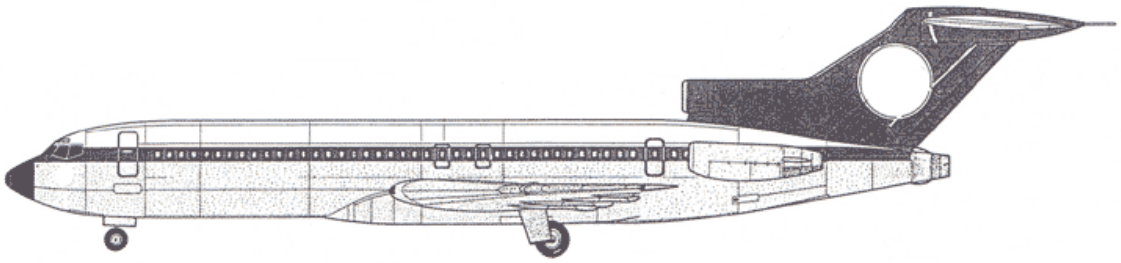
Legendary 727



Flight and Training Manual
Part I – SYSTEMS MANUAL

FOR FLIGHT SIMULATION USE ONLY

Captain Sim

© 2002 Captain Sim www.captainsim.com

PILOTS' MAIN INSTRUMENT PANEL

1. Handle
2. Compass light
3-6. Landing lights switches *
7. Taxi light switch
8-9. Runway turnoff switches *
10. Engine failure light
11. ILS category II sign
12. Autopilot controls and indicators*
13. Wheel well fire warning light (red) *
14-16. Engine fire handle and warning light (red) *
17-19. Bottle discharged switch *
20. Bottle transfer selector switch *
21. Freon bottle discharged light (amber) *
22. Pilot's sliding windows operation handle
23. Autopilot disengaged warning light(red)
24. Master comparator warning light (amber)
25. Altitude alert light
26. Pull up / GPWS test switch (red) *****
27. Below GS light (white) *****
28. MDA light (amber) *****
29. Approach progress display *****
30. Pneumatic brake lever
32. Master test and dim switch
33. Altitude alert panel *
34. Marker beacon sensitivity switch *****
35. Airways light (clear) *****
36. Middle marker light (amber) *****
37. Outer marker light (blue) *****
38. Stabilizer out of trim light (amber)
39. Elevator low pressure light (red)
40. DME indicator*****
41-42. Windshear ahead lights (amber)
43. MACH indicator *****
44. Airspeed indicator *****
45. Attitude director indicator *****
46. Altimeter-1 *****
47. Low range radio altimeter *****
48. Clocks *****
49. Gyrosyn compass system *****
50. Horizontal situation indicator *****
51. Vertical speed indicator *****
52. Altimeter-2 *****
53. Standby artificial horizon *****
54. Trimmer indicators *****
55-57. Reverse operating lights (amber)
58-60. Engine pressure ratio indicators
61-63. N_1 tachometers
64-66. Engine exhaust gas temperature indicators
67-69. N_2 tachometer
70-72. Engine fuel flow indicators

73. Landing gear annunciator panel *****
74. Master warning light (flashing red) *****
75-76. Flap position indicators *****
77-78. Leading edge flap lights
79-81. Low oil pressure and Oil filter bypass display caution lights (amber) *****
82. Speed brake lever *****

NOTE: * - See detailed description

CONTROLS ASSIGNMENTS OTHER THAN DEFAULT

LIGHTS:

Control cabin lights --	**Shift +L**
Background lighting --	**Ctrl+Shift+L**
Cockpit lighting control (day only)--	**Shift+F1, Shift+F2, Shift+F3**

EXITS:

Pilot's Sliding Windows --	**Shift+E**
Passenger Cabin Door (FWD) --	**Shift+E+2** or **Alt+E**
Passenger Cabin Door/Ramp (AFT) --	**Wing Fold** *
Luggage Door/ Cargo Door --	**Tail Hook** *

