

APU MASTER Switch . . . . . OFF

[END]

APU FAULT

APU DESIRED FOR FLIGHT

NO

Continue APU operation. Monitor RPM and EGT.

NOTE: APU will automatically shut down 10 minutes after landing.

[END]

APU MASTER Switch . . . . . OFF

[END]

ENG___COMP STALL

1

CAUTION: Avoid operating engines in a persistent surge or compressor stall condition. Surges or compressor stalls may not always be audible. Surges or compressor stalls are evidenced by engine thrust loss and rapidly rising or abnormally high TGT. Multiple surges or continuous compressor stall may cause compressor damage and possible engine failure.

NOTE: For any loss of thrust during takeoff, the ENGINE FIRE/FAILURE TAKEOFF profile should be flown until reaching a safe altitude, or until obstacle clearance is assured.

Autothrottle . . . . . OFF

Throttle (Affected Engine[s]) . . . . . RETARD

NOTE: Retard throttle(s) on affected engine(s) (minimum for safe flight) until engine stabilizes or throttle reaches idle, whichever occurs first.

Affected ENG Anti-Ice Switch . . . . . ON

WING or TAIL Anti-Ice Switch . . . . . ON

FLOW Switch . . . . . HIGH

TGT, N1, N2 INDICATIONS NORMAL

NO

Operate engine(s) at level(s) at which stalls/surges do not recur.

Affected ENG Anti-Ice Switch. . . . . AS REQUIRED

FLOW Switch . . . . . AS REQUIRED

WING or TAIL Anti-Ice Switch. . . . . AS REQUIRED

Closely monitor engine parameters for remainder of flight.

[END]

FUEL Switch(es) (Affected Engine[s])
(One At a Time) . . . . . .OFF THEN ON

TGT, N1, N2 INDICATIONS RETURN TO NORMAL

NO

Operate engine(s) at level(s) at which stalls/surges do not recur.

Affected ENG Anti-Ice Switch. . . . . AS REQUIRED

FLOW Switch . . . . . AS REQUIRED

WING or TAIL Anti-Ice Switch. . . . . AS REQUIRED

Closely monitor engine parameters for remainder of flight.

[END]

FUEL Switch (Affected Engine). . . . . OFF

Affected ENG Anti-Ice Switch . . . . . OFF

FLOW Switch . . . . . AS REQUIRED

WING or TAIL Anti-Ice Switch . . . . . AS REQUIRED

(CONTINUED)

ENG___COMP STALL (Continued)

Refer to EMERGENCY NON-ALERT procedure - ENGINE FAIL/SHUTDOWN IN FLIGHT.

NOTE: Normally an engine should not be restarted if it was shut down due to compressor stall/surge. However, at the Captain's discretion, a restart may be attempted if the engine is critical for sustaining safe flight. In this case, engine operation should be carefully monitored after restart and for the remainder of the flight, to ensure that a compressor stall/surge has not resulted in engine damage.

2

Land at nearest suitable airport.

[END]

ENG___OIL PRES LO

Throttle (Affected Engine) . . . . . IDLE

FUEL Switch (Affected Engine) . . . . . OFF

Refer to EMERGENCY NON-ALERT Procedure - ENGINE FAIL/SHUTDOWN IN FLIGHT.

[END]

ENG___OIL TEMP HI

Throttle (Affected Engine) . . . . . ADJUST

If at high thrust, retard throttle. If at idle, increase thrust to provide higher fuel flow for improved cooling.

NOTE: Oil temperature stabilization may take several minutes following thrust changes.

"ENG___OIL TEMP HI" ALERT REMAINS DISPLAYED

NO

Throttle (Affected Engine) . . . . . IDLE

FUEL Switch (Affected Engine) . . . . . OFF

Refer to EMERGENCY NON-ALERT Procedure – ENGINE FAIL/SHUTDOWN IN FLIGHT.

[END]

Continue engine operation. Monitor oil temperature.

[END]

ENG___RPM HI

Throttle (Affected Engine) . . . . . IDLE

RPM REMAINS ABOVE REDLINE

NO

2

FUEL Switch (Affected Engine) . . . . . OFF

Refer to EMERGENCY NON-ALERT Procedure – ENGINE FAIL/SHUTDOWN IN FLIGHT.

[END]

Operate engine at a throttle setting necessary to maintain RPM below redline.

[END]

ENG___RPM LO

Throttle (Affected Engine) . . . . . IDLE

FUEL Switch (Affected Engine) . . . . . OFF

RESTART DESIRED

NO

Refer to ABNORMAL NON-ALERT Procedure – ENGINE RESTART IN FLIGHT.

[END]

Refer to EMERGENCY NON-ALERT Procedure – ENGINE FAIL/SHUTDOWN IN FLIGHT.

[END]

ENG___TGT HI

Throttle (Affected Engine) . . . . . IDLE

TGT REMAINS ABOVE REDLINE

NO

FUEL Switch (Affected Engine) . . . . . OFF

Refer to EMERGENCY NON-ALERT Procedure – ENGINE FAIL/SHUTDOWN IN FLIGHT.

[END]

Operate engine at a throttle setting necessary to maintain an acceptable TGT.

[END]

ENG___BRG OVHT

Throttle (Affected Engine) . . . . . IDLE

When engine at idle,

"ENGINE___BRG OVHT" ALERT REMAINS DISPLAYED

NO

FUEL Switch (Affected Engine). . . . . OFF

Refer to EMERGENCY NON-ALERT Procedure – ENGINE FAIL/SHUTDOWN IN FLIGHT.

[END]

Continue operation at idle power setting.

[END]

SELECT FADEC ALTN

FADEC MODE Switch (Affected Engine). . . . . PUSH

FADEC MODE Switch (Affected Engine). . . . . PUSH AGAIN

NOTE: First push selects FADEC ALTN mode. Second push attempts to return FADEC to normal mode.

"SELECT FADEC ALTN" ALERT DISPLAYED

NO

FADEC MODE Switch (Affected Engine) . . . . . PUSH

NOTE: Autothrottle will be inoperative when either engine is in N1 mode.

Opposite FADEC MODE Switch . . . . . PUSH

[END]

Continue normal engine operation.

[END]

START VLV___OPEN

AIRPLANE ON GROUND

NO

APU AIR Switch/External Air Source . . . . . OFF
ISOL Switch . . . . . CLSD
FUEL Switch (Affected Engine) . . . . . OFF
Call maintenance.
[END]

3

ISOL Switch. . . . . CLSD
BLEED Switch (Affected Engine) . . . . . OFF
PACK Switch (Affected Engine) . . . . . OFF
Avoid icing conditions.
Do not repressurize affected pneumatic system unless necessary.
[END]

System	Prefix
Air	AP.10
Config	AP.20
Elec	AP.30
Eng	AP.40
Fuel	AP.50
Hyd	AP.60
Misc	AP.70
Non-Alert	AP.80

Intentionally
Blank

BALST FUEL DISAG CTR___PUMP LO FUEL OFF SCHEDULE	1
FUEL QTY FAULT FUEL QTY SYS FAIL	2

Intentionally
Blank

BALST FUEL DISAG

AIRPLANE ON GROUND

NO

Ballast Fuel . . . . . VERIFY

[END]

CTR PUMPS Switches . . . . . OFF

[END]

CTR___PUMP LO

Failed CTR Pump Switch. . . . . OFF

Main Tank Pumps Switches (Both Tanks) . . . . . OFF

CENTER TANK FUEL DECREASING

NO

When center tank fuel quantity indicates 500 pounds/225 kilograms,

Main Tank Pumps Switches (Both Tanks). . . . . ON

CTR Pump Switch. . . . . OFF

[END]

Main Tank Pumps Switches (Both Tanks) . . . . . ON

CTR Pumps Switches . . . . . OFF

NOTE: Center and/or aux tank fuel will not be available.

[END]

FUEL OFF SCHEDULE

CTR FWD/AFT PUMP Switches . . . . . ON

CENTER TANK FUEL FEED NORMAL

NO

Continue operation. Monitor fuel system.

[END]

Plan remainder of flight using 4000 pounds/1814 kilograms or less total fuel.

Land at nearest suitable airport.

[END]

FUEL QTY FAULT

QTY A/B Switch. . . . . PUSH

1 “FUEL QTY FAULT” ALERT REMAINS DISPLAYED

NO

NOTE: FMS FUEL and GROSS WEIGHT on INIT page 2 will now be calculated using fuel flow only.

[END]

NOTE: Fuel quantity alerts and system display data will be normal.

[END]

FUEL QTY SYS FAIL

QTY A/B Switch. . . . . PUSH

“FUEL QTY SYS FAIL” ALERT REMAINS DISPLAYED

NO

NOTE: FMS FUEL and GROSS WEIGHT on INIT page 2 will now be calculated using fuel flow only.

[END]

NOTE: Fuel quantity alerts and system display data will be normal.

[END]

System	Prefix
Air	AP.10
Config	AP.20
Elec	AP.30
Eng	AP.40
Fuel	AP.50
Hyd	AP.60
Misc	AP.70
Non-Alert	AP.80

2

H
Y
D

Intentionally
Blank

HYD L & R FAIL	1
HYD R PRES LO HYD L PRES LO	2
HYD R QTY LO OR DECREASING OR ABNORMALLY HIGH	3
HYD L QTY LO OR DECREASING OR ABNORMALLY HIGH HYD R TEMP HI	4
HYD L TEMP HI	5

Intentionally
Blank

HYD L & R FAIL

NOTES: If flaps and/or slats are extended, they will remain in their last selected position.

Speed brakes/ground spoilers will not be available. Rudder will revert to manual.

Use longest available runway for existing conditions.

The crosswind capability of the airplane is greatly reduced. Select a runway with minimum crosswind and use differential braking as necessary for control on the runway.

Plan a wide pattern and longer than normal final approach for speed stabilization on final.

Reduce landing weight to minimum practical.

1

L & R PUMP Switches (Both). . . . . OFF

TRANS Pump Switch. . . . . OFF

AUX Pump Switch . . . . . OFF

Refer to ESTIMATED LANDING DISTANCE tables located at the end of this procedure.

WARNING: ***Minimum approach speed is 144 KIAS until landing is assured.***

When ready to begin approach,

FLAPS LESS THAN 25 DEGREES AND/OR LANDING GEAR UP

NO

GND PROX WARN Switch . . . . . FLAP OVRD

NOTE: In FLAP OVRD, ground proximity warning will be disabled as a result of flaps not in landing range. All other functions of ground proximity warning system will remain operative.

LANDING GEAR UP

NO

Gear Handle. . . . . DOWN

Emergency Gear
Extension Lever . . . . . PULL FULL UP/LATCHED

Raise cover, forcibly pull emergency gear extension lever to full up position and check holding latch is engaged.

Gear Lights . . . . . 3 GREEN

NOTE: "GEAR DOOR OPEN" alert will be displayed.

Airspeed . . . . . VREF +5

WARNING: ***Minimum approach speed is 144 KIAS until landing is assured.***

(CONTINUED)

FLAPS LESS THAN 25 DEGREES
AND/OR LANDING GEAR UP

NO (CONTINUED)

1

Fly normal glideslope (maintain a gradient not less than 2.5 degrees).

Autothrottles . . . . . DISCONNECT BEFORE 50 FEET AGL

NOTE: Autothrottles will not retard if flaps are set less than landing range.

Make positive main gear touchdown to minimize float.

Do not delay lowering nose to runway (thrust reversers will not deploy until NLG is compressed).

Braking . . . . . MAXIMUM AVAILABLE TO COMPLETE STOP

CAUTION: Do not apply brakes until NLG is on ground.

NOTE: Apply steady symmetrical brake pedal force all the way to mechanical stops to minimize accumulator pressure loss. Use differential braking to maintain directional control as rudder control deteriorates at lower speeds.

Reverse Thrust . . . . . MAXIMUM REVERSE

WARNING: Do not use asymmetrical reverse thrust to maintain directional control.

NOTES: Immediately apply symmetrical reverse thrust. Reduce to idle reverse if directional control problems occur. At 110 KIAS, reduce to idle reverse.

Maintain idle reverse until airplane is stopped and parking brake is set.

Thrust reversers will not stow.

Stop airplane on runway. Apply parking brake immediately.

Do not attempt to taxi.

Before airplane is towed, shut down engines, ensure gear safety pins are installed and main gear doors are closed.

(CONTINUED)

0/RET ESTIMATED LANDING DISTANCE (FEET) DRY RUNWAY

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	158	170	180	190	*199	*208
S.L. STD=15°C Landing Distance	5280	5730	6180	6690	7650	9500
2000 FT STD=11°C Landing Distance	5490	5970	6450	7050	8260	10860
4000 FT STD=7°C Landing Distance	5730	6230	6730	7480	9050	††
6000 FT STD=3°C Landing Distance	5970	6500	7040	8000	10140	††
8000 FT STD=–1°C Landing Distance	6230	6790	7390	8650	11670	††
10000 FT STD=–5°C Landing Distance	6530	7120	7840	9550	††	††

* Exceeds Tire Limit Speed.

†† Landing distance exceeds 12000 feet.

NOTE: Full Reverse Thrust (two engines at maximum reverse thrust to 110 knots, then idle to stop), Maximum Available Braking, No Ground Spoilers, Standard Day, No Wind, Zero Slope, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–12
ABOVE standard day	+44

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–64
DOWNHILL	+64

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–18
TAILWIND	+62

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+44

(CONTINUED)

0/RET ESTIMATED LANDING DISTANCE (FEET) GOOD REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	**70**	**80**	**90**	**100**	**110**	**120**
Vref Speeds (KIAS)	158	170	180	190	*199	*208
S.L. STD=15°C Landing Distance	6700	7480	8290	**	**	**
2000 FT STD=11°C Landing Distance	7090	7930	8810	**	**	**
4000 FT STD=7°C Landing Distance	7510	8410	9370	**	**	**
6000 FT STD=3°C Landing Distance	7970	8930	**	**	**	**
8000 FT STD=–1°C Landing Distance	8460	9500	**	**	**	**
10000 FT STD=–5°C Landing Distance	9020	10140	**	**	**	**

* Exceeds Tire Limit Speed.

** Maximum Brake Energy Limit.

NOTE: Full Reverse Thrust (two engines at maximum reverse thrust to 110 knots, then idle to stop), Maximum Available Braking, No Ground Spoilers, Standard Day, No Wind, Zero Slope, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–18
ABOVE standard day	+60

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–216
DOWNHILL	+232

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–40
TAILWIND	+130

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+60

(CONTINUED)

0/RET ESTIMATED LANDING DISTANCE (FEET) GOOD TO MEDIUM REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	**70**	**80**	**90**	**100**	**110**	**120**
Vref Speeds (KIAS)	158	170	180	190	*199	*208
S.L. STD=15°C Landing Distance	7870	8825	9815	**	**	††
2000 FT STD=11°C Landing Distance	8340	9365	10430	††	††	††
4000 FT STD=7°C Landing Distance	8850	9940	**	††	††	††
6000 FT STD=3°C Landing Distance	9395	10560	**	††	††	††
8000 FT STD=–1°C Landing Distance	9990	**	††	††	††	††
10000 FT STD=–5°C Landing Distance	10655	**	††	††	††	††

* Exceeds Tire Limit Speed.

** Maximum Brake Energy Limit.

†† Landing distance exceeds 12000 feet.

NOTE: Full Reverse Thrust (two engines at maximum reverse thrust to 110 knots, then idle to stop), Maximum Available Braking, No Ground Spoilers, Standard Day, No Wind, Zero Slope, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–21
ABOVE standard day	+72

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–382
DOWNHILL	+449

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–56
TAILWIND	+182

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+72

(CONTINUED)

0/RET ESTIMATED LANDING DISTANCE (FEET)
MEDIUM REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	**70**	**80**	**90**	**100**	**110**	**120**
Vref Speeds (KIAS)	158	170	180	190	*199	*208
S.L. STD=15°C Landing Distance	9040	10170	11340	††	††	††
2000 FT STD=11°C Landing Distance	9590	10800	12050	††	††	††
4000 FT STD=7°C Landing Distance	10190	11470	††	††	††	††
6000 FT STD=3°C Landing Distance	10820	12190	††	††	††	††
8000 FT STD=–1°C Landing Distance	11520	††	††	††	††	††
10000 FT STD=–5°C Landing Distance	12290	††	††	††	††	††

* Exceeds Tire Limit Speed.

†† Landing distance exceeds 12000 feet.

NOTE: Full Reverse Thrust (two engines at maximum reverse thrust to 110 knots, then idle to stop), Maximum Available Braking, No Ground Spoilers, Standard Day, No Wind, Zero Slope, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD – 20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–24
ABOVE standard day	+84

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–548
DOWNHILL	+666

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–72
TAILWIND	+234

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+84

(CONTINUED)

0/RET ESTIMATED LANDING DISTANCE (FEET) MEDIUM TO POOR REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	158	170	180	190	*199	*208
S.L. STD=15°C Landing Distance	10530	11845	††	††	††	††
2000 FT STD=11°C Landing Distance	11170	††	††	††	††	††
4000 FT STD=7°C Landing Distance	11860	††	††	††	††	††
6000 FT STD=3°C to 10000 FT STD=–5°C Landing Distance	††	††	††	††	††	††
8000 FT STD=–1°C Landing Distance	††	††	††	††	††	††
10000 FT STD=–5°C Landing Distance	††	††	††	††	††	††

* Exceeds Tire Limit Speed.

†† Landing distance exceeds 12000 feet.

NOTE: Full Reverse Thrust (two engines at maximum reverse thrust to 110 knots, then idle to stop), Maximum Available Braking, No Ground Spoilers, Standard Day, No Wind, Zero Slope, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–29
ABOVE standard day	+102

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–978
DOWNHILL	+1426

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–96
TAILWIND	+338

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+102

0/RET ESTIMATED LANDING DISTANCE (FEET) POOR REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	158	170	180	190	*199	*208
S.L. STD=15°C to 10000 FT STD=–5°C Landing Distance	††	††	††	††	††	††

* Exceeds Tire Limit Speed.

†† Landing distance exceeds 12000 feet.

NOTE: Full Reverse Thrust (two engines at maximum reverse thrust to 110 knots, then idle to stop), Maximum Available Braking, No Ground Spoilers, Standard Day, No Wind, Zero Slope, Air Run Distance is approximately 1500 feet.

[END]

HYD R PRES LO

NOTE: Loss of hydraulic fluid may result in an increasing quantity indication on affected side due to foaming.

TRANS Pump Switch . . . . . OFF

AUX HYD Pump Switch . . . . . OFF

"HYD R QTY LO" ALERT DISPLAYED

NO

CAUTION: Do not operate transfer pump or both systems may lose hydraulic pressure.

Refer to Abnormal procedures, "HYD R QTY LO", OR DECREASING OR ABNORMALLY HIGH.

[END]

WARNING: Rudder may revert to manual. If rudder reverts to manual, minimum approach speed is 144 KIAS until landing is assured.

NOTE: Successful repressurization of affected hydraulic system may be possible at lower altitudes. If practical, delay repressurization attempt until approximately 10,000 feet MSL or 5,000 feet above destination airport elevation, whichever is higher.

When ready to attempt system repressurization,

Verify rudder is neutral and rudder trim is zero.

AUX Pump Switch . . . . . ON

NOTE: Right system pressure should be indicated in approximately 15 seconds.

"HYD R PRES LO" ALERT DISPLAYED

NO

AUX Pump Switch . . . . . OFF

TRANS Pump Switch . . . . . ON

CAUTION: If operating hydraulic system pressure is lost when TRANS pump switch is moved to ON, move TRANS pump switch to OFF.

NOTE: Right system pressure should be indicated in approximately 15 seconds.

"HYD R PRES LO" ALERT DISPLAYED

NO

TRANS Pump Switch . . . . . OFF

NOTE: Outboard spoilers may be inoperative.

Select runway with minimum crosswind.

When ready to begin approach,

Gear Handle . . . . . DOWN

(CONTINUED)

"HYD R PRES LO" ALERT DISPLAYED

NO

(CONTINUED)

"HYD R PRES LO" ALERT DISPLAYED

NO

(CONTINUED)

2

Emergency Gear
Extension Lever . . . . . PULL FULL UP/LATCHED

Raise cover, forcibly pull emergency gear extension lever to full up position and check holding latch is engaged.

Gear Lights . . . . . .3 GREEN

NOTE: "GEAR DOOR OPEN" alert will be displayed.

NOTE: Nosewheel steering to left may be restricted.

Stop airplane on runway.

NOTE: Right thrust reverser may remain deployed.

Close and latch the main gear doors manually.

Install landing gear pins prior to taxi or tow.

[END]

No further crew action required.

[END]

HYD L PRES LO

NOTE: Loss of hydraulic fluid may result in an increasing quantity indication on affected side due to foaming.

TRANS Pump Switch. . . . . OFF

"HYD L QTY LO" ALERT DISPLAYED

NO

CAUTION: Do not operate transfer pump or both systems may lose hydraulic pressure.

Refer to Abnormal procedures, "HYD L QTY LO", OR DECREASING OR ABNORMALLY HIGH.

[END]

(CONTINUED)

"HYD L QTY LO" ALERT DISPLAYED

NO

(CONTINUED)

NOTE: Successful repressurization of affected hydraulic system may be possible at lower altitudes. If practical, delay repressurization attempt until approximately 10,000 feet MSL or 5,000 feet above destination airport elevation, whichever is higher.

2

When ready to attempt system repressurization,

TRANS Pump Switch . . . . . ON

CAUTION: If operating hydraulic system pressure is lost when TRANS pump switch is moved to ON, move TRANS pump switch to OFF.

NOTE: Left system pressure should be indicated in approximately 15 seconds.

"HYD L PRES LO" ALERT DISPLAYED

NO

TRANS Pump Switch . . . . . OFF

When ready to begin approach,

NOTE: Inboard spoilers may be inoperative.

Nosewheel steering to right may be restricted.

Left thrust reverser may remain deployed.

[END]

No further crew action required.

[END]

HYD R QTY LO

OR DECREASING OR ABNORMALLY HIGH

NOTE: Loss of hydraulic fluid may result in an increasing quantity indication on affected side due to foaming.

TRANS Pump Switch . . . . . OFF

CAUTION: Do not operate transfer pump or both systems may lose hydraulic pressure.

R PUMP Switch . . . . . OFF

AUX Pump Switch . . . . . OFF

***WARNING:* Rudder will revert to manual. Minimum approach speed is 144 KIAS until landing is assured or right system pressure is restored.**

NOTES: An attempt to repressurize the right hydraulic system for landing may be made if any hydraulic fluid remains.

(CONTINUED)

Successful repressurization of affected hydraulic system may be possible at lower altitudes. If practical, delay repressurization attempt until approximately 10,000 feet MSL or 5,000 feet above destination airport elevation, whichever is higher.

When ready to attempt repressurization,

RIGHT SYSTEM QUANTITY REMAINING

NO

3

Verify rudder is neutral and rudder trim is zero.

R PUMP Switch . . . . . ON

AUX PUMP Switch . . . . . ON

NOTE: Right system pressure should be indicated within approximately 15 seconds.

RIGHT SYSTEM PRESSURE NORMAL

NO

No further crew action required.

[END]

AUX PUMP Switch . . . . . OFF

R PUMP Switch . . . . . OFF

NOTE: Outboard spoilers will be inoperative.

When ready to begin approach,

Gear Handle. . . . . DOWN

Emergency Gear Extension Lever . . . . . PULL FULL UP/LATCHED

Raise cover, forcibly pull emergency gear extension lever to full up position and check holding latch is engaged.

Gear Lights . . . . . 3 GREEN

NOTE: Nosewheel steering to left will be restricted

Stop airplane on runway.

NOTE: Right thrust reverser may remain deployed.

Close and latch main gear doors manually.

Install landing gear pins prior to taxi or tow.

[END]

HYD L QTY LO

OR DECREASING OR ABNORMALLY HIGH

NOTE: Loss of hydraulic fluid may result in an increasing quantity indication on affected side due to foaming.

TRANS Pump Switch . . . . . OFF

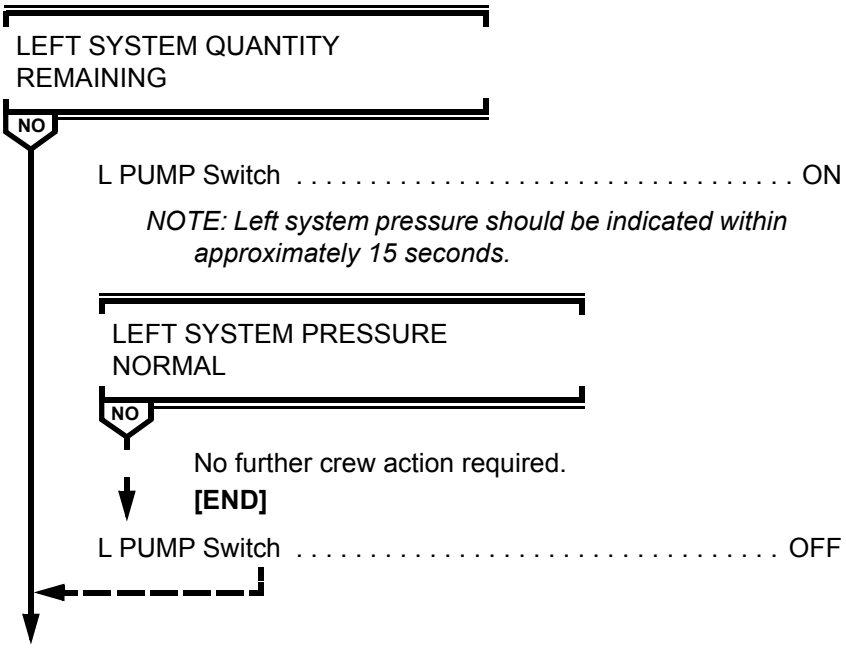
CAUTION: Do not operate transfer pump or both systems may lose hydraulic pressure.

L PUMP Switch . . . . . OFF

3 *NOTES: An attempt to repressurize the left hydraulic system for landing may be made if any hydraulic fluid remains.*

Successful repressurization of affected hydraulic system may be possible at lower altitudes. If practical, delay repressurization attempt until approximately 10,000 feet MSL or 5,000 feet above destination airport elevation, whichever is higher.

When ready to attempt repressurization,



When ready to begin approach,

NOTE: Inboard spoilers will be inoperative.

Nosewheel steering to right will be restricted.

Left thrust reverser may remain deployed.

[END]

HYD R TEMP HI

NOTE: This alert may be displayed as the result of the following conditions:

- *Hydraulic pump failure in the associated system.*
- *Internal by-pass or leakage of a hydraulic component within the affected system.*

(CONTINUED)

- *Pump cavitation due to excessive air in the system.*

TRANS Pump Switch. . . . . OFF

R PUMP Switch . . . . . OFF

AUX Pump Switch . . . . . OFF

WARNING: ***Rudder will revert to manual. Minimum approach speed is 144 KIAS until landing is assured or right system pressure is restored.***

NOTE: Successful repressurization of affected hydraulic system may be possible at lower altitudes. If practical, delay repressurization attempt until approximately 10,000 feet MSL or 5,000 feet above destination airport elevation, whichever is higher.

When ready to attempt system repressurization,

Verify rudder is neutral and rudder trim is zero. **4**

AUX PUMP Switch. . . . . ON

NOTE: Right system pressure should be indicated in approximately 15 seconds.

RIGHT SYSTEM PRESSURE NORMAL

NO

No further crew action required.

[END]

AUX Pump Switch . . . . . OFF

R Pump Switch . . . . . ON

NOTE: Right system pressure should be indicated in approximately 15 seconds.

RIGHT SYSTEM PRESSURE NORMAL

NO

No further crew action required.

[END]

R Pump Switch . . . . . OFF

NOTE: Outboard spoilers will be inoperative.

When ready to begin approach,

Gear Handle. . . . . DOWN

Emergency Gear
Extension Lever . . . . . PULL FULL UP/LATCHED

Raise cover, forcibly pull emergency gear extension lever to full up position and check holding latch is engaged.

Gear Lights . . . . . 3 GREEN

NOTE: "GEAR DOOR OPEN" alert will remain displayed.

NOTE: Nosewheel steering to left will be restricted

(CONTINUED)

HYD R TEMP HI (Continued)

Stop airplane on runway.

NOTE: Right thrust reverser may remain deployed.

Close and latch main gear doors manually.

Install landing gear pins prior to taxi or tow.

[END]

HYD L TEMP HI

NOTE: This alert may be displayed as the result of the following conditions:

- *Hydraulic pump failure in the associated system.*
- *Internal by-pass or leakage of a hydraulic component within the affected system.*
- *Pump cavitation due to excessive air in the system.*

4

TRANS Pump Switch . . . . . OFF

L PUMP Switch . . . . . OFF

NOTE: Successful repressurization of affected hydraulic system may be possible at lower altitudes. If practical, delay repressurization attempt until approximately 10,000 feet MSL or 5,000 feet above destination airport elevation, whichever is higher.

When ready to attempt system repressurization,

TRANS Pump Switch . . . . . ON

CAUTION: If operating hydraulic system pressure is lost when TRANS HYD PUMPS switch is moved to ON, move TRANS HYD PUMPS switch to OFF.

NOTE: Left system pressure should be indicated in approximately 15 seconds.

LEFT SYSTEM PRESSURE NORMAL

NO

No further crew action required.

[END]

TRANS Pump Switch . . . . . OFF

L Pump Switch . . . . . ON

NOTE: Left system pressure should be indicated in approximately 15 seconds.

LEFT SYSTEM PRESSURE NORMAL

NO

No further crew action required.

[END]

L Pump Switch . . . . . OFF

When ready to begin approach,

NOTES: Inboard spoilers will be inoperative.

(CONTINUED)

HYD L TEMP HI (Continued)

Nosewheel steering to right will be restricted.

Left thrust reverser may remain deployed.

[END]

5

Intentionally
Blank

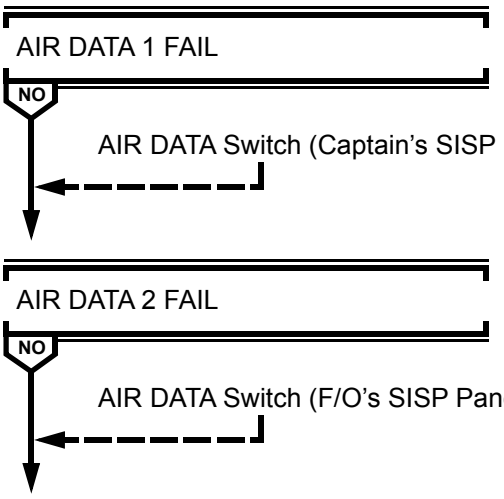
System	Prefix
Air	AP.10
Config	AP.20
Elec	AP.30
Eng	AP.40
Fuel	AP.50
Hyd	AP.60
Misc	AP.70
Non-Alert	AP.80

Intentionally
Blank

AIR DATA___FAIL IRS___FAIL	1
TAILCONE UNLOCK WSHLD HEAT FAIL	2

Intentionally
Blank

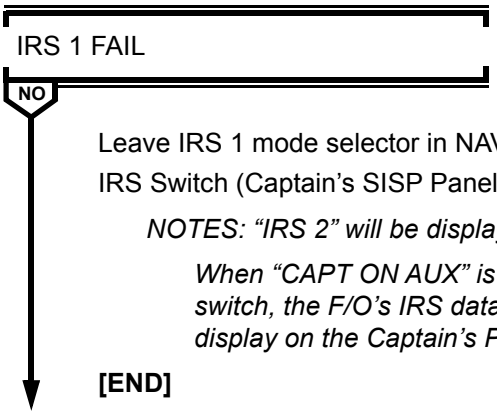
AIR DATA___FAIL



[END]

IRS___FAIL

Autopilot may be inoperative.



IRS 2 FAIL,

Leave IRS 2 mode selector in NAV.

IRS Switch (F/O's SISP Panel) . . . . . PUSH

NOTES: "IRS 1" will be displayed on both PFD's.

When "F/O ON AUX" is illuminated on the IRS switch, the Captain's IRS data has been selected for display on the F/O's PFD.

[END]

TAILCONE UNLOCK

AIRPLANE ON GROUND

1 NO

Ground Control. . . . . NOTIFY

Call maintenance.

[END]

Tower or ATC. . . . . NOTIFY

[END]

WSHLD HEAT FAIL

WINDSHIELD CRACKED OR ARCING

NO

Refer to Abnormal Non-Alert procedure - WINDSHIELD CRACKED OR ARCING.

[END]

Continue flight with WINDSHIELD ANTI-ICE switch in the ON position.

[END]

System	Prefix
Air	AP.10
Config	AP.20
Elec	AP.30
Eng	AP.40
Fuel	AP.50
Hyd	AP.60
Misc	AP.70
Non-Alert	AP.80

2

NON ALERT

Intentionally
Blank

NON ALERT

Intentionally
Blank

ABNORMAL FLIGHT MODE ANNUNCIATIONS AFTER LANDING GEAR EXTENSION

CAUTION: Flight Director will display an incorrect pitch command until selected to OFF.

1

NOTE: If any of the following indications appear when the landing gear is extended and the nosewheel is down and locked, it may be an indication of a ground sensing problem:

- *FLIGHT MODE ANNUNCIATOR (FMA): Roll control window mode will change to "TAKEOFF". Altitude control window thrust mode annunciation will change to "T/O CLAMP", and autothrottles, if engaged, will not provide speed control.*
- *Autopilot, if engaged, will disconnect and cannot be re-engaged while the landing gear is extended.*
- *Flight Director pitch bar will command an incorrectly referenced high pitch attitude, and roll bar will command heading hold. The Flight Director will not track ILS, VOR, or FMS NAV mode guidance.*
- *"CABIN PRESSURIZED" Level 2 alert may be displayed, and cabin will depressurize as it would after landing.*

Autothrottles (If Engaged) . . . . . .DISCONNECT

Auto Spoilers . . . . . DISARM

CAUTION: Auto spoilers must be disarmed to prevent deployment of ground spoilers before main wheel touchdown. Failure to disarm auto spoilers will allow ground spoilers to deploy automatically at approximately 7 feet Radio Altimeter (RA) altitude.

NOTE: If runway has been acquired visually, and the crew desires to continue the approach, autothrottles will not provide speed control. Flight Director command bars should be turned off or disregarded. If the runway is not in sight and/or the airplane is in IMC, the crew may wish to discontinue the approach.

CAPTAIN ELECTS TO CONTINUE APPROACH

NO

No further crew action required.

[END]

Go-Around . . . . . INITIATE

Push TOGA switch on left or right throttle lever while simultaneously pushing throttle levers to stop. Adjust pitch attitude as necessary to establish positive climb at safe airspeed.

CAUTION: Flight Director pitch bar will continue to display incorrect pitch and roll commands, and autopilot and autothrottles will not be available until after landing gear is retracted.

NOTE: After landing gear is up and locked, all Flight Director and FMA indications should return to normal and may be referenced. Autopilot and autothrottles will function normally.

(CONTINUED)

ABNORMAL FLIGHT MODE ANNUNCIATIONS AFTER LANDING GEAR EXTENSION (Continued)

GROUND CONTROL RELAY
C/Bs K-32 and L-32 (Upper EPC) . . . . . PULL

1 ***CAUTION: Do not reset GROUND CONTROL RELAY C/Bs K-32 and L-32 until after landing.***

Prior to final approach fix,

CABIN PRESS SYSTEM Switch. . . . . MANUAL

CABIN PRESS MANUAL Rate Selector . . . . . CLIMB

Observe outflow VALVE position indicator moves to the full OPEN (OP) position.