GPWS:

Aural warnings On/Off --	**Shift+Q**

"CHECK & SET" VOICE CREW PACKAGE:

Activate Next Check List --	**Shift+~**
Skip To Next Item Active Check List --	**Space**
Instruments digital readouts –	**Shift+T**

ENGINE:

Engine fire test switch --	**Shift+F**
Engine fire alarm bell cutout switch --	**Shift+B**
Fuel Heat --	**Shift+H+1, Shift+H+2, Shift+H+3**

RADAR:

Weather radar function selector --	**Shift+W**
Weather radar test pattern --	**Ctrl+W**

NOTE: * -- must be assigned

PANEL SELECTION ICONS FOR VC ONLY VERSION (Shift+2)

(Shift+1 or Num 8)* Main Panel →
(Num 3)* Second Officer Panel →
(Shift+3) Radio Stack Panel →
(Shift+4) Autopilot Panel →
Map View →
Yoke →
Jeppesen Chart on Yoke →
Digital Readout →

← Overhead Panel **(Num 5)***
← Checked & Set Control Panel
← Flaps / Trimmers Panel **(Shift+7)**
← Auxiliary Power Unit Panel **(Shift+5)**
← Air Traffic Control **(`)**
← Kneeboard **(F10)**
← GPS **(Shift+6)**
← Close Panel **(Shift+2 To Open)**

***NOTE** - Num Lock must be ON

© 2002 Captain Sim www.captainsim.com

PANEL SELECTION ICONS FOR VC+2D VIEWS COCKPIT VERSION (Shift+2)

(Shift+1 or Num 8)* Main Panel →

(Num 7)* Forward Left View →

(Num 4)* Left View →

(Num 1)* Rear Left View →

(Num 2)* Rear View →

(Shift+3) Radio Stack Panel →

(Shift+4) Autopilot Panel →

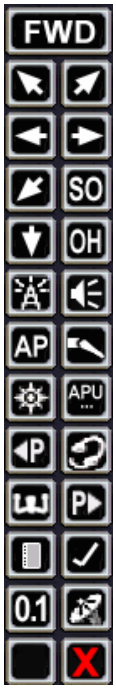
Map View →

Passenger Left View →

Yoke →

Jeppesen Chart on Yoke →

Digital Readout →



← Forward Right View **(Num 9)***

← Right View **(Num 6)***

← Second Officer Panel **(Num 3)***

← Overhead Panel **(Num 5)***

← Checked & Set Control Panel

← Flaps / Trimmers Panel **(Shift+7)**

← Auxiliary Power Unit Panel **(Shift+5)**

← Air Traffic Control **(`)**

← Passenger Right View

← Kneeboard **(F10)**

← GPS **(Shift+6)**

← Close Panel **(Shift+2 To Open)**

***NOTE** - Num Lock must be ON

3-6. LANDING LIGHTS SWITCHES
LANDING, INBOARD Left and Right and LANDING, OUTBOARD Left and Right lights provides high intensity lighting for takeoff and landing.

8-9. RUNWAY TURNOFF Left AND Right SWITCHES
The lights provide ground roll illumination.
Do not illuminate LANDING and RUNWAY TURNOFF lights for more than 5 minutes while stationary on the ground.

12. AUTOPILOT CONTROLS AND INDICATORS

1. PITCH COMMAND CONTROL - Permits manual selection of a pitch-up or pitch-down command bar display. The control is calibrated in 5-dergee increments from +15 through –10 degrees. Not effective after glide slope capture

2. AUTOPILOT MODE SELECTOR

3. HDG (HEADING SELECT) – When engaged the autopilot will turn the aircraft to and hold the heading selected on the captain's present heading selector. Effective in MAN and NAV/LOC mode prior to course capture.

4. NAV / LOC – The autopilot will fly the airplane at the existing heading near the course selected until on the captain's instruments. Airplane will then turn to and track the selected course. Automatic crosswind compensation is provided. During passage over a VOR station the autopilot hold the existing heading.