Do not arm auto spoilers.

Refer to ESTIMATED LANDING DISTANCE tables located at the end of this procedure.

Upon touchdown, manually deploy ground spoilers.

NOTE: With ground control relay circuit breakers pulled, thrust reversers will not be available and engines will remain in flight idle mode.

After landing,

GROUND CONTROL RELAY
C/Bs K-32 and L-32 (Upper EPC) . . . . . RESET

AIR FOIL Anti-Ice Switches (Both) . . . . . OFF

(CONTINUED)

40/EXT ESTIMATED LANDING DISTANCE (FEET) DRY RUNWAY

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	111	118	126	132	139	145
S.L. STD=15°C Landing Distance	3580	3820	4070	4310	4560	4800
2000 FT STD=11°C Landing Distance	3700	3950	4210	4470	4730	4980
4000 FT STD=7°C Landing Distance	3820	4090	4370	4640	4910	5190
6000 FT STD=3°C Landing Distance	3960	4240	4530	4820	5110	5400
8000 FT STD=–1°C Landing Distance	4100	4400	4710	5020	5330	5640
10000 FT STD=–5°C Landing Distance	4260	4570	4900	5230	5560	5890

NOTE: Flight Idle Thrust (to stop), Manual Ground Spoiler Deployment, Maximum Manual Anti-Skid Braking, Standard Day, No Wind, Zero Slope, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–7
ABOVE standard day	+20

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–50
DOWNHILL	+110

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–15
TAILWIND	+70

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+60

(CONTINUED)

40/EXT ESTIMATED LANDING DISTANCE (FEET) GOOD REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	111	118	126	132	139	145
S.L. STD=15°C Landing Distance	4210	4590	5000	5410	5820	6250
2000 FT STD=11°C Landing Distance	4390	4800	5240	5670	6120	6580
4000 FT STD=7°C Landing Distance	4590	5030	5500	5970	6460	6950
6000 FT STD=3°C Landing Distance	4810	5290	5780	6300	6820	7360
8000 FT STD=–1°C Landing Distance	5050	5560	6100	6660	7230	7810
10000 FT STD=–5°C Landing Distance	5310	5860	6450	7060	7670	8300

NOTE: Flight Idle Thrust (to stop), Manual Ground Spoiler Deployment, Maximum Manual Anti-Skid Braking, Standard Day, No Wind, Zero Slope, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–11
ABOVE standard day	+40

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–100
DOWNHILL	+330

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–24
TAILWIND	+140

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+100

(CONTINUED)

40/EXT ESTIMATED LANDING DISTANCE (FEET) GOOD TO MEDIUM REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	111	118	126	132	139	145
S.L. STD=15°C Landing Distance	5145	5540	5960	6385	6805	7240
2000 FT STD=11°C Landing Distance	5335	5760	6210	6655	7115	7575
4000 FT STD=7°C Landing Distance	5555	6010	6485	6965	7460	7955
6000 FT STD=3°C Landing Distance	5795	6285	6785	7310	7835	8370
8000 FT STD=–1°C Landing Distance	6060	6575	7125	7685	8250	8825
10000 FT STD=–5°C Landing Distance	6340	6895	7485	8090	8695	9310

NOTE: Flight Idle Thrust (to stop), Manual Ground Spoiler Deployment, Maximum Manual Anti-Skid Braking, Standard Day, No Wind, Zero Slope, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–14
ABOVE standard day	+40

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–195
DOWNHILL	+460

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–31
TAILWIND	+145

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+100

(CONTINUED)

40/EXT ESTIMATED LANDING DISTANCE (FEET) MEDIUM REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	111	118	126	132	139	145
S.L. STD=15°C Landing Distance	6080	6490	6920	7360	7790	8230
2000 FT STD=11°C Landing Distance	6280	6720	7180	7640	8110	8570
4000 FT STD=7°C Landing Distance	6520	6990	7470	7960	8460	8960
6000 FT STD=3°C Landing Distance	6780	7280	7790	8320	8850	9380
8000 FT STD=–1°C Landing Distance	7070	7590	8150	8710	9270	9840
10000 FT STD=–5°C Landing Distance	7370	7930	8520	9120	9720	10320

NOTE: Flight Idle Thrust (to stop), Manual Ground Spoiler Deployment, Maximum Manual Anti-Skid Braking, Standard Day, No Wind, Zero Slope, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–16
ABOVE standard day	+40

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–290
DOWNHILL	+590

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–37
TAILWIND	+150

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+100

(CONTINUED)

40/EXT ESTIMATED LANDING DISTANCE (FEET) MEDIUM TO POOR REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	111	118	126	132	139	145
S.L. STD=15°C Landing Distance	8360	8640	9045	9500	9975	10500
2000 FT STD=11°C Landing Distance	8545	8885	9335	9825	10345	10885
4000 FT STD=7°C Landing Distance	8830	9210	9695	10225	10790	11355
6000 FT STD=3°C Landing Distance	9155	9575	10070	10635	11225	11840
8000 FT STD=–1°C Landing Distance	9505	9975	10500	11065	11680	††
10000 FT STD=–5°C Landing Distance	9865	10365	10910	11485	††	††

†† Landing distance exceeds 12000 feet.

NOTE: Flight Idle Thrust (to stop), Manual Ground Spoiler Deployment, Maximum Manual Anti-Skid Braking, Standard Day, No Wind, Zero Slope, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	-24
ABOVE standard day	+50

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–670
DOWNHILL	+1565

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–56
TAILWIND	+235

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+110

(CONTINUED)

40/EXT ESTIMATED LANDING DISTANCE (FEET)
POOR REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	111	118	126	132	139	145
S.L. STD=15°C Landing Distance	10640	10790	11170	11640	††	††
2000 FT STD=11°C Landing Distance	10810	11050	11490	††	††	††
4000 FT STD=7°C Landing Distance	11140	11430	11920	††	††	††
6000 FT STD=3°C Landing Distance	11530	11870	††	††	††	††
8000 FT STD=–1°C Landing Distance	11940	††	††	††	††	††
10000 FT STD=–5°C Landing Distance	††	††	††	††	††	††

†† Landing distance exceeds 12000 feet.

NOTE: Flight Idle Thrust (to stop), Manual Ground Spoiler Deployment, Maximum Manual Anti-Skid Braking, Standard Day, No Wind, Zero Slope, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–32
ABOVE standard day	+60

SLOPE: Valid from –1% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–1050
DOWNHILL	+2540

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–74
TAILWIND	+320

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+120

[END]

AILERON CONTROLS JAMMED OR RESTRICTED

NOTES: If freezing water is the cause, control may be regained by descending into warmer air.

If controls remain jammed or restricted in either the Captain's or the First Officer's aileron control path, separation of the control columns may provide reduced, but effective roll control authority. This may be accomplished with the application force (approximately 100 pounds on the un-jammed side) to separate the columns and control paths.

Prior to attempting to separate the columns, perform the following:

Seat Belt Switch . . . . . ON

Autopilot . . . . . DISCONNECT

(CONTINUED)

AILERON CONTROLS JAMMED OR RESTRICTED

(Continued)

Maximum Airspeed . . . . . 270 KIAS/.76 M

NOTE: To minimize dynamic loads, reduce airspeed to as low as practical prior to disconnecting control paths.

Autothrottles . . . . . DISCONNECT

Control Wheels . . . . . DISCONNECT

Use force, as required, (~100 pounds at wheel radius) to disconnect the two halves of the control system. **2**

If this action does not provide sufficient lateral control, use of aileron trim, or small and careful application of rudder can enhance roll control authority.

Autothrottles will be available. Autopilot may be available.

Select a runway with the least crosswind component, and plan to fly a long straight-in approach.

[END]

ANTI-ICE OPERATION WITH SINGLE PNEUMATIC SOURCE

BLEED Switch (Affected Engine) . . . . . OFF

PACK Switch (Affected Engine) . . . . . OFF

ISOL Switch . . . . . AUTO

FLIGHT INTO ICING CONDITIONS IS REQUIRED

NO

WING and TAIL AIR FOIL Anti-Ice Switches . . . . . ON

On final approach,

Within 1 minute prior to selecting 25° landing flaps (normally just prior to landing gear extension),

TAIL AIR FOIL Anti-Ice Switch. . . . . OFF THEN ON

Flaps/Slats 25/EXT

NOTE: Do not extend flaps beyond 25/EXT.

GO AROUND REQUIRED

NO

Flaps/slats retract to 18/EXT and use appropriate maneuvering speeds.

When clear of icing conditions,

WING AIR FOIL Anti-Ice Switch . . . . . OFF

After 3 minutes,

TAIL AIR FOIL Anti-Ice Switch. . . . . OFF

[END]

[END]

APPROACH WITH LESS THAN 1,000 LB/ 450 KG FUEL IN EITHER MAIN TANK

NOTE: If a go-around is required, avoid sustained nose-up attitudes in excess of 10°.

Fuel Boost Pump Switches (All) . . . . . ON

FUEL X-FEED Lever . . . . . ON

IGNITION Switch . . . . . ON

2

NOTE: A go-around is not recommended with less than 500 pounds/225 kilograms fuel in each main tank or if both main tank aft pumps are inoperative.

[END]

CABIN INTERPHONE COMMUNICATIONS ON EMERGENCY POWER

(Airplanes Without S/B 717-33-0019 Incorporated)

CABIN INTERPHONE Switch . . . . . ON

ATTND CALL Switch Light . . . . . PUSH

CABIN INTERPHONE COMMUNICATION ESTABLISHED

NO

No further crew action required.

[END]

PA . . . . . INITIATE PA ANNOUNCEMENT TO FLIGHT ATTENDANT IN CABIN

Cabin Interphone Communication . . . . . ESTABLISH

[END]

CABIN SMOKE/FUMES REMOVAL

Oxygen Masks ON/100%

Crew Communications . . . . . ESTABLISH

Combat smoke/fume source locally if practical.

Cockpit Air Outlets (All) . . . . . FULL OPEN

NO SMOKE/SEAT BELTS Switches . . . . . ON

FLOW Switch . . . . . HIGH

Descent to 9,000 Feet (Terrain and Conditions Permitting) . . . . START

CABIN PRESSURE SYSTEM Switch . . . . . MANUAL

CABIN PRESSURE MANUAL Rate Selector . . . . . CLIMB

Observe outflow VALVE indicator moves to full OP.

When airplane is below 10,000 feet,

Airspeed (Flaps and Slats As Required) . . . . . 160-250 KIAS

Right Forward Service Door Girt Bar . . . . . DISENGAGE/STOW

Loose Items . . . . . STOW

Passengers . . . . . SEAT BELTS FASTENED

(CONTINUED)

Right Forward Service Door. . . . . UNLATCHED

NOTE: High handle loads are required to unlatch door. When unlatched, allow door to seek its own position against airstream. Door will remain centered over opening.

Passenger Aft Emergency Exit Door . . . . . DISARM/UNLOCK/OPEN

CAUTION: Do not use emergency exit handle to open aft emergency exit door, as this action will unlock latches, jettison tail cone and inflate escape slide.

NOTES: Position movable headrest to up position, covering emergency exit handle. Use normal handle to open.

Moderately high handle loads are required to unlock door. Door will open inward and airflow will sweep smoke forward.

3

SMOKE ELIMINATED

NO

Right Forward Service Door . . . . . CLOSE/LATCH

NOTE: It may be necessary to pull aft edge of door inward slightly to engage latch properly.

Right Forward Service Door Girt Bar . . . . . ENGAGE

Passenger Aft Emergency Exit Door. . . . CLOSE/LATCH/ARM

NOTE: Position movable headrest to down position, exposing emergency exit handle.

[END]

Land as soon as practicable.

NOTE: Determine advisability and capability of closing right forward service door and engaging girt bar. If unsuccessful, plan to use other passenger exits in event emergency evacuation is required.

[END]

DITCHING OR CRASH LANDING

Crew and Cabin Attendants . . . . ALERT / STOW LOOSE EQUIPMENT

Transponder. . . . . AS REQUIRED

ATC . . . . . ADVISE

APU . . . . . OFF

NO SMOKE/SEAT BELTS Switches . . . . . ON

When below 10,000 feet,

CABIN PRESS SYSTEM SELECT Switch . . . . . MANUAL

CABIN PRESS MANUAL
Rate Selector . . . . . MANUALLY DEPRESSURIZE

L/R PACK Switches . . . . . OFF

Cabin Attendants' Preparation . . . . . COMPLETED

Crew Vests (If Required), Belts, Harness . . . . . ON/FASTENED

Crew/Passenger Briefing . . . . . COMPLETED

EMER LT Switch . . . . . ON

(CONTINUED)

DITCHING

NO

CABIN PRESS MANUAL Rate Selector . . . . VALVE CLOSED

AVIONICS COOLING Switch . . . . . FAN

FLAP/SLAT Handle 25/EXT

Gear Handle . . . . . UP

NOTE: After ditching, airplane will assume a slight tail down attitude.

3

When airplane has stopped, and if time permits,

ENG FIRE Handle/
AGENT LOW Light . . . . . PULL, DISCH/CHECK

NOTE: BATT switch must be ON to discharge fire extinguishing agent.

[END]

FLAP/SLAT Handle 25/EXT

Gear Handle/Lights . . . . . DOWN/3 GREEN

When airplane has stopped, and if time permits,

ENG FIRE Handle/AGENT LOW Light . . . . . PULL, DISCH/CHECK

NOTE: BATT switch must be ON to discharge fire extinguishing agent.

[END]

ELEVATOR CONTROLS JAMMED OR RESTRICTED

WARNING: ***Do not attempt troubleshooting to free jammed flight controls beyond the scope of this checklist, unless the airplane cannot be safely landed in the existing condition.***

NOTE: If freezing water is the cause of the condition, descending into warmer air may free the restriction. If pitch control is not considered adequate for the flight conditions, it may be possible to regain partial pitch authority by separating the Captain and First Officer's control column axis.

If pitch control remains jammed, or restricted, or if pitch control is not adequate, perform the following actions:

Seat Belt Switch . . . . . ON

Autopilot . . . . . DISCONNECT

Maximum Airspeed 270 KIAS/.76M

NOTE: To minimize dynamic loads, reduce airspeed to as low as practical prior to disconnecting control paths.

Autothrottles . . . . . DISCONNECT

(CONTINUED)

ELEVATOR CONTROLS JAMMED OR RESTRICTED

(Continued)

Control Columns . . . . . .DISCONNECT

A substantial amount of differential force (about 130 pounds/59 kilograms) must be created between the captain and first officer's control columns in order for the mechanical disconnect to occur. Because it may not be apparent as to which control path is jammed, force should be applied to one column, and resistance to that force exerted on the other. If a disconnect does not occur, the application of force and column resistance should be reversed. A single audible "bang" sound may be heard from the base of the Captain's control column below the floor as the mechanical disconnect occurs.

NOTE: Elevator authority may be reduced. Pilot with the operative elevator control system should fly the airplane to a normal approach and touchdown. **4**

If the columns cannot be disconnected and control column authority is not adequate, it may be necessary to control pitch with the stabilizer trim. In this condition, a long straight-in approach should be flown with careful control of pitch and airspeed. Path must be controlled with small thrust corrections.

[END]

ENG L AND ENG R FUEL FILTER LEVEL 1 ALERTS DISPLAYED

CAUTION: With both L and R "ENG FUEL FILTER" Level 1 alerts displayed, land at nearest suitable airport.

Engine Instruments . . . . . MONITOR

Solid contaminants and/or fuel contamination may cause both the engine fuel filters to become clogged and bypass unfiltered fuel into the engines. Crews should maintain engine operation while closely monitoring engine instruments.

[END]

ENGINE ABNORMAL START

FUEL Switch (Affected Engine) . . . . . OFF

STARTER DISENGAGED

NO

N2 . . . . . .40% OR LESS

ENG START Switch . . . . . PULL

Reengage starter for 30 seconds to clear engine of fuel.

After 30 seconds,

ENG START Switch . . . . . PUSH

(CONTINUED)

STARTER DISENGAGED

NO

(CONTINUED)

Reengage starter for 30 seconds to clear engine of fuel.

NOTES: Advise maintenance if any limitations were exceeded. If no limitations were exceeded during first start attempt, another start may be attempted at Captain's discretion.

For subsequent start attempt motor engine for 30 seconds before moving FUEL switch to ON.

[END]

4

Continue motoring engine for 30 seconds after FUEL switch is moved to OFF.

ENG START Switch . . . . . PUSH

NOTES: Advise maintenance if any limitations were exceeded. If no limitations were exceeded during first start attempt, another start may be attempted at Captain's discretion.

For subsequent start attempt, motor engine for 30 seconds before moving FUEL switch to ON.

[END]

ENGINE(S) COMPRESSOR STALL/SURGE

CAUTION: Avoid operating engines in a persistent surge or compressor stall condition. Surges or compressor stalls may not always be audible. Surges or compressor stalls are evidenced by engine thrust loss and rapidly rising or abnormally high TGT. Multiple surges or continuous compressor stall may cause compressor damage and possible engine failure.

NOTES: For any loss of thrust during takeoff, the ENGINE FIRE/FAILURE TAKEOFF profile should be flown until reaching a safe altitude, or until obstacle clearance is assured.

Autothrottle . . . . . OFF

Throttle (Affected Engine[s]) . . . . . RETARD

NOTE: Retard throttle(s) on affected engine(s) (minimum for safe flight) until engine stabilizes or throttle reaches idle, whichever occurs first.

Affected ENG Anti-Ice Switch . . . . . ON

WING or TAIL Anti-Ice Switch . . . . . ON

FLOW Switch . . . . . HIGH

TGT, N1, N2 INDICATIONS NORMAL

NO

Operate engine(s) at level(s) at which stalls/surges do not recur.

Affected ENG Anti-Ice Switch . . . . . AS REQUIRED

FLOW Switch . . . . . AS REQUIRED

(CONTINUED)

TGT, N1, N2 INDICATIONS NORMAL

NO (CONTINUED)

WING or TAIL Anti-Ice Switch . . . . . AS REQUIRED
Closely monitor engine parameters for remainder of flight.
[END]

FUEL Switch(es) (Affected Engine[s])
(One At a Time) . . . . . OFF THEN ON

TGT, N1, N2 INDICATIONS RETURN TO NORMAL

NO

Operate engine(s) at level(s) at which stalls/surges do not recur.
Affected ENG Anti-Ice Switch . . . . . AS REQUIRED
FLOW Switch . . . . . AS REQUIRED
WING or TAIL Anti-Ice Switch . . . . . AS REQUIRED
Closely monitor engine parameters for remainder of flight.
[END]

FUEL Switch (Affected Engine) . . . . . OFF
Affected ENG Anti-Ice Switch . . . . . OFF
FLOW Switch . . . . . AS REQUIRED
WING or TAIL Anti-Ice Switch . . . . . AS REQUIRED
Refer to Emergency Non-Alert Procedures – ENGINE FAIL/SHUTDOWN IN FLIGHT.

NOTE: Normally an engine should not be restarted if it was shut down due to a compressor stall/surge. However, at the Captain's discretion, a restart may be attempted if the engine is critical for sustaining safe flight. In this case, engine operation should be carefully monitored after restart and for the remainder of the flight, to ensure that a compressor stall/surge has not resulted in engine damage.

Land at nearest suitable airport.
[END]

ENGINE RESTART IN FLIGHT

CAUTION: Auto-abort protection is not available for any inflight engine starts. All engine restarts in flight require the crew to monitor engine parameters for start exceedances, regardless of length of time the FUEL switch was in the OFF position. If engine start parameters are exceeded, start must be manually aborted.

NOTE: Air starts may be attempted at any altitude and airspeed. Air starts have been demonstrated below FL 300.

FUEL Switch . . . . . OFF
Autothrottle. . . . . OFF
Throttle (Affected Engine) . . . . . IDLE

(CONTINUED)

ENGINE RESTART IN FLIGHT (Continued)

L/R FWD/AFT FUEL PUMP Switches . . . . . ON
HYDRAULICS PUMP Switch (Affected Engine) . . . . . OFF
ENG Anti-Ice Switch (Affected Engine) . . . . . OFF
AIR FOIL Anti-ice Switches . . . . . OFF
ISOL Switch. . . . . OPEN
PACK Switch (At Least One). . . . . OFF
ENG START Switch . . . . . PULL
When N2 rpm is above 14%,
FUEL Switch . . . . . ON

NOTE: If TGT and RPM rise do not occur within 30 seconds, or if TGT exceeds 850°C after FUEL switch was moved to ON, move FUEL switch to OFF.

ENGINE RESTARTS

NO

5

NOTE: If conditions permit, operate engine at idle for 5 minutes after start.

HYDRAULICS PUMP Switch . . . . . ON
ISOL Switch . . . . . AUTO
PACK Switches . . . . . AS REQUIRED
ENG/AIR FOIL Anti-Ice Switches . . . . . AS REQUIRED
FUEL X-FEED . . . . . AS REQUIRED
MCDU . . . . . SELECT CLEAR* (LSK 6R)
[END]

ENG START Switch . . . . . PUSH
FUEL Switch . . . . . OFF
ISOL Switch. . . . . AUTO
ENG/AIR FOIL Anti-Ice Switches . . . . . AS REQUIRED

NOTES: If engine severe damage is not suspected, additional engine restarts may be attempted.

If restart attempts are unsuccessful, complete Emergency Non-Alert Procedure – ENGINE FAIL/SHUTDOWN IN FLIGHT.

[END]

INTERIM PROCEDURE 717-QRH-0002

REASON FOR INTERIM PROCEDURE: To provide crews with instructions to use to address the abnormal condition of both MCDUs failing to respond to inputs.

BOTH MCDUs FAIL TO RESPOND TO INPUTS (Interim Procedure)

If an MCDU does not accept keyboard inputs, attempt to input on the other MCDU. If that MCDU is also unresponsive, attempt to maintain VMC. Consideration should be given to landing at the nearest suitable VMC airport.

If conditions permit, attempt to restore normal MCDU function by executing the procedural steps below:

Autopilot Disconnect Switch (Either) . . . . . PUSH

GCP AUTO FLIGHT Switch . . . . . PUSH

GCP AUTO FLIGHT Switch . . . . . PUSH AGAIN

Confirm autopilot cycles from AP-1 to AP-2 or AP-2 to AP1.

NOTE: This action cycles the Master AP and FMS.

Wait 10 seconds, then push any MCDU Alpha key.

MCDU FUNCTION RETURNS

NO

Normal flight operation may be continued at Captain's discretion. Consideration should be given to landing at the nearest suitable airport.

[END]

MCDU MENU Keys (One at a Time) . . . . . PUSH

Push MENU key on each MCDU to attempt to access Standby NAV.

STANDBY NAV AVAILABLE

NO

Flight may be continued using Standby NAV. However, consideration should be given to landing at the nearest suitable VMC airport.

Use NAV/RAD page to tune navaids as required.

[END]

Captain's FLT MGT Switch (SISP). . . . . CAPT ON 2

MCDU FUNCTION RETURNS

NO

Normal flight operation may be continued at Captain's discretion. Consideration should be given to landing at the nearest suitable airport.

[END]

Captain's FLT MGT Switch (SISP). . . . . CAPT ON 1

F/O's FLT MGT Switch (SISP) . . . . . F/O ON 1

(CONTINUED)

MCDU FUNCTION RETURNS

NO

Normal flight operation may be continued at Captain's discretion. Consideration should be given to landing at the nearest suitable airport.

[END]

F/O's FLT MGT Switch (SISP). . . . . F/O ON 2

MCDU-1 Circuit Breaker (Overhead Panel A-5) . . . . . PULL/RESET

Pull MCDU-1 circuit breaker, wait 10 seconds, then reset.

MCDU 1 FUNCTION RETURNS

NO

Normal flight operation may be continued at Captain's discretion. Consideration should be given to landing at the nearest suitable airport.

[END]

6

MCDU-2 Circuit Breaker (EPC D-7) . . . . . PULL/RESET

Pull MCDU-2 circuit breaker, wait 10 seconds, then reset.

MCDU 2 FUNCTION RETURNS

NO

Normal flight operation may be continued at Captain's discretion. Consideration should be given to landing at the nearest suitable airport.

[END]

VIA-1 Circuit Breakers (Overhead A-16 & A-18) . . . . . PULL/RESET

Pull VIA-1 circuit breakers, wait 10 seconds, then reset both.

EITHER MCDU FUNCTION RETURNS

NO

Normal flight operation may be continued at Captain's discretion. Consideration should be given to landing at the nearest suitable airport.

[END]

VIA-2 Circuit Breakers (Overhead A-22 & EPC E-2). . . . . PULL/RESET

Pull VIA-2 circuit breakers, wait 10 seconds, then reset both.

(CONTINUED)

EITHER MCDU FUNCTION RETURNS

NO

Normal flight operation may be continued at Captain's discretion. Consideration should be given to landing at the nearest suitable airport.

[END]

Unless NAV radio is already tuned and displays an appropriate runway for approach, advise ATC of inability to tune NAV radios and that vectors to a VMC runway will be necessary.

[END]

END INTERIM PROCEDURE 717-QRH-0002

FMS DUAL FAIL

MCDU Menu Pages (Both) . . . . . ACCESS

NOTE: If an FMS failure occurs, respective MCDU MENU page will be displayed without the FMC1 or FMC2 prompt displayed in data field 1L. The STANDBY NAV/RAD prompt will be displayed in data field 1R. MAP FAIL will be displayed on respective navigation display (ND).*

The TIMEOUT RESELECT message is displayed when the MCDU has lost communications with the FMC (or other active subsystem). The message is cleared only by the CLR key, or after reestablishing communications. Occasional FMC timeouts may occur during normal operation. Timeouts due to lost communication with the FMC are indicated by the onside ND (MAP or PLN) displaying the MAP FAIL message, and the onside MCDU displaying the MENU page with the TIMEOUT RESELECT message in the scratchpad. The FMC prompt will also be missing.

When TIMEOUT RESELECT is displayed due to a FMC resynchronization fault, the MENU page will automatically be displayed with TIMEOUT RESELECT displayed in the scratchpad. If the FMC (SEL) prompt is displayed in data field 1L, push LSK 1L to reselect the FMC. If FMC (SEL) or FMC (REQ) is not displayed in data field 1L and time permits, wait up to 15 seconds for the message to display. If time does not permit, or if the FMC (SEL) or FMC (REQ) message does not display, push LSK 1R to select STANDBY operation or select the other FMS with the SISP FLT MGT switch as shown:

MCDUs (Both) . . . . . SELECT STANDBY (LSK 1R PUSH)

Next Waypoint. . . . . VERIFY

Original routing will be retained in both MCDUs.

Confirm active waypoint is correct or enter required waypoint with NAME/LAT/LONG format before continuing this procedure.

NOTES: No FMS database is available in standby mode. In STANDBY mode only, the MCDU MENU, F-PLN, PROG, NAV RAD, and DIR INTC keys are functional to select the related STANDBY pages.

In normal flight, the MCDU is continually updating the STANDBY NAV/RAD page to reflect the current onside FMC radio tuning. Thus, on entering the STANDBY mode of operation, the MCDU is already initialized with the current tuning data and that should appear.

With no database available as the flight progresses, station identifiers will not automatically be recognized and identified, and frequencies must be entered manually for tuning. Left side radios are tuned with the Captain's MCDU, and right side radios are tuned with the F/O's MCDU. It is additionally important to properly tune and identify radios to ensure the appropriate facility has been tuned.

SISP Switches. . . . . AS REQUIRED

- FLT DIR – If NAV 1 or NAV 2 is selected, offside roll bar will bias out of view. If desired, onside FLT DIR may be selected by pushing CAPT ON 2 (for NAV 2) or F/O ON 1 (for NAV 1).

(CONTINUED)

- FMS – FMS switching should be in normal. If both MCDUs are in standby operation, NDs will display the information depicted in the following table.

FLT MGT SISP SW	CAPT ND DISPLAY	F/O ND DISPLAY
NORMAL	MCDU 1	MCDU 2
CAPT ON 2	MCDU 2	MCDU 2
F/O ON 1	MCDU 1	MCDU 1

NOTE: AP 1 will always follow MCDU 1. AP2 will always follow MCDU 2 regardless of SISP switching.

- CADC, IRS, VOR and APPR should be left in normal unless anomalies in those systems require switching.

Navigation Routing. . . . . CONFIRM

Continue to destination at Captain's discretion.

If changes to routing are required, both MCDUs should be updated, time and workload permitting. If over water or if few navigational aids are available, both MCDU routings should be maintained. If time does not permit, one MCDU may be updated and utilized for navigational guidance. Waypoints must be entered in the NAME/LAT/LONG format. Direct-to is available only for waypoints entered in the route or to a LAT/LONG entered in data field 1L.

VOR, NDB, and ILS navaids must be tuned by frequency on respective MCDUs.

Monitor IRU positions.

7

IRU/MCDU with most accurate position (i.e., MCDU 1, AP 1 and NAV 1, if number 1 is most accurate) should be used for lateral guidance.

Compare fuel used/remaining to flight plan at each waypoint.

Vertical navigation is not available. Plan cruise, climb, and descent point accordingly.

Autothrottles are available in speed mode; however, autothrottles will disconnect in level change and G/A modes.

To compute approach speed, refer to QRH, Performance, LANDING REFERENCE SPEEDS (KIAS), VREF table.

Low speed protection is not available.

FMS databases STARS and APPROACHES are not available.

DUAL LAND, SINGLE LAND and APPR ONLY ILS modes are available.

[END]

FMS SINGLE FAIL

NOTE: If an FMS failure occurs, respective MCDU MENU page will be displayed without the FMC1 or FMC2 prompt displayed in data field 1L. STANDBY NAV/RAD prompt will also be displayed in data field 1R. MAP FAIL will be displayed on respective navigation display (ND).*

(CONTINUED)

FMS SINGLE FAIL (Continued)

The TIMEOUT RESELECT message is displayed when the MCDU has lost communications with the FMC (or other active subsystem) and is cleared only by CLR key or after reestablishing communications. Occasional FMC timeouts may occur during normal operation. Timeouts due to lost communication with the FMC are indicated by the onside ND (MAP or PLN) displaying the MAP FAIL message, and the onside MCDU displaying the MENU page with the TIMEOUT RESELECT message in the scratchpad and with the FMC prompt missing.

When TIMEOUT RESELECT is displayed for a FMC resynchronization fault, the MENU page will automatically be displayed with TIMEOUT RESELECT displayed in the scratchpad. If the FMC (SEL) prompt is displayed in data field 1L, push LSK 1L to reselect the FMC. If FMC (SEL) or FMC (REQ) is not displayed in data field 1L and time permits, wait up to 15 seconds for the message to be displayed. If time does not permit, or the FMC (SEL) or FMC (REQ) message does not display, push LSK 1R to select STANDBY operation or select the other FMS on the respective SISP in the following procedure:

FMS 1 FAIL

NO

CAPT FLT MGT SISP. . . . . CAPT ON 2

Push FLT MGT on CAPT SISP and observe CAPT ON 2 illuminates.

7

MCDU 1 (MENU Page, LSK 1L) . . . . . FMC 2

Push LSK 1L to select FMC 2 and observe FMC 2 <ACT> displays.

The Captain's ND must display VOR or APPR mode whenever the F/O's ND displays the VOR or APPR mode; selected modes need not be identical.

Captain's ND display may be in VOR or APPR when the F/O's display is in MAP or PLAN.

When the Captain's and F/O's ND displays are in MAP or PLAN the RANGE must be the same.

NOTES: MAP FAIL will appear after 20 seconds on the failed side when the active FMC is in the VOR, or APP, or PLAN mode and the failed FMC is in the MAP mode.

NO PLAN MODE will appear within 5 seconds on the failed side when the active FMC is in VOR, APP, or MAP mode and the failed FMC is in PLAN mode.

Either side can always display the VOR/APP mode at any time.

[END]

FMS 2 failed,

F/O FLT MGT SISP . . . . . F/O ON 1

Push FLT MGT on F/O SISP and observe F/O ON 1 illuminates.

(CONTINUED)

FMS SINGLE FAIL (Continued)

MCDU 2 (MENU Page, LSK 1L) . . . . . FMC 1

Push LSK 1L to select FMC 1 and observe FMC 1 <ACT> displays.

The F/O's ND must display VOR or APPR mode whenever the Captain's ND displays the VOR or APPR mode; the selected modes need not be identical.

The F/O's ND display may be in VOR or APPR when the Captain's display is in MAP or PLAN.

When the F/O's and Captain's ND displays are in MAP or PLAN the

RANGE must be the same.

NOTES: MAP FAIL will appear after 20 seconds on the failed side when the active FMC is in the VOR, or APP, or PLAN mode and the failed FMC is in the MAP mode.

NO PLAN MODE will appear within 5 seconds on the failed side when the active FMC is in VOR, APP, or MAP mode and the failed FMC is in the PLAN mode.

Either side can always display the VOR/APP mode at any time.

[END]

FUEL LEAK

NOTES: A fuel leak may be indicated by any of the following:

- *"ENG L/R FUEL PRES" alert displayed*
- *Visual observation of fuel leak or spray from either wing.*
- *Strong odor of jet fuel in cabin area.*
- *Excessive engine fuel flow.*
- *Main tank fuel unbalance.*

8

Lateral fuel imbalance accompanied by uncommanded filling of a tank indicates a tank to tank fuel leak. If fuel remaining is approximately equal to dispatch fuel quantity minus fuel used, fuel is being internally moved from tank to tank through a leak in the fuel lines. Refer to Supplemental Procedures – FUEL – CROSSFEED OPERATION.

If fuel remaining is not approximately equal to dispatch fuel minus fuel used, it may indicate fuel is being lost overboard due to a fuel leak. If a fuel leak is suspected, the following initial actions should be taken to attempt to identify, and isolate the source of the leak. A delay of several minutes may be required to observe possible fuel quantity abnormal condition(s) in this configuration.

CENTER TANK FUEL DECREASING AT AN ABNORMAL RATE

NO

Main Tank FWD/AFT PUMP Switches (All). . . . . ON

CTR FWD/AFT PUMP Switches . . . . . OFF

FUEL X FEED Lever . . . . . OFF

(CONTINUED)

CENTER TANK FUEL DECREASING AT AN ABNORMAL RATE

NO

(CONTINUED)

CENTER TANK CONTINUES DECREASING AT AN ABNORMAL RATE

NO

CTR FWD/AFT PUMP Switches . . . . . AS REQUIRED

NOTE: Use center tank fuel as available.

Land at nearest suitable airport.

CAUTION: If fuel quantity continues to decrease at an abnormal rate, consider requesting that emergency services conduct an external inspection prior to taxi to parking.

[END]

Monitor main tank quantity.

Either main tank quantity decreasing at an abnormal rate,

Main Tanks FWD/AFT PUMP Switches
(For Tank with Greater Quantity) . . . . . ON

8

Main Tanks FWD/AFT PUMP Switches
(For Tank with Lesser Quantity . . . . . OFF

FUEL X FEED Lever . . . . . OFF

Evaluate engine operation on suction feed.

FAILURE OF THE ENGINE USING SUCTION FEED

NO

Throttle (Affected Engine) . . . . . IDLE

FUEL Switch (Affected Engine) . . . . . OFF

ENG FIRE Handle
(Affected Engine) . . . . . PULL (DO NOT ROTATE)

FUEL X FEED Lever . . . . . AS REQUIRED

NOTES: Move FUEL X-FEED Lever to ON (as required) and move fuel boost pump switches for supplying tank(s) to ON intermittently as required to make fuel available and maintain lateral balance.