5. APPR AUTO - The autopilot glide slope mode is armed and will fly the airplane on the localizer until intercepting the glide slope. The pitch controller controls attitude. The glide slope mode is now engaged and will pitch the airplane down and fly the glide slope, while the autopilot the memorizes the rate of descent. After glide slope engaged, the roll and pitch sensitivities are reduced at 1500' on the radar altimeter to compensate for beam convergence. Automatic crosswind compensation is provided. After glide slope engaged, the pitch controller is ineffective.

6. APPR MAN – Same as APPR AUTO except the airplane will seek and engaged the glide slope from above or below. Pitch controller is ineffective.

7. ALTITUDE HOLD – Autopilot holds constant airplane altitude if elevator switch engaged. Pitch controller is ineffective. On APPR AUTO switch trips OFF when glide slope engages.

13. WHEEL WELL FIRE WARNING LIGHT (Red)
Indicates a fire in any wheel well. Fire ALARM bell also sounds.

14-16. ENGINE FIRE HANDLE AND WARNING LIGHT (Red)
Indicates a fire on respective engine or firewall. Fire ALARM bell also sounds.
If pulled the fire handle arms the bottle discharge switch, trips the generator field relay, and overrides closed the following valves:

- engine fuel shutoff,
- hydraulic fluid shutoff,
- engine bleed air,
- wing anti-ice.

The engine driven hydraulic pump low pressure light is also deactivated.

17-19. BOTTLE DISCHARGED SWITCH
If depressed, will discharge to the respective engine, the bottle selected by the bottle transfer switch.

20. BOTTLE TRANSFER SELECTOR SWITCH
Selects freon bottle to be discharged.

21. FREON BOTTLE DISCHARGED LIGHT (Amber)
ON – when freon bottle discharge.

26. PULL UP / GPWS TEST SWITCH (Red)
Illuminates flashing to provide visual warning for Mode 1,2,3,4.
Press to test aural and visual warnings. System cannot be tested between 50 and 1000 feet.

27. BELOW GS LIGHT (Amber)
Illuminates to provide visual warning to Mode 5. When below 1000 feet, pressing light inhibits or cancels Mode 5, if the airplane has not penetrated the loud warning area.

28. MDA light (amber) *
The MDA light illuminate when you pass the altitude you have set on the radio alt bug for the MDA (Minimum Descent Altitude) for the approach.

29. APPROACH PROGRESS DISPLAY

1-2. VOR / LOG ANNUNCIATOR.
AMBER – System armed in NAV LOC or AUTO G/S modes prior to intercept of VOR radial or localizer beam).
GREEN – Radial or localizer captured.
3-4. GLIDE SLOPE ANNUNCIATOR.
AMBER – System armed in AUTO G/S prior to intercept of glide slope.
GREEN – Glide slope captured. When MAN G/S selected.
5-6. FLARE
7. GO AROUND
8. HDG. Parallels green ENG annunciator of HDG SEL switch on autopilot control panel.
GREEN – Autopilot heading select is active.
9. ALT HOLD.
AMBER – autopilot altitude select is armed.
GREEN – Autopilot is operating in altitude hold.

30. PNEUMATIC BRAKE LEVER (emergency brake handle)
Clockwise rotation increases braking.

32. MASTER TEST AND DIM SWITCH

1. Master test and dim switch
2. Photoelectric cells (One set with each APD)

33. ALTITUDE ALERT PANEL

1. Altitude set indicator (Indicated selected altitude in 100-foot increments)
2. Altitude set control(Used to set selected altitude in altitude indicator)
An altitude alerting system gives audible and visual indication of approaching an altitude **(acquisition)** or departing from an altitude **(deviation)**. In the acquisition mode an aural signal tone will sound momentarily and the alert lights will come on when passing through a point approximately 900 feet above or below the selected altitude. The light will remain on until approximately 300 feet from the selected altitude. In the deviation mode when departing the selected altitude the aural signal will sound momentarily and the alert lights will come on when passing through a point approximately 300 feet above or below the selected altitude. The alert light will remain on until reset by pressing the alert light.

34. MARKER BEACON SENSITIVITY SWITCH
HIGH position is used at high altitudes. LOW position is used at low altitudes.

35. AIRWAYS LIGHT (Clear)
Illuminates steady when over airways beacon or flashing when over airway fan marker beacon (3000 Hz signal)

36. MIDDLE MARKER LIGHT (Amber)
Illuminates flashing when over ILS middle marker beacon (1300 Hz signal)

37. OUTER MARKER LIGHT (Blue)
Illuminates flashing when over ILS outer marker beacon (400 Hz signal)

40. DISTANCE MEASURING EQUIPMENT
Distance measuring equipment (DME) system provides slant range in nautical miles to station tuned.

43. MACH INDICATOR

1. MACH POINTER (Displays indicated Mach derived from pitot-static pressures)
2. M_{MO} POINTER (Displays maximum operating Mach)

44. AIRSPEED INDICATOR

1. V_{MO} POINTER (Displays maximum operating airspeed)
2. AIRSPEED POINTER (Displays indicated airspeed derived from pitot-static pressures)
3. MOVABLE EXTERNAL REFERENCE MARKERS
4. V_{MO} MODE SELECTOR (Selects maximum operating airspeed)
5. CURSOR (BUG) (Airspeed cursor indicates reference speed or airspeed for speed command)
6. CURSOR CONTROL (Position cursor on scale to indicate reference airspeed selected)

45. ATTITUDE DIRECTOR INDICATOR

1. COMMAND BARS (Airplane is maneuvered to fly the symbolic airplane into the vee formed by the command bars)
2,3. BANK INDICATOR AND SCALE (Index indicates roll angle against calibrated scale. Scale has minor markings at 10°, 20°, 45° and major markings at $30^{o}$and 60°
4. HORIZON AND PITCH SCALE TAPE (Scale marks above horizon: 5, 10, 15, 20, 30, 50, 70, 90 degrees. Below: 3, 10, 15, 20, 30, 50, 70, 90 degrees)
5. SIMBOLIC AIRPLANE
6. RUNWAY SIMBOL (Show lateral deviation from localizer beam or VOR radial)
7. COURSE DEVIATION SCALE (Displays expanded center portion of the Course Deviation Scale on the HIS (50). Out side marks represent one dot displacement from localizer beam centerline or VOR radial)
8. FLIGHT DIRECTOR MODE SELECTOR (Has four position):
OFF –– HDG (heading select) –– GYRO (NAV/LOC select) –– APPR (Approach)
9. SLIP INDICATOR

10. PITCH COMMAND CONTROL (permits manual selection of a pitch-up or pitch-down)
11. GLIDE SLOPE SCALE (Fixed scale measures airplane displacement above or below glide slope beam)
12. GLIDE SLOPE POINTER (In parallel with pointer on HSI (see 50)

46. ALTIMETER-1

1. DIGITAL DISPLAY (Show altitude in increments of 100 ft)
2. POINTER (Registers 1000 ft for each rotation)
3. ALTIMETER SETTING WINDOWS (Can be set in millibars or inches/Hg)
4. ALTIMETER SETTING CONTROL