Use center tank fuel as available.

Refer to Emergency Non-Alert Procedures - ENGINE FAIL/SHUTDOWN IN FLIGHT.

(CONTINUED)

FAILURE OF THE ENGINE USING SUCTION FEED

NO

(CONTINUED)

Land at nearest suitable airport.

[END]

Center and Main Tank Pump Switches . . . . . AS REQUIRED

FUEL X FEED Lever . . . . . AS REQUIRED

NOTE: Move FUEL X-FEED Lever to ON (as required) and move fuel boost pump switches for supplying tank(s) to ON intermittently as required to make fuel available and maintain lateral balance.

Continue to monitor fuel quantity and usage.

CAUTION: If a main tank fuel leak is suspected to be associated with an engine (may or may not be recognizable by high fuel flow), do not use associated thrust reverse on landing. Consider shutting down engine with the engine fire handle after landing (do not discharge agent). Request emergency services conduct an external inspection prior to taxiing to parking.

Land at nearest suitable airport.

[END]

GEAR HANDLE WILL NOT MOVE TO DOWN POSITION

Airspeed. . . . . 230 KIAS MAX

Emergency Gear Extension Lever. . . . . PULL FULL UP/LATCHED

Raise cover, forcibly pull emergency extension lever to full up position and check holding latch is engaged.

It may be necessary to decrease airspeed to allow the nose gear to lock down.

Gear Lights . . . . . .3 GREEN

Gear Handle. . . . . .DOWN

GEAR HANDLE MOVES DOWN

NO

Emergency Gear Extension Lever . . . . . STOW

[END]

(CONTINUED)

GEAR HANDLE MOVES DOWN

NO

(CONTINUED)

NOTE: Nosewheel steering to left will be restricted.

CAUTION: Stop airplane straight ahead on runway and establish communication with maintenance personnel. Do not stow emergency gear extension lever or move airplane unless directed to do so by maintenance. Maintenance personnel must close and latch main gear doors manually. Landing gear pins must be installed prior to taxi or tow.

[END]

GEAR HANDLE WILL NOT MOVE TO UP POSITION

Airspeed . . . . . 230 KIAS MAX

NOSE STEERING WHEEL LOCKED AND INDEX CENTERED

NO

NOTE: Indicates failure of gear anti-retract mechanism.

GEAR HDL REL Button . . . . . PUSH/HOLD

Gear Handle . . . . . UP

[END]

Do not retract gear.

CAUTION: Nosewheel may not be centered and damage may occur if gear is retracted. Do not exceed 300 KIAS/.70 Mach.

GROUND SENSING CIRCUIT IN GROUND MODE

NO

Refer to GROUND SENSOR FAILURE, in this section.

NOTE: The following are indications of ground sensing circuit in ground mode while in flight:

- *Autopilot will not engage.*
- *Cabin fails to pressurize.*
- *T/O warning may sound.*

[END]

If continuing flight to destination, consider fuel and ATC requirements.

[END]

GEAR UNSAFE LIGHT(S) ILLUMINATE WITH GEAR HANDLE DOWN

NOTES: If any gear indicator indicates unsafe, gear aural warning will sound until 100 feet AGL prior to touchdown.

It may be necessary to decrease airspeed to allow nose gear to lock down.

Emergency Gear Extension Lever . . . . . PULL FULL UP/LATCHED

Raise cover, forcibly pull emergency gear extension lever to full up position and check holding latch is engaged.

ALL 3 GEAR INDICATE SAFE

NO

Emergency Gear Extension Lever . . . . . STOW

ALL GEAR INDICATIONS REMAIN SAFE

NO

No further crew action required.

[END]

Emergency Gear Extension Lever . . . . . PULL FULL UP/LATCHED

Raise cover, forcibly pull emergency gear extension lever to full up position and check holding latch is engaged.

NOTE: Nosewheel steering to left will be restricted.

Stop airplane on runway.

Close and latch the main gear doors manually.

Install landing gear pins prior to taxi or tow.

[END]

Emergency Gear Extension Lever . . . . . STOW **10**

NOTE: Stowing emergency gear extension lever will restore hydraulic pressure to extend side of gear actuator.

Refer to LANDING WITH ABNORMAL LANDING GEAR CONFIGURATION, in this section.

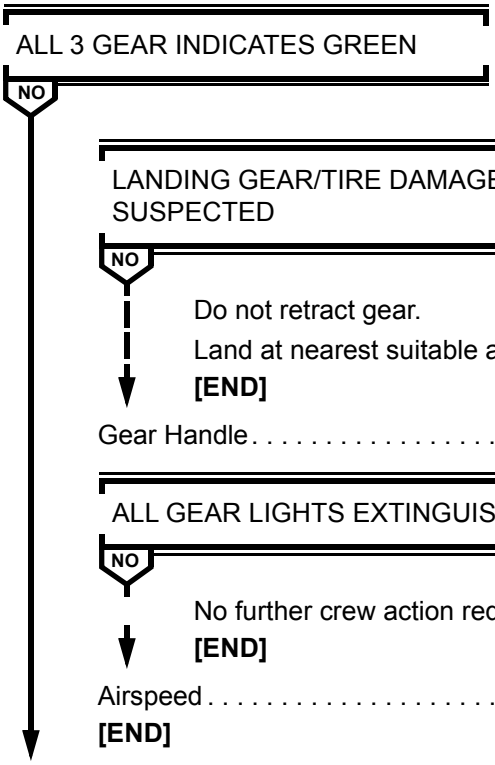
[END]

GEAR UNSAFE LIGHT(S) ILLUMINATE WITH GEAR HANDLE UP

Airspeed . . . . . MAX 230 KIAS

Gear Handle . . . . . DOWN

(CONTINUED)



Gear Handle . . . . . UP

Airspeed . . . . . MAX 300 KIAS/.70 MACH

[END]

Refer to LANDING WITH ABNORMAL LANDING GEAR CONFIGURATION, in this section.

[END]

GROUND SENSOR FAILURE

NOTE: When ground shift mechanism does not shift to flight mode, some systems will not be in normal mode:

- *Autopilot cannot be engaged.*
- *Takeoff warning sounds when flaps or slats are retracted.*
- *Cabin fails to pressurize.*

10

GROUND CONTROL RELAY C/Bs
K-32 and L-32 (Upper EPC) . . . . . PULL

During approach and just prior to final approach fix,

CABIN PRESS SYSTEM Switch. . . . . MANUAL

CABIN PRESS MANUAL Rate Selector . . . . . CLIMB

Observe outflow VALVE indicator moves to full OP.

Do not arm auto spoilers.

Refer to ESTIMATED LANDING DISTANCE tables located at the end of this procedure.

Upon touchdown, manually deploy ground spoilers.

NOTE: With ground control relay circuit breakers pulled, thrust reversers will not be available and engines will remain in flight idle mode.

After landing,

GROUND CONTROL RELAY C/Bs
K-32 and L-32 (Upper EPC) . . . . . RESET

(CONTINUED)

AIR FOIL Anti-Ice Switches (Both). . . . . OFF

40/EXT ESTIMATED LANDING DISTANCE (FEET)
DRY RUNWAY

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	**70**	**80**	**90**	**100**	**110**	**120**
Vref Speeds (KIAS)	111	118	126	132	139	145
S.L. STD=15°C Landing Distance	3580	3820	4070	4310	4560	4800
2000 FT STD=11°C Landing Distance	3700	3950	4210	4470	4730	4980
4000 FT STD=7°C Landing Distance	3820	4090	4370	4640	4910	5190
6000 FT STD=3°C Landing Distance	3960	4240	4530	4820	5110	5400
8000 FT STD=–1°C Landing Distance	4100	4400	4710	5020	5330	5640
10000 FT STD=–5°C Landing Distance	4260	4570	4900	5230	5560	5890

NOTE: Flight Idle Thrust (to stop), Manual Ground Spoiler Deployment, Maximum Manual Anti-Skid Braking, Standard Day, No Wind, Zero Slope, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–7
ABOVE standard day	+20

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–50
DOWNHILL	+110

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–15
TAILWIND	+70

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+60

(CONTINUED)

40/EXT ESTIMATED LANDING DISTANCE (FEET)
GOOD REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	111	118	126	132	139	145
S.L. STD=15°C Landing Distance	4210	4590	5000	5410	5820	6250
2000 FT STD=11°C Landing Distance	4390	4800	5240	5670	6120	6580
4000 FT STD=7°C Landing Distance	4590	5030	5500	5970	6460	6950
6000 FT STD=3°C Landing Distance	4810	5290	5780	6300	6820	7360
8000 FT STD=–1°C Landing Distance	5050	5560	6100	6660	7230	7810
10000 FT STD=–5°C Landing Distance	5310	5860	6450	7060	7670	8300

NOTE: Flight Idle Thrust (to stop), Manual Ground Spoiler Deployment, Maximum Manual Anti-Skid Braking, Standard Day, No Wind, Zero Slope, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–11
ABOVE standard day	+40

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–100
DOWNHILL	+330

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–24
TAILWIND	+140

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+100

(CONTINUED)

40/EXT ESTIMATED LANDING DISTANCE (FEET) GOOD TO MEDIUM REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	**70**	**80**	**90**	**100**	**110**	**120**
Vref Speeds (KIAS)	111	118	126	132	139	145
S.L. STD=15°C Landing Distance	5145	5540	5960	6385	6805	7240
2000 FT STD=11°C Landing Distance	5335	5760	6210	6655	7115	7575
4000 FT STD=7°C Landing Distance	5555	6010	6485	6965	7460	7955
6000 FT STD=3°C Landing Distance	5795	6285	6785	7310	7835	8370
8000 FT STD=–1°C Landing Distance	6060	6575	7125	7685	8250	8825
10000 FT STD=–5°C Landing Distance	6340	6895	7485	8090	8695	9310

NOTE: Flight Idle Thrust (to stop), Manual Ground Spoiler Deployment, Maximum Manual Anti-Skid Braking, Standard Day, No Wind, Zero Slope, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–14
ABOVE standard day	+40

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–195
DOWNHILL	+460

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–31
TAILWIND	+145

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+100

(CONTINUED)

40/EXT ESTIMATED LANDING DISTANCE (FEET)
MEDIUM REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	111	118	126	132	139	145
S.L. STD=15°C Landing Distance	6080	6490	6920	7360	7790	8230
2000 FT STD=11°C Landing Distance	6280	6720	7180	7640	8110	8570
4000 FT STD=7°C Landing Distance	6520	6990	7470	7960	8460	8960
6000 FT STD=3°C Landing Distance	6780	7280	7790	8320	8850	9380
8000 FT STD=–1°C Landing Distance	7070	7590	8150	8710	9270	9840
10000 FT STD=–5°C Landing Distance	7370	7930	8520	9120	9720	10320

NOTE: Flight Idle Thrust (to stop), Manual Ground Spoiler Deployment, Maximum Manual Anti-Skid Braking, Standard Day, No Wind, Zero Slope, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–16
ABOVE standard day	+40

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–290
DOWNHILL	+590

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–37
TAILWIND	+150

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+100

(CONTINUED)

40/EXT ESTIMATED LANDING DISTANCE (FEET) MEDIUM TO POOR REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	**70**	**80**	**90**	**100**	**110**	**120**
Vref Speeds (KIAS)	111	118	126	132	139	145
S.L. STD=15°C Landing Distance	8360	8640	9045	9500	9975	10500
2000 FT STD=11°C Landing Distance	8545	8885	9335	9825	10345	10885
4000 FT STD=7°C Landing Distance	8830	9210	9695	10225	10790	11355
6000 FT STD=3°C Landing Distance	9155	9575	10070	10635	11225	11840
8000 FT STD=–1°C Landing Distance	9505	9975	10500	11065	11680	††
10000 FT STD=–5°C Landing Distance	9865	10365	10910	11485	††	††

†† Landing distance exceeds 12000 feet.

NOTE: Flight Idle Thrust (to stop), Manual Ground Spoiler Deployment, Maximum Manual Anti-Skid Braking, Standard Day, No Wind, Zero Slope, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	-24
ABOVE standard day	+50

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–670
DOWNHILL	+1565

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–56
TAILWIND	+235

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+110

(CONTINUED)

40/EXT ESTIMATED LANDING DISTANCE (FEET)
POOR REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	**70**	**80**	**90**	**100**	**110**	**120**
Vref Speeds (KIAS)	111	118	126	132	139	145
S.L. STD=15°C Landing Distance	10640	10790	11170	11640	12160	††
2000 FT STD=11°C Landing Distance	10810	11050	11490	12010	††	††
4000 FT STD=7°C Landing Distance	11140	11430	11920	††	††	††
6000 FT STD=3°C Landing Distance	11530	11870	††	††	††	††
8000 FT STD=–1°C Landing Distance	11940	††	††	††	††	††
10000 FT STD=–5°C Landing Distance	††	††	††	††	††	††

†† Landing distance exceeds 12000 feet.

NOTE: Flight Idle Thrust (to stop), Manual Ground Spoiler Deployment, Maximum Manual Anti-Skid Braking, Standard Day, No Wind, Zero Slope, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–32
ABOVE standard day	+60

SLOPE: Valid from –1% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–1050
DOWNHILL	+2540

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–74
TAILWIND	+320

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+120

[END]

HIGH ENGINE VIBRATIONS/ICE SHEDDING

NOTE: This procedure assumes that if the airplane is in icing conditions, the engine anti-ice is selected on. If engine anti-ice is not selected on and fan blade icing is suspected, verify IGNITION is on, reduce thrust (one engine at a time) to idle, turn on engine anti-ice, and return thrust to required setting.

AIRPLANE IN ICING CONDITIONS

NO

Autothrottles . . . . . DISCONNECT

Associated Throttle. . . . . IDLE

After throttle is at idle for approximately 5 seconds,

Associated Throttle. 90% N1

(CONTINUED)

AIRPLANE IN ICING CONDITIONS

NO

(CONTINUED)

Closely monitor engine instruments (especially TGT) for any abnormalities.

After engine reaches 90% N1,

Reduce thrust to required setting.

VIBRATION REDUCES TO BELOW 4.0 UNITS

NO

Vibration was due to ice build-up on the spinner and/or blades. If possible, depart icing conditions. Should vibrations return, accomplish procedure as required.

[END]

If all other engine indications are normal, continue to operate engine. Should any abnormal indicators occur during the remainder of the flight (airframe vibration, high TGT etc.), the flight crew should evaluate the condition and if required, shut down the engine.

[END]

LANDING WITH ABNORMAL LANDING GEAR CONFIGURATION

NOTE: Review normal descent/approach/landing checklists. Also review PASSENGER EVACUATION and DITCHING OR CRASH LANDING procedures prior to landing.

Landing Gross Weight . . . . . REDUCE

GPWS C/B F-20 (Upper EPC) . . . . . PULL

NOSE GEAR UNSAFE WITH BOTH MAIN GEAR SAFE

NO

Perform normal approach for landing.

Ensure gear handle is down and spoilers are armed for deployment.

At touchdown,

PF begin actuating trim control to nose up to assist in holding nose off runway.

PNF monitor spoiler deployment and manually deploy spoilers if necessary.

After touchdown,

While elevator control is still effective, lower nosewheel gently to runway.

(CONTINUED)

12

NOSE GEAR UNSAFE WITH BOTH MAIN GEAR SAFE

NO (CONTINUED)

Upon nose contact, use maximum braking (within limits of directional control) to stop airplane.

[END]

ONE MAIN GEAR UNSAFE WITH NOSE GEAR SAFE

NO

NOTE: Consideration should be given to selecting the widest runway available for landing due to the possibility of severe directional control difficulties. Consider touching down on the side of the runway corresponding to extended main gear.

Perform normal approach for landing.

Ensure that gear handle is down and that spoilers are disarmed and not used during landing.

Touch down on extended main gear. While elevator control is still effective lower nose gear gently to runway and hold wings level with ailerons as long as possible.

Maintain directional control with nosewheel steering and braking.

[END]

ANY OTHER COMBINATION OF EXTENDED/RETRACTED GEAR

NO

Any gear which can be extended should be extended for landing whether on a prepared or unprepared surface.

Nosewheel will provide some additional directional control if extended. Main gear is designed to shear as required and will provide protection for fuselage.

Perform normal approach for landing.

Ensure gear handle is down and spoilers are disarmed and not used for landing.

Touch down on main gear, if extended.

While elevator control is still effective, lower nose gently to runway and hold wings level with ailerons as long as possible.

Maintain directional control with nosewheel steering (if available).

[END]

[END]

NO FLAP/NO SLAT OR NO FLAPS / SLATS EXTENDED LANDING

Reduce gross weight to lowest practical value.

Plan a wide pattern for speed stabilization on final approach.

GND PROX WARN Switch . . . . . FLAP OVRD

NOTE: In FLAP OVRD, ground proximity warning will be disabled as a result of flaps not in landing range. All other functions of ground proximity warning system will remain operative.

Perform appropriate normal checklists.

Refer to LANDING REFERENCE SPEEDS (KIAS), VREF table in the PERFORMANCE section of the QRH.

NOTE: Auto Ground Spoilers are inoperative with flaps less than 25 degrees. Ground spoilers must be manually deployed.

Airspeed For Landing Configuration . . . . . .VREF + 5

Fly a normal glideslope.

Autothrottles. . . . . DISCONNECT BEFORE 50 FEET AGL

On touchdown, lower nose gear to runway and immediately manually extend ground spoilers and apply full reverse thrust and brakes as required.

Do not attempt to achieve a smooth touchdown.

Full reverse thrust may be used to a complete stop.

(CONTINUED)

0/RET ESTIMATED LANDING DISTANCE (FEET) DRY RUNWAY

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	158	170	180	190	*199	*208
S.L. STD=15°C Landing Distance	4240	4630	5010	5380	5780	**
2000 FT STD=11°C Landing Distance	4420	4820	5230	5620	6040	**
4000 FT STD=7°C Landing Distance	4610	5030	5460	5880	**	**
6000 FT STD=3°C Landing Distance	4810	5260	5700	6140	**	**
8000 FT STD=–1°C Landing Distance	5020	5490	5970	6430	**	**
10000 FT STD=–5°C Landing Distance	5250	5750	6250	6780	**	**

* Exceeds Tire Limit Speed.

** Maximum Brake Energy Limit.

NOTE: Full Reverse Thrust (two engines at maximum reverse thrust to 80 KIAS, then idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Anti-Skid Braking, Manual Spoiler Deployment, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–10
ABOVE standard day	+34

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–50
DOWNHILL	+50

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–16
TAILWIND	+50

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+34

(CONTINUED)

0/RET ESTIMATED LANDING DISTANCE (FEET) GOOD REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	158	170	180	190	*199	*208
S.L. STD=15°C Landing Distance	5450	6110	6790	7500	8210	**
2000 FT STD=11°C Landing Distance	5760	6460	7200	7950	8720	**
4000 FT STD=7°C Landing Distance	6090	6850	7640	8440	**	**
6000 FT STD=3°C Landing Distance	6450	7270	8110	8980	**	**
8000 FT STD=–1°C Landing Distance	6840	7720	8630	9580	**	**
10000 FT STD=–5°C Landing Distance	7280	8230	9210	**	**	**

* Exceeds Tire Limit Speed.

** Maximum Brake Energy Limit.

NOTE: Full Reverse Thrust (two engines at maximum reverse thrust to 80 KIAS, then idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Anti-Skid Braking, Manual Spoiler Deployment, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–14
ABOVE standard day	+50

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–176
DOWNHILL	+190

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–32
TAILWIND	+108

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+50

(CONTINUED)

0/RET ESTIMATED LANDING DISTANCE (FEET)
GOOD TO MEDIUM REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	158	170	180	190	*199	*208
S.L. STD=15°C Landing Distance	6340	7145	7980	8850	9720	**
2000 FT STD=11°C Landing Distance	6710	7570	8460	9385	10320	**
4000 FT STD=7°C Landing Distance	7105	8030	8980	9965	**	**
6000 FT STD=3°C Landing Distance	7535	8525	9540	10600	**	††
8000 FT STD=–1°C Landing Distance	8005	9060	10150	11240	††	††
10000 FT STD=–5°C Landing Distance	8530	9665	10835	††	††	††

* Exceeds Tire Limit Speed. ** Maximum Brake Energy Limit.

†† Landing distance exceeds 12000 feet.

NOTE: Full Reverse Thrust (two engines at maximum reverse thrust to 80 KIAS, then idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Anti-Skid Braking, Manual Spoiler Deployment, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–17
ABOVE standard day	+59

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–308
DOWNHILL	+293

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–45
TAILWIND	+148

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+59

(CONTINUED)

0/RET ESTIMATED LANDING DISTANCE (FEET) MEDIUM REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	158	170	180	190	*199	*208
S.L. STD=15°C Landing Distance	7230	8180	9170	10200	11230	††
2000 FT STD=11°C Landing Distance	7660	8680	9720	10820	11920	††
4000 FT STD=7°C Landing Distance	8120	9210	10320	11490	††	††
6000 FT STD=3°C Landing Distance	8620	9780	10970	††	††	††
8000 FT STD=–1°C Landing Distance	9170	10400	11670	††	††	††
10000 FT STD=–5°C Landing Distance	9780	11100	††	††	††	††

* Exceeds Tire Limit Speed

†† Landing distance exceeds 12000 feet.

NOTE: Full Reverse Thrust (two engines at maximum reverse thrust to 80 KIAS, then idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Anti-Skid Braking, Manual Spoiler Deployment, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–20
ABOVE standard day	+68

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–440
DOWNHILL	+536

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–58
TAILWIND	+188

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+68

(CONTINUED)

0/RET ESTIMATED LANDING DISTANCE (FEET)
MEDIUM TO POOR REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	158	170	180	190	*199	*208
S.L. STD=15°C Landing Distance	8490	9655	10840	††	††	††
2000 FT STD=11°C Landing Distance	9005	10250	11505	††	††	††
4000 FT STD=7°C Landing Distance	9555	10860	††	††	††	††
6000 FT STD=3°C Landing Distance	10150	11490	††	††	††	††
8000 FT STD=–1°C Landing Distance	10800	††	††	††	††	††
10000 FT STD=–5°C Landing Distance	11450	††	††	††	††	††

* Exceeds Tire Limit Speed.

†† Landing distance exceeds 12000 feet.

NOTE: Full Reverse Thrust (two engines at maximum reverse thrust to 80 KIAS, then idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Anti-Skid Braking, Manual Spoiler Deployment, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–24
ABOVE standard day	+82

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–782
DOWNHILL	+1142

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–77
TAILWIND	+270

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+82

(CONTINUED)

0/RET ESTIMATED LANDING DISTANCE (FEET)
POOR REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	158	170	180	190	*199	*208
S.L. STD=15°C Landing Distance	9750	11130	††	††	††	††
2000 FT STD=11°C Landing Distance	10350	11820	††	††	††	††
4000 FT STD=7°C Landing Distance	10990	††	††	††	††	††
6000 FT STD=3°C Landing Distance	11680	††	††	††	††	††
8000 FT STD=–1°C Landing Distance	††	††	††	††	††	††
10000 FT STD=–5°C Landing Distance	††	††	††	††	††	††

* Exceeds Tire Limit Speed.

†† Landing distance exceeds 12000 feet.

NOTE: Full Reverse Thrust (two engines at maximum reverse thrust to 80 KIAS, then idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Anti-Skid Braking, Manual Spoiler Deployment, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–28
ABOVE standard day	+96

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–1124
DOWNHILL	+1748

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–96
TAILWIND	+352

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+96

[END]

PASSENGER EVACUATION

If time permits, brief cabin attendants, and alert ATC and ground crew.

CABIN INTERPHONE Switch (Airplanes without Service Bulletin 717-33-0019 Incorporated) . . . . . ON

NOTE: Airplanes without Service Bulletin 717-33-0019: When operating on emergency power, cockpit/cabin interphone is inoperative but call chime and lights are not. If required, utilize PA to initiate flight deck/cabin communication.

Outflow VALVE. . . . . VERIFY OPEN

Parking Brakes. . . . . SET

SPD BRK Lever . . . . . RET

(CONTINUED)

FLAP/SLAT Handle 25/EXT

NOTE: Flap position is for unobstructed egress from airplane. If airplane is at gate and ramp is congested with service vehicles, use good judgment to ensure maximum safety of passengers.

EMER LT Switch . . . . . ON

FUEL Switches . . . . . OFF

ENG FIRE Handles . . . . . PULL

NOTE: If required, discharge fire agent.

Command Evacuation . . . . . EVACUATE

APU FIRE CONT Switch . . . . . OFF & AGENT ARM

Evacuation . . . . . COMPLETE

Time and conditions permitting,

BATT Switch . . . . . OFF

[END]

RUDDER JAMMED OR RESTRICTED

"RUDDER RESTRICTED" ALERT DISPLAYED

NO

Level 1 alert indicates that either the primary or secondary rudder limiter is over-restricting the rudder. In this case, the rudder cannot be overpowered. Limited rudder control is available.

Select a runway with minimum crosswind.

[END]

Use rudder trim (if available) and aileron for directional control.

NOTES: If freezing water is the suspected cause, and if conditions permit, descend to warmer air and attempt to regain rudder control.

If rudder input is not possible, use operative flight controls, trim, and thrust as required for airplane control.

Select a runway with minimum crosswind.

AUTOBRAKE Selector (If Installed) . . . . . OFF

Rudder pedal steering is inoperative.

If directional control is a concern, use differential braking at high speed.

Tiller nose wheel steering can be used as speed decreases.

[END]

SEVERE TURBULENCE/HEAVY RAIN INGESTION

Turbulence, Penetration Speed. . . . . .275 KIAS OR .75 M, WHICHEVER RANGE IS LOWER

NOTE: Below 10,000 feet, the greater of 250 KIAS or minimum maneuvering speed may be used.

IGNITION Switch. . . . . ON

(CONTINUED)

SEVERE TURBULENCE/HEAVY RAIN INGESTION

(Continued)

Autothrottles . . . . . OFF

NOTES: Use speed brakes to slow airplane. Adjust throttles only if necessary to avoid excessive airspeed variations. Use smooth power changes and maintain thrust as high as practicable. Do not chase airspeed.

If throttles are at idle when extreme precipitation is encountered, N2 should be monitored for spool-down below idle RPM. Delay throttle advance as long as possible and, when necessary, very slowly advance one throttle at a time while monitoring N2 for response. If no response is noted, return throttle to idle and wait for indications of spool-up to idle rpm.

Autopilot . . . . . MONITOR

NOTE: Use autopilot in turbulence. Closely monitor autopilot operation and be prepared to disconnect autopilot only if airplane does not maintain an acceptable attitude. If autopilot disconnects, pilot should smoothly take control and stabilize pitch attitude. Fly attitude as the primary pitch reference. Sacrifice altitude to maintain attitude. Disregard flight director pitch bar. Do not trim manually. After recovery, autopilot should be reengaged if available.

WARNING: ***Do not attempt to overpower the autopilot with control forces. This can cause the autopilot to disengage with too much control input, which could result in over-control during recovery. Every attempt should be made not to over-control.***

Longitudinal control forces at high altitude will be lighter than those which the pilot experiences at low altitude due to altitude effects.

When the autopilot is off, use minimum control inputs to fly attitude.

ENG and AIR FOIL Anti-Ice Switches . . . . . AS REQUIRED

NOTE: Reduced engine bleeds will increase engine flameout margin during periods of heavy rain ingestion.

When conditions no longer exist,

ENG and AIR FOIL Anti-Ice Switches . . . . . AS REQUIRED

Autothrottles . . . . . ON

IGNITION Switch . . . . . AUTO

[END]

SPOILER STUCK IN EXTENDED POSITION

Autopilot . . . . . DISCONNECT

CAUTION: Do not use autopilot. Full aileron trim and 80° of control wheel input may be required to counteract a stuck spoiler panel. This control configuration will result in roll asymmetry; i.e., a slightly faster roll rate in the direction of the stuck spoiler panel and noticeably slower roll rate in the opposite direction.

Aileron Trim . . . . . AS REQUIRED

Land at nearest suitable airport.

NOTE: Crosswind capability of the airplane may be reduced. Select a runway with minimum crosswind.

During landing,

- Use FLAPS 25.
- Minimum approach speed Vref + 10.

NOTE: Spoilers may be armed for landing.

[END]

STABILIZER INOPERATIVE

NOTE: Extended trim operation may result in trim motor thermal shutdown. Trim motor operation may return after sufficient cooling period.

AIRPLANE IN TRIM WITH LANDING FLAPS SET

NO

Land with selected flaps.

[END]

Refer to ESTIMATED LANDING DISTANCE tables located at the end of this procedure.

Use FLAPS 40 for landing and increase Vref speed by 20 knots or, if time permits, by the speed increment from the STABILIZER INOPERATIVE – SPEED INCREMENT chart below.

Autothrottles . . . . . DISCONNECT BEFORE 50 FEET AGL

Autothrottles will not retard if flaps are set less than landing range.

Do not reduce thrust until landing flare has been initiated and sink rate has been reduced.

Make positive main gear touchdown to minimize float and take positive action to lower nose to runway.

(CONTINUED)

STABILIZER INOPERATIVE (Continued)

STABILIZER INOPERATIVE – SPEED INCREMENT CHART

NOTE: Use takeoff C.G. (% MAC) if landing C.G. is unknown.

	CENTER OF GRAVITY (% MAC)					
	6	10	15	20	25	30 to 34
STAB ANGLE	SPEED ADDITIVE (KIAS)					
2.5° AND	35	31	26	20	14	9
2° AND	33	28	23	18	12	7
0°	25	21	18	12	6	1
2° ANU	20	17	13	7	1	0
4° ANU	15	12	8	1	0	0
6° ANU	11	7	3	0	0	0
8° ANU	6	2	0	0	0	0
10° ANU	1	0	0	0	0	0

40/EXT ESTIMATED LANDING DISTANCE (FEET) DRY RUNWAY

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	132	138	145	152	158	164
S.L. STD=15°C Landing Distance	3680	3960	4250	4530	4810	5080
2000 FT STD=11°C Landing Distance	3800	4100	4400	4700	4990	5290
4000 FT STD=7°C Landing Distance	3930	4250	4570	4880	5200	5510
6000 FT STD=3°C Landing Distance	4070	4410	4750	5080	5420	5750
8000 FT STD=–1°C Landing Distance	4220	4580	4940	5300	5660	6020
10000 FT STD=–5°C Landing Distance	4380	4770	5150	5530	5920	6300

NOTES: Threshold speeds and landing distances in this table are based on a 20 knot increase in Vref.

Full Reverse Thrust (two engines at maximum reverse thrust to 80 KIAS, then idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Anti-Skid Braking, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–8
ABOVE standard day	+28

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–40
DOWNHILL	+40

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–12
TAILWIND	+40

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+28

(CONTINUED)

STABILIZER INOPERATIVE (Continued)

40/EXT ESTIMATED LANDING DISTANCE (FEET)
GOOD REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	132	138	145	152	158	164
S.L. STD=15°C Landing Distance	4370	4780	5200	5640	6080	6540
2000 FT STD=11°C Landing Distance	4550	4990	5450	5920	6400	6900
4000 FT STD=7°C Landing Distance	4750	5230	5720	6230	6760	7300
6000 FT STD=3°C Landing Distance	4970	5480	6020	6570	7150	7730
8000 FT STD=–1°C Landing Distance	5210	5770	6350	6950	7580	8210
10000 FT STD=–5°C Landing Distance	5480	6090	6720	7380	8050	8740

NOTES: Threshold speeds and landing distances in this table are based on a 20 knot increase in Vref.

Full Reverse Thrust (two engines at maximum reverse thrust to 80 KIAS, then idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Anti-Skid Braking, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–10
ABOVE standard day	+36

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–128
DOWNHILL	+140

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–24
TAILWIND	+80

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+36

(CONTINUED)

40/EXT ESTIMATED LANDING DISTANCE (FEET) GOOD TO MEDIUM REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	132	138	145	152	158	164
S.L. STD=15°C Landing Distance	5015	5520	6025	6570	7110	7675
2000 FT STD=11°C Landing Distance	5240	5775	6325	6895	7475	8075
4000 FT STD=7°C Landing Distance	5495	6065	6650	7260	7880	8520
6000 FT STD=3°C Landing Distance	5770	6375	7005	7655	8320	9000
8000 FT STD=–1°C Landing Distance	6075	6725	7395	8095	8810	9540
10000 FT STD=–5°C Landing Distance	6415	7115	7835	8590	9350	10135

NOTES: Threshold speeds and landing distances in this table are based on a 20 knot increase in Vref.

Full Reverse Thrust (two engines at maximum reverse thrust to 80 KIAS, then idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Anti-Skid Braking, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–12
ABOVE standard day	+43

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–223
DOWNHILL	+263

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–33
TAILWIND	+108

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+43

(CONTINUED)

40/EXT ESTIMATED LANDING DISTANCE (FEET) MEDIUM REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	**70**	**80**	**90**	**100**	**110**	**120**
Vref Speeds (KIAS)	132	138	145	152	158	164
S.L. STD=15°C Landing Distance	5660	6260	6850	7500	8140	8810
2000 FT STD=11°C Landing Distance	5930	6560	7200	7870	8550	9250
4000 FT STD=7°C Landing Distance	6240	6900	7580	8290	9000	9740
6000 FT STD=3°C Landing Distance	6570	7270	7990	8740	9490	10270
8000 FT STD=–1°C Landing Distance	6940	7680	8440	9240	10040	10870
10000 FT STD=–5°C Landing Distance	7350	8140	8950	9800	10650	11530

NOTES: Threshold speeds and landing distances in this table are based on a 20 knot increase in Vref.

Full Reverse Thrust (two engines at maximum reverse thrust to 80 KIAS, then idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Anti-Skid Braking, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–14
ABOVE standard day	+50

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–318
DOWNHILL	+386

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–42
TAILWIND	+136

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+50

(CONTINUED)

40/EXT ESTIMATED LANDING DISTANCE (FEET) MEDIUM TO POOR REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	70	80	90	100	110	120
Vref Speeds (KIAS)	132	138	145	152	158	164
S.L. STD=15°C Landing Distance	6580	7305	8040	8825	9605	10420
2000 FT STD=11°C Landing Distance	6900	7665	8450	9265	10090	10925
4000 FT STD=7°C Landing Distance	7260	8065	8895	9760	10625	11505
6000 FT STD=3°C Landing Distance	7650	8505	9380	10300	11220	††
8000 FT STD=–1°C Landing Distance	8085	8990	9920	10870	11820	††
10000 FT STD=–5°C Landing Distance	8570	9535	10525	11535	††	††

†† Landing distance exceeds 12000 feet.

NOTES: Threshold speeds and landing distances in this table are based on a 20 knot increase in Vref.

Full Reverse Thrust (two engines at maximum reverse thrust to 80 KIAS, then idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Anti-Skid Braking, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–17
ABOVE standard day	+59

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–559
DOWNHILL	+816

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–55
TAILWIND	+193

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+59

(CONTINUED)

40/EXT ESTIMATED LANDING DISTANCE (FEET)
POOR REPORTED BRAKING ACTION

BR700-715A1-30/-715 C1-30 Engines

WEIGHT (1000 LB)	**70**	**80**	**90**	**100**	**110**	**120**
Vref Speeds (KIAS)	132	138	145	152	158	164
S.L. STD=15°C Landing Distance	7500	8350	9230	10150	11070	††
2000 FT STD=11°C Landing Distance	7870	8770	9700	10660	11630	††
4000 FT STD=7°C Landing Distance	8280	9230	10210	11230	††	††
6000 FT STD=3°C Landing Distance	8730	9740	10770	11860	††	††
8000 FT STD=–1°C Landing Distance	9230	10300	11400	††	††	††
10000 FT STD=–5°C Landing Distance	9790	10930	††	††	††	††

†† Landing distance exceeds 12000 feet.