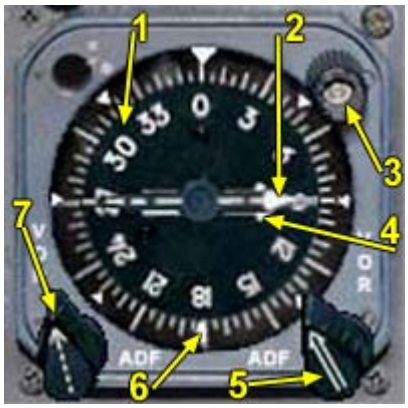
47. LOW RANGE RADIO ALTIMETER

1. POINTER (The range of the altimeter is from 0 feet to 2,500 feet)
2. ADJUSTABLE ALTITUDE TRIP CURSOR (A decision height cursor can be moved about the periphery of the altimeter with the decision height selector, thus selecting the altitude at which a decision height light will illuminate)
3. ADJUSTABLE ALTITUDE TRIP (A decision height selector)
4. PUSH TO TEST BUTTON (Operating the test switch will cause the altimeter to indicate 250$\pm$10 feet and the warning flag to appear)
5. FLAG DISPLAY (When the altimeter is operating properly, the flag is retracted. The cross-hatched warning flag appear with power loss to the instrument, loss of a return radio signal and operation above the altitude range of the equipment)

48. CLOCKS

1. ELAPSED TIME HOURS & MINUTES HANDS
2. ELAPSED TIME SWITCH
3. PUSH BUTTON
4. SWEEP SECOND HAND FLAG
5. LOWER MINUTE REGISTER HAND (controlled by push button)
6. WINDING & SETTING CONTROL

49. GYROSYN COMPASS SYSTEM



1. ROTATING COMPASS GARD
2. NO. 1 ADF / VOR POINTER
3. SYNCHRONIZING KNOB
4. NO. 2 ADF / VOR POINTER
5. NO. 2 ADF / VOR SELESTOR KNOB
6. RECIPROCAL HEADING MARKER
7. NO. 1 ADF / VOR SELESTOR KNOB

50. HORIZONTAL SITUATION INDICATOR

1. COURSE COUNTER (digital readout displays course as set by course selector)
2. COURSE CURSOR (indicates course corresponding to digital readout on course counter)
3. COMPASS GRAD (indicates airplane magnetic heading under lubber line)
4. LUBBER LINE
5. DME INDICATOR (indicates slant range in nautical miles)
6. SYMBOLIC AIRPLANE
7. COURSE DEVIATION SCALE
8. COURSE BAR
9. COURSE SELECTOR
10. HEADING SELECTOR
11. GLIDE SLOPE INDEX
12. GLIDE SLOPE SCALE
13. GLIDE SLOPE POINTER

© 2002 Captain Sim www.captainsim.com

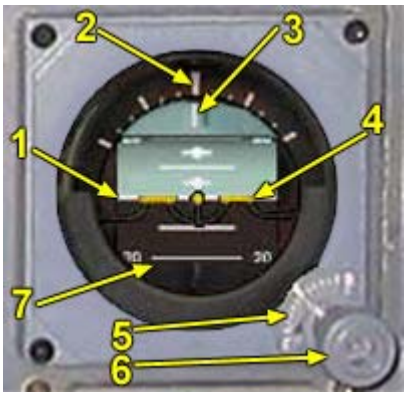
51. VERTICAL SPEED INDICATOR

1. VERTICAL SPEED POINTER
2. VERTICAL SPEED FLAG
3. RA OFF TCAS FLAG
4. AMBIENT LIGHT SENSOR

52. ALTIMETER-2

1. DIGITAL DISPLAY (show altitude in increments of 100 ft)
2. POINTER (registers 1000 ft for each rotation)
3. ALTIMETER SETTING WINDOWS (display altimeter setting in millibars and inches of mercury)
4. SELECTOR KNOB,
5. BAROMETRIC SETTING KNOB (set barometric pressure reference in millibars and inches of mercury)
6. ALTITUDE REFERENCE "BUG"

53. STANDBY ARTIFICIAL HORIZON



1. HORIZON BAR
2. BANK SCALE
3. BANK INDICATOR
4. SYMBOLIC AIRPLANE
5. PITCH TRIM SCALE
6. PITCH TRIM AND GARD CAGING CONTROL
7. HORIZON DRUM

© 2002 Captain Sim www.captainsim.com

54. CONTROLS / TRIMMER POSITION INDICATORS

1, 3, 4, 6. CONTROLS / TRIMMER POSITION INDICATOR
Show positions of left (6) and right (4) elevators and upper (3) and