NOTES: Threshold speeds and landing distances in this table are based on a 20 knot increase in Vref.

Full Reverse Thrust (two engines at maximum reverse thrust to 80 KIAS, then idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Anti-Skid Braking, Air Run Distance is approximately 1500 feet.

CORRECTIONS:

TEMPERATURE: Valid from STD –20°C to STD +40°C	
FEET PER °C	
BELOW standard day	–20
ABOVE standard day	+68

SLOPE: Valid from –2% downhill to +2% uphill	
FEET PER 1% SLOPE	
UPHILL	–800
DOWNHILL	+1246

WIND: Valid from –10 knot tailwind to +20 knot headwind	
FEET PER KNOT	
HEADWIND	–68
TAILWIND	+250

VREF: Valid from 1 knot to 20 knot above Vref	
FEET PER KIAS	
ABOVE VREF	+68

[END]

STARTER VALVE MANUAL OPERATION

If unable to electrically open start valve,

BEFORE START Checklist . . . . . COMPLETE

MAINT INTPH Switch . . . . . ON

ENG START Switch . . . . . PULL

Command ground crew to open start valve.

When N2 rpm reaches 20% or maximum motoring,

FUEL Switch . . . . . ON

After TGT rise and N2 rpm 41%,

Command ground crew to close start valve.

[END]

TAILPIPE FIRE

FUEL Switch (Affected Engine) . . . . . OFF

STARTER DISENGAGED

NO

Allow N2 to decrease to 40% or less; then,

ENG START Switch . . . . . PULL

CAUTION: Tailpipe fires are not annunciated in the cockpit. The first notification of a tailpipe fire may be from an external source. Discharging the engine fire extinguishing agent will not extinguish the fire. If the fire cannot be extinguished by motoring, or if motoring is not possible, the use of ground fire fighting equipment may be required.

After fire is extinguished,

ENG START Switch . . . . . PUSH

Call maintenance.

[END]

TIRE FAILURE

NOTE: Aircraft vibration or the blowout of a tire should provide external cues of a tire failure.

BEFORE TAKEOFF ROLL

NO

Do not take off.

[END]

Reject or continue takeoff, depending on conditions.

NOTE: At speeds in excess of V1-20, consider continuing takeoff. Stopping performance is degraded with tire failure.

LANDING GEAR EXTENDED

NO

Do not retract landing gear.

Prior to landing,

Gross Weight . . . . . .REDUCED AS REQUIRED

AUTO BRAKE Selector (If Installed) . . . . . OFF

[END]

VOLCANIC ASH

If a volcanic ash cloud is inadvertently entered during flight, depart the area by the shortest route possible. Consider executing a descending 180° turn.

Do not use windshield wipers.

NOTE: Use of windshield wipers for ash or dust removal will result in minute scratches on the windshield. These will create a blossoming effect at night and could make landing approach difficult.

17

CAUTION: If airspeed indications are abnormal, refer to Emergency Non-Alert Procedures – AIRSPEED UNRELIABLE for pitch guidance information.

NOTES: Airspeed indications may be erratic and unreliable or a complete loss of airspeed indication may occur.

Avoid rapid throttle movements if possible.

If compressor and/or turbine blades have been eroded, an increase in fuel flow and TGT may be noticed.

Perform the following actions as rapidly as possible:

Autothrottles . . . . . DISENGAGE

Throttles (All) . . . . . IDLE

IGNITION Switch . . . . . ON

ENG Anti-Ice Switches . . . . . ON

WING and TAIL AIR FOIL Anti-Ice Switches . . . . . ON

FLOW Switch . . . . . HIGH

NOTE: Decreasing TGT will reduce debris buildup on the turbine blades and hot section, and significantly reduce damage to the compressor section and blade tips due to erosion.

ENGINE(S) FLAMED OUT OR STALLED, OR TGT BEYOND LIMITS, OR INCREASING RAPIDLY TOWARD LIMITS

NO

START PUMP Switch . . . . . ON

FUEL X-FEED Lever . . . . . ON

Windmill start envelope is Vmo to 250 KIAS. A minimum N2 of 8% is required for an air start. Higher airspeed increases N2 rpm and improves airstart capability.

FUEL Switch (Affected Engine[s]) . . . . . OFF

Time and conditions permitting, leave fuel switch in the OFF position for 15 to 30 seconds to allow engine to cool.

NOTE: Allowing engine hot section to cool before restart may allow shedding of accreted molten volcanic ash material from Nozzle Guide Vanes.

FUEL Switch (Affected Engine[s]) . . . . . ON

(CONTINUED)

ENGINE(S) FLAMED OUT OR STALLED, OR TGT BEYOND LIMITS, OR INCREASING RAPIDLY TOWARD LIMITS

NO

(CONTINUED)

Monitor start.

NOTES: Engines may 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 an engine fails to start, repeated attempts should be made immediately. A successful start may not be possible until clear of volcanic ash cloud and airspeed and altitude are within normal range.

Consider starting the APU, if available. The APU can be used to power the electrical system in the event of multiple engine loss.

18

APU OR ENGINE GENERATOR POWERING AIRPLANE

NO

EMER PWR Switch . . . . . OFF THEN ARM

Land at nearest suitable airport.

NOTES: A precautionary landing should be made if damage has occurred to the airplane or abnormal engine operation was observed while operating in the ash cloud.

The abrasive effects of volcanic ash on windshields and landing lights may significantly decrease visibility for approach and landing.

[END]

WINDSHIELD CRACKED OR ARCING

WINDSHIELD ANTI-ICE
and ANTI-FOG Switches . . . . . OFF

INNER GLASS PANE CRACKED

NO

Locate and pull affected WINDSHIELD ANTI-FOG CB (lower EPC).

- Left, Right, and Center ANTI-FOG C/B X-26
- Eyebrow (If Installed) and Clearview ANTI-FOG C/B Z-26

(CONTINUED)

INNER GLASS PANE CRACKED

NO

(CONTINUED)

WINDSHIELD ANTI-ICE
and ANTI-FOG Switches . . . . . AS REQUIRED

Below 10,000 feet, do not exceed 235 KIAS.

[END]

Locate and pull the affected WINDSHIELD ANTI-ICE C/B (lower EPC).

18

- Left Anti-Ice C/B X-24
- Center Anti-Ice C/B X-25
- Right Anti-Ice C/B Z-24

WINDSHIELD ANTI-ICE
and ANTI-FOG Switches. . . . . AS REQUIRED

Below 10,000 feet, do not exceed 315 KIAS.

[END]

LVL1 ALERT

Intentionally
Blank

NO TAKEOFF LEVEL 1 ALERTS

Do not take off with any of the following Level 1 alerts displayed unless MEL relief for the related system discrepancy is documented in the airplane's maintenance log.

1

If in flight and any of the following alerts display, review Consequences message(s). Continue to an appropriate destination, considering Consequences message(s) and maintenance/MEL relief requirements for subsequent departures. Make an appropriate maintenance log book entry.

ACCESS COMPT DOOR
AFT BULKHEAD DOOR
AIR ISOL DISAG
AIR SYS FAULT
AOA HEAT__FAIL
APU VALVE DISAG
BATT CHARGER FAIL
BATT CHARGING
BRAKE PRESS LO
BUS AC GS OFF
BUS AC__OFF
BUS DC__OFF
BUS TIE__LOCKOUT
CAB PRES MAN FAIL
CABIN DOOR
CARGO AGENT__LO
CARGO DOOR__
CRG SMK__FAIL
CAWS FAIL
COLUMN DISC
DCU FAIL
EIS SINGLE SOURCE
ELEC COMPT DOOR
ELEC FAULT
EMER POWER ON
EMER PWR TST FAIL
ENG__A-ICE DISAG
ENG__FUEL PRES
ENG__FUEL FILTER
ENG__OIL FILTER
ENG_SYS FAIL
FIRE AGENT__LO
FIRE DET__FAIL
FUEL LEVEL LO
GALLEY DOOR
IRS BATT LO
IRS 2 ON BAT
IRS__NO ALIGN
LAVATORY SMOKE
OVERWING DOOR
PITOT__FAIL
PODS FAIL
PODS TEST FAIL
PSEU FAIL
RAT PROBE FAIL
RUD PITOT FAIL
RUDDER RESTRICTED
SPOILER__FAIL
SPOILER FAULT *
STAIRWAY DOOR FWD
STALL WARN FAULT
TANK__PUMPS LO
VIA CONFIG DISAG
VIA FAIL
WING ICE DETECTED

* *See Interim Procedure 717-QRH-0004 on following page.*

INTERIM PROCEDURE 717-QRH-0004

The SECU will occasionally display the "SPOILER FAULT" message due to excessively tight tolerances in the SECU system.

Interim Procedure 717-QRH-0004 is cancelled with incorporation of Boeing Service Bulletin 717-27-0006 or production equivalent.

1

"SPOILER FAULT"

If the Level 1 alert message "SPOILER FAULT" displays while on the ground:

Pull and reset the following circuit breakers:

- Spoiler SECU Inboard Channel (Lower EPC P-35)
- Spoiler SECU Outboard Channel (Lower EPC R-35)

NOTES: Allow a 30-second pause before resetting pulled circuit breakers. If the alert does not display again, no maintenance action is necessary.

Ensure that each occurrence is documented in maintenance forms.

END INTERIM PROCEDURE 717-QRH-0004

Intentionally
Blank

Intentionally
Blank

Magnetic Variation Table – Non-Directional Beacon Approach Mitigation List (BGBW thru CYXY)

1

ICAO ID	Airport Name	Latitude	Longitude	Error in 2015 (deg)	Error in 2016 (deg)	Error in 2017 (deg)	Error in 2018 (deg)	Error in 2019 (deg)	Error in 2020 (deg)
BGBW	Narsarsuaq	N61°09.6	W045°25.5		6.37	6.67	6.97	7.27	7.57
BGSF	Kangerlussuaq	N67°01.0	W050°41.4	8.21	8.62	9.02	9.43	9.83	10.23
CFX4	Manning	N56°57.1	W117°38.6						6.30
CYDL	Dease Lake	N58°25.3	W130°01.9			6.47	6.76	7.04	7.32
CYEV	Inuvik (Mike Zubko)	N68°18.2	W133°29.0	11.04	11.60	12.17	12.73	13.29	13.84
CYFB	Iqaluit	N63°45.4	W068°33.3	8.75	9.14	9.53	9.92	10.31	10.69
CYFS	Ft. Simpson	N61°45.6	W121°14.2	7.48	7.81	8.14	8.46	8.79	9.11
CYOJ	High Level	N58°37.3	W117°09.9			6.47	6.71	6.95	7.19
CYPY	Ft Chipewyan	N58°46.0	W111°07.1				6.31	6.51	6.71
CYQH	Watson Lake	N60°07.0	W128°49.3	6.67	6.98	7.30	7.61	7.93	8.24
CYSM	Ft Smith	N60°01.2	W111°57.7	6.45	6.68	6.91	7.14	7.37	7.60
CYVP	Kuujjuaq	N58°05.7	W068°25.3			6.45	6.71	6.97	7.23
CYVQ	Norman Wells	N65°16.9	W126°47.9	9.79	10.24	10.69	11.14	11.58	12.02
CYXY	Whitehorse Nielsen Intl	N60°42.6	W135°04.0	6.74	7.08	7.41	7.75	8.09	8.43

Blanks indicate no restrictions.
This table contains an annual listing of those airports for which Non Directional Beacon (NDB) approaches are prohibited due to the outdated Inertial Reference Units (IRU) Magnetic Variation tables causing magnetic heading errors of 6.28 degrees or more.

Magnetic Variation Table – Non-Directional Beacon Approach Mitigation List (CYYE thru PASX)

1

ICAO ID	Airport Name	Latitude	Longitude	Error in 2015 (deg)	Error in 2016 (deg)	Error in 2017 (deg)	Error in 2018 (deg)	Error in 2019 (deg)	Error in 2020 (deg)
CYYE	Ft Nelson	N58°50.2	W122°35.8		6.40	6.67	6.94	7.21	7.48
CYZF	Yellowknife	N62°27.8	W114°26.4	7.91	8.21	8.51	8.81	9.11	9.40
PABI	Allan Aaf	N63°59.7	W145°43.3	7.32	7.72	8.13	8.53	8.94	9.34
PAFB	Ladd Aaf	N64°50.2	W147°37.0	7.40	7.81	8.23	8.65	9.07	9.49
PAIL	Illiamna	N59°45.3	W154°55.1				6.29	6.59	6.90
PANI	Aniak	N61°34.9	W159°32.6					6.56	6.88
PAOM	Nome	N64°30.8	W165°26.7					6.41	6.74
PASX	Soldotna	N60°28.5	W151°02.4			6.46	6.79	7.12	7.45

Blanks indicate no restrictions.
This table contains an annual listing of those airports for which Non Directional Beacon (NDB) approaches are prohibited due to the outdated Inertial Reference Units (IRU) Magnetic Variation tables causing magnetic heading errors of 6.28 degrees or more.

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Landing Reference Speeds (KIAS), VREF

LDG WT (1000 LB)	LDG WT (1000 KG)	FLAP/SLAT VREF SPEEDS (KIAS)					
		UP/RET	0/EXT	13/EXT	18/EXT	25/EXT	40/EXT
64	29.0	152	118	111	111	111	111
68	30.8	156	122	115	113	112	111
72	32.7	161	126	118	117	115	112
76	34.5	165	129	121	120	118	115
80	36.3	170	132	124	123	121	118
84	38.1	174	136	127	126	124	121
88	39.9	178	139	130	129	127	124
92	41.3	182	142	133	132	130	126
96	43.5	186	145	136	135	133	129
100	45.4	190	148	139	138	136	132
104	47.2	193	151	142	140	138	134
108	49.0	197	154	145	143	141	137
112	50.8	201	157	147	146	144	140
116	52.7	204	159	150	148	146	142
120	54.5	208	162	152	151	149	144

1

1. **Areas enclosed in heavy black lines represent speeds in excess of tire rating speed.**
2. **Vapp is the greater of Vref +5 or Vref + wind additive (see note 3).**
3. **Wind additive is 1/2 of the steady state wind greater than 20 knots or all of the gust increment above steady state value, whichever is greater (max 20 knots).**
4. **If ATS is engaged for approach and landing, wind additives may be applied at Captain's discretion.**
5. **If ATS is not engaged, or is planned to be disengaged prior to landing, the appropriate wind additives should be applied to Vref.**

Takeoff Brake Temperatures Advisory Information

Recommended Maximum Takeoff Brake Temperatures (°C)

Takeoff Flaps 5 to 12

WEIGHT (1000 LB)	PRESS ALT & STANDARD DAY TEMP					
	SEA LEVEL 15°C	1000 FT 13°C	2000 FT 11°C	4000 FT 7°C	6000 FT 3°C	8000 FT -1°C
80	250	250	250	250	250	240
85	250	250	250	250	240	230
90	240	250	240	230	220	210
95	230	230	220	210	200	190
100	220	210	200	190	180	160
105	200	190	180	170	150	140
110	180	170	160	150	130	110
114	160	150	140	130	100	80
118	140	130	120	100	80	60
121	130	120	110	90	60	60

Takeoff Flaps 13 to 17

WEIGHT (1000 LB)	PRESS ALT & STANDARD DAY TEMP					
	SEA LEVEL 15°C	1000 FT 13°C	2000 FT 11°C	4000 FT 7°C	6000 FT 3°C	8000 FT -1°C
80	250	250	250	250	250	250
85	250	250	250	250	250	240
90	250	250	250	240	230	220
95	240	240	240	230	220	200
100	230	230	220	210	200	180
105	210	210	200	190	180	160
110	200	190	180	170	150	130
114	180	170	170	150	130	110
118	170	160	150	130	110	90
121	150	140	130	110	90	70

Takeoff Flaps 18 to 20

WEIGHT (1000 LB)	PRESS ALT & STANDARD DAY TEMP					
	SEA LEVEL 15°C	1000 FT 13°C	2000 FT 11°C	4000 FT 7°C	6000 FT 3°C	8000 FT -1°C
80	250	250	250	250	250	250
85	250	250	250	250	250	250
90	250	250	250	250	240	230
95	250	250	240	230	220	210
100	240	230	230	220	210	190
105	220	220	210	200	190	170
110	210	200	190	180	160	150
114	190	180	180	160	140	120
118	180	170	160	140	120	100
121	160	160	150	130	100	90

Temperature Corrections:

1. **Above data is applicable for standard day ambient temperature and no tail wind. Apply following temperature corrections as needed:**
   - Reduce recommended brake temperature 10°C for every 10°C higher ambient temperature than ISA temperature.
   - Reduce recommended brake temperature 20°C for every 5 knot tail wind.
2. **The time to cool the brake on the ground to the recommended takeoff temperature is provided in the Estimated Brake Cooling Time table.**

Estimated Brake Cooling Time (Hours:Minutes)

RECOMMENDED BRAKE TEMP (°C)	HOTTEST BRAKE TEMPERATURE (°C) (15 MINUTES AFTER THE AIRPLANE STOPPED WITH PARKING BRAKE SET										
	60	80	100	120	140	160	180	200	220	240	260
60	0:00	0:27	0:48	1:06	1:20	1:33	1:44	1:54	2:03	2:11	2:19
80		0:00	0:21	0:38	0:53	1:06	1:17	1:27	1:36	1:44	1:52
100			0:00	0:17	0:32	0:45	0:56	1:06	1:15	1:23	1:31
120				0:00	0:15	0:27	0:38	0:48	0:57	1:06	1:13
140					0:00	0:13	0:24	0:34	0:43	0:51	0:59
160						0:00	0:11	0:21	0:30	0:38	0:46
180							0:00	0:10	0:19	0:27	0:35
200								0:00	0:09	0:17	0:25
220									0:00	0:08	0:16
240										0:00	0:08
260											0:00

Wind Component

Headwind Component (KTS)

DEG *	REPORTED WIND SPEED (KTS)															
	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
10	10	12	14	16	18	20	22	24	26	28	30	32	33	35	37	39
20	9	11	13	15	17	19	21	23	24	26	28	30	32	34	36	38
30	9	10	12	14	16	17	19	21	23	24	26	28	29	31	33	35
40	8	9	11	12	14	15	17	18	20	21	23	25	26	28	29	31
50	6	8	9	10	12	13	14	15	17	18	19	21	22	23	24	26
60	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
70	3	4	5	5	6	7	8	8	9	10	10	11	12	12	13	14
80	2	2	2	3	3	3	4	4	5	5	5	6	6	6	7	7
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Crosswind Component (KTS)

DEG *	REPORTED WIND SPEED (KTS)															
	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
10	2	2	2	3	3	3	4	4	5	5	5	6	6	6	7	7
20	3	4	5	5	6	7	8	8	9	10	10	11	12	12	13	14
30	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
40	6	8	9	10	12	13	14	15	17	18	19	21	22	23	24	26
50	8	9	11	12	14	15	17	18	20	21	23	25	26	28	29	31
60	9	10	12	14	16	17	19	21	23	24	26	28	29	31	33	35
70	9	11	13	15	17	19	21	23	24	26	28	30	32	34	36	38
80	10	12	14	16	18	20	22	24	26	28	30	32	33	35	37	39
90	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40

*** Wind direction, in degrees, off runway heading.**

Example:		**Solution:**
Runway	**- 330°**	**Headwind Component = 18 KTS**
Wind Direction	**- 020°**	**Crosswind Component = 21 KTS**
Wind Speed	**- 28 KTS**	

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Estimated Landing Distances (Feet), BR700-715A1-30/-715C1-30 Engines

Dry Runway

Flaps 40/EXT

LDG WT (1000 LB)	AIRPORT PRESSURE ALTITUDE / TEMPERATURE					
	S.L. STD=15°C	2000 FT STD=11°C	4000 FT STD=7°C	6000 FT STD=3°C	8000 FT STD= –1°C	10000 FT STD= –5°C
60	3240	3350	3470	3580	3700	3810
70	3410	3520	3640	3750	3870	3980
80	3580	3700	3810	3930	4040	4160
90	3750	3870	3980	4100	4210	4330
100	3930	4040	4160	4270	4390	4500
110	4100	4210	4330	4440	4560	4670
120	4270	4390	4500	4620	4730	4850
130	4440	4560	4670	4790	4900	5020

Full Reverse Thrust (2 engines at max reverse thrust to 80 KIAS, then reverse idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Anti-Skid Braking, Air Run Distance is approximately 1500 feet. All distances including corrections shown have been increased by 15%.

Corrections

Temperature

FEET PER °C	
BELOW standard day	–7
ABOVE standard day	+26

Valid from STD -20°C to STD +40°C

Slope

FEET PER 1% SLOPE	
UPHILL	–35
DOWNHILL	+35

Valid from -2% downhill to +2% uphill

Wind

FEET PER KNOT	
HEADWIND	–12
TAILWIND	+35

Valid from -10 knots tailwind to +20 knots headwind

VREF

FEET PER KIAS	
ABOVE VREF	+23

Valid from 1 knot to 20 knots above VREF

Auto Brakes

Auto Brakes MAX	+8%
Auto Brakes HIGH	+54%
Auto Brakes MED	+93%
Auto Brakes MIN	+135%

Estimated Landing Distances (Feet), BR700-715A1-30/-715C1-30 Engines

Good Reported Braking Action

Flaps 40/EXT

LDG WT (1000 LB)	AIRPORT PRESSURE ALTITUDE / TEMPERATURE					
	S.L. STD=15°C	2000 FT STD=11°C	4000 FT STD=7°C	6000 FT STD=3°C	8000 FT STD= –1°C	10000 FT STD= –5°C
60	4480	4710	4940	5170	5400	5630
70	4780	5010	5240	5470	5700	5930
80	5080	5310	5540	5770	6000	6230
90	5380	5610	5840	6070	6300	6530
100	5700	5930	6160	6390	6620	6850
110	6020	6250	6480	6710	6940	7170
120	6340	6570	6800	7030	7260	7490
130	6660	6890	7120	7350	7580	7810

Full Reverse Thrust (2 engines at max reverse thrust to 80 KIAS, then reverse idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Anti-Skid Braking, Air Run Distance is approximately 1500 feet. All distances including corrections shown have been increased by 15%.

3

Corrections

Temperature

FEET PER °C	
BELOW standard day	–12
ABOVE standard day	+37

Valid from STD -20°C to STD +40°C

Slope

FEET PER 1% SLOPE	
UPHILL	–127
DOWNHILL	+138

Valid from -2% downhill to +2% uphill

Wind

FEET PER KNOT	
HEADWIND	–23
TAILWIND	+79

Valid from -10 knots tailwind to +20 knots headwind

VREF

FEET PER KIAS	
ABOVE VREF	+35

Valid from 1 knot to 20 knots above VREF

Auto Brakes

Auto Brakes MAX	+5%
Auto Brakes HIGH	+14%
Auto Brakes MED	+22%
Auto Brakes MIN	+49%

Estimated Landing Distances (Feet), BR700-715A1-30/-715C1-30 Engines

Good To Medium Reported Braking Action

Flaps 40/EXT

LDG WT (1000 LB)	AIRPORT PRESSURE ALTITUDE / TEMPERATURE					
	S.L. STD=15°C	2000 FT STD=11°C	4000 FT STD=7°C	6000 FT STD=3°C	8000 FT STD= –1°C	10000 FT STD= –5°C
60	5130	5420	5720	6020	6320	6620
70	5480	5780	6080	6380	6680	6980
80	5840	6140	6440	6740	7040	7330
90	6200	6500	6790	7090	7390	7690
100	6580	6880	7180	7480	7780	8080
110	6970	7260	7560	7860	8160	8460
120	7350	7650	7950	8250	8550	8840
130	7730	8030	8330	8630	8930	9230

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Full Reverse Thrust (2 engines at max reverse thrust to 80 KIAS, then reverse idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Anti-Skid Braking, Air Run Distance is approximately 1500 feet. All distances including corrections shown have been increased by 15%.

Corrections

Temperature

FEET PER °C	
BELOW standard day	–13
ABOVE standard day	+44

Valid from STD -20°C to STD +40°C

Slope

FEET PER 1% SLOPE	
UPHILL	–213
DOWNHILL	+259

Valid from -2% downhill to +2% uphill

Wind

FEET PER KNOT	
HEADWIND	–32
TAILWIND	+107

Valid from -10 knots tailwind to +20 knots headwind

VREF

FEET PER KIAS	
ABOVE VREF	+38

Valid from 1 knot to 20 knots above VREF

Auto Brakes

Auto Brakes MAX	+5%
Auto Brakes HIGH	+12%
Auto Brakes MED	+16%
Auto Brakes MIN	+30%

Estimated Landing Distances (Feet), BR700-715A1-30/-715C1-30 Engines

Medium Reported Braking Action

Flaps 40/EXT

LDG WT (1000 LB)	AIRPORT PRESSURE ALTITUDE / TEMPERATURE					
	S.L. STD=15°C	2000 FT STD=11°C	4000 FT STD=7°C	6000 FT STD=3°C	8000 FT STD= –1°C	10000 FT STD= –5°C
60	5770	6130	6500	6870	7240	7610
70	6180	6550	6920	7280	7650	8020
80	6590	6960	7330	7700	8070	8430
90	7010	7380	7740	8110	8480	8850
100	7460	7820	8190	8560	8930	9300
110	7910	8270	8640	9010	9380	9750
120	8350	8720	9090	9460	9830	10190
130	8800	9170	9540	9910	10270	10640

Full Reverse Thrust (2 engines at max reverse thrust to 80 KIAS, then reverse idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Anti-Skid Braking, Air Run Distance is approximately 1500 feet. All distances including corrections shown have been increased by 15%.

Corrections

Temperature

FEET PER °C	
BELOW standard day	-14
ABOVE standard day	+51

Valid from STD -20°C to STD +40°C

Slope

FEET PER 1% SLOPE	
UPHILL	-299
DOWNHILL	+380

Valid from -2% downhill to +2% uphill

Wind

FEET PER KNOT	
HEADWIND	-40
TAILWIND	+134

Valid from -10 knots tailwind to +20 knots headwind

VREF

FEET PER KIAS	
ABOVE VREF	+40

Valid from 1 knot to 20 knots above VREF

Auto Brakes

Auto Brakes MAX	+4%
Auto Brakes HIGH	+10%
Auto Brakes MED	+10%
Auto Brakes MIN	+10%

Estimated Landing Distances (Feet), BR700-715A1-30/-715C1-30 Engines

Medium To Poor Reported Braking Action

Flaps 40/EXT

LDG WT (1000 LB)	AIRPORT PRESSURE ALTITUDE / TEMPERATURE					
	S.L. STD=15°C	2000 FT STD=11°C	4000 FT STD=7°C	6000 FT STD=3°C	8000 FT STD= –1°C	10000 FT STD= –5°C
60	6780	7260	7740	8220	8710	9190
70	7240	7720	8210	8690	9170	9660
80	7700	8190	8670	9160	9640	10120
90	8170	8660	9140	9620	10100	10580
100	8690	9170	9650	10140	10580	11060
110	9210	9690	10200	10660	11060	11540
120	9720	10210	10750	11180	11540	++
130	10240	10730	11300	11700	++	++

++ Landing distance exceeds 12000 feet.

Full Reverse Thrust (2 engines at max reverse thrust to 80 KIAS, then reverse idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Anti-Skid Braking, Air Run Distance is approximately 1500 feet. All distances including corrections shown have been increased by 15%.

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Corrections

Temperature

FEET PER °C	
BELOW standard day	-18
ABOVE standard day	+60

Valid from STD -20°C to STD +40°C

Slope

FEET PER 1% SLOPE	
UPHILL	-506
DOWNHILL	+794

Valid from -2% downhill to +2% uphill

Wind

FEET PER KNOT	
HEADWIND	-54
TAILWIND	+187

Valid from -10 knots tailwind to +20 knots headwind

VREF

FEET PER KIAS	
ABOVE VREF	+42

Valid from 1 knot to 20 knots above VREF

Auto Brakes

Auto Brakes MAX	+4%
Auto Brakes HIGH	+9%
Auto Brakes MED	+9%
Auto Brakes MIN	+9%

Estimated Landing Distances (Feet), BR700-715A1-30/-715C1-30 Engines

Poor Reported Braking Action

Flaps 40/EXT

LDG WT (1000 LB)	AIRPORT PRESSURE ALTITUDE / TEMPERATURE					
	S.L. STD=15°C	2000 FT STD=11°C	4000 FT STD=7°C	6000 FT STD=3°C	8000 FT STD= –1°C	10000 FT STD= –5°C
60	7780	8380	8970	9570	10170	10770
70	8300	8890	9490	10090	10690	11290
80	8810	9410	10010	10610	11210	11800
90	9330	9930	10530	11130	11720	++
100	9920	10520	11110	11720	++	++
110	10500	11100	11760	++	++	++
120	11090	11690	++	++	++	++
130	11680	++	++	++	++	++

++ Landing distance exceeds 12000 feet.

Full Reverse Thrust (2 engines at max reverse thrust to 80 KIAS, then reverse idle to 60 KIAS, forward idle and stowed by 40 KIAS to stop), Standard Day, No Wind, Zero Slope, Maximum Manual Anti-Skid Braking, Air Run Distance is approximately 1500 feet. All distances including corrections shown have been increased by 15%.

Corrections

Temperature

FEET PER °C	
BELOW standard day	–21
ABOVE standard day	+69

Valid from STD -20°C to STD +40°C

Slope

FEET PER 1% SLOPE	
UPHILL	–713
DOWNHILL	+1280

Valid from -2% downhill to +2% uphill

Wind

FEET PER KNOT	
HEADWIND	–67
TAILWIND	+240

Valid from -10 knots tailwind to +20 knots headwind

VREF

FEET PER KIAS	
ABOVE VREF	+44

Valid from 1 knot to 20 knots above VREF

Auto Brakes

Auto Brakes MAX	+3%
Auto Brakes HIGH	+8%
Auto Brakes MED	+8%
Auto Brakes MIN	+8%

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*	AP.60.8	April 15, 2017
*	AP.60.9	April 15, 2017
*	AP.60.10	April 15, 2017
*	AP.60.11	April 15, 2017
*	AP.60.12	April 15, 2017
*	AP.60.13	April 15, 2017
*	AP.60.14	April 15, 2017
*	AP.60.15	April 15, 2017
*	AP.60.16	April 15, 2017

Abnormal Alert - Misc (tab)

	AP.Tab.70.1-2	April 15, 2014
	AP.TOC.70.1-2	April 15, 2016
	AP.70.1	April 15, 2016
	AP.70.2	April 15, 2016

Abnormal Alert - Non-Alert (tab)

	AP.Tab.80.1-2	July 15, 2008
*	AP.TOC.80.1-2	April 15, 2017
	AP.80.1	October 15, 2014
*	AP.80.2	April 15, 2017
*	AP.80.3	April 15, 2017
*	AP.80.4	April 15, 2017
*	AP.80.5	April 15, 2017
*	AP.80.6	April 15, 2017
*	AP.80.7	April 15, 2017
*	AP.80.8	April 15, 2017
*	AP.80.9	April 15, 2017
*	AP.80.10	April 15, 2017
*	AP.80.11	April 15, 2017
*	AP.80.12	April 15, 2017

* =Revised, Added, or Deleted

* AP.80.13	April 15, 2017
* AP.80.14	April 15, 2017
* AP.80.15	April 15, 2017
* AP.80.16	April 15, 2017
* AP.80.17	April 15, 2017
* AP.80.18	April 15, 2017
* AP.80.19	April 15, 2017
* AP.80.20	April 15, 2017
* AP.80.21	April 15, 2017
* AP.80.22	April 15, 2017
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* AP.80.31	April 15, 2017
* AP.80.32	April 15, 2017
* AP.80.33	April 15, 2017
* AP.80.34	April 15, 2017
* AP.80.35	April 15, 2017
* AP.80.36	April 15, 2017
* AP.80.37	April 15, 2017
* AP.80.38	April 15, 2017
* AP.80.39	April 15, 2017
* AP.80.40	April 15, 2017
* AP.80.41	April 15, 2017
* AP.80.42	April 15, 2017
* AP.80.43	April 15, 2017
* AP.80.44	April 15, 2017
* AP.80.45	April 15, 2017
* AP.80.46	April 15, 2017
* AP.80.47	April 15, 2017
* AP.80.48	April 15, 2017
* AP.80.49	April 15, 2017
* AP.80.50	April 15, 2017
* AP.80.51	April 15, 2017
* AP.80.52	April 15, 2017
* AP.80.53	April 15, 2017
* AP.80.54	April 15, 2017
* AP.80.55	April 15, 2017
* AP.80.56	April 15, 2017
Level 1 Alert (tab)	
A.Tab.0.1-2	April 15, 2015
A.10.1	April 15, 2016
A.10.2	April 15, 2016
Reference Data (tab)	
RD.Tab.0.1-2	October 15, 2013
RD.TOC.0.1-2	April 15, 2016
RD.10.1	April 15, 2016
RD.10.2	April 15, 2016
Performance (tab)	
PD.Tab.0.1-2	April 15, 2016
* PD.TOC.0.1-2	April 15, 2017
PD.10.1	April 15, 2015
PD.10.2	October 15, 2016
PD.10.3	April 15, 2015
* PD.10.4	April 15, 2017
* PD.10.5	April 15, 2017
* PD.10.6	April 15, 2017
* PD.10.7	April 15, 2017
* PD.10.8	April 15, 2017
* PD.10.9	April 15, 2017
* PD.10.10	April 15, 2017
Index (tab)	
Index.Tab.10.1-2	April 15, 2015
* Index.10.1-4	April 15, 2017
List of Effective Pages	
* LEP.0.1-2	April 15, 2017
Highlights	
* Highlights.0.1-2	April 15, 2017

* =Revised, Added, or Deleted

Highlights

TO:	TBC
Concerning:	Volume I, Quick Reference Handbook (QRH), Revision 41, Dated April 15, 2017.
Highlights:	Revised existing procedures to reflect changes in amplified procedures in Volume II. Consult the Operating Procedures highlights pages for specific changes. Some pages are updated that were not revised; this occurs because the assemble process has rearranged some of the contents of the database.
TR Summary Record:	Temporary Revisions 1-1 thru 1-127 have been incorporated, cancelled, or are not applicable to your Volume I, QRH.
FAB Summary Record:	There are no active FCOM Advisory Bulletins.
Interim Procedure Summary Record:	All Interim Operating Procedures have been renumbered and integrated into the text of this manual. Please remove and discard all IOPs published on pink paper. Interim Procedures Effectivity follows: 717-QRH-001, BUS AC GS OFF, Section AP.30 717-QRH-002, BOTH MCDUS FAIL TO RESPOND TO INPUTS, Section AP.80 717-QRH-003, FMS__FAIL WITH INDEPENDENT OPERATION SHOWN ON BOTH MCDUs, Section AP.80 717-QRH-004, "SPOILER FAULT", Section A.10.

MANUAL UPDATE INSTRUCTIONS

Please replace the pages in your Volume I, QRH with these updated pages.

Compare issued pages with LEP to assure Volume I, QRH is complete and correct.

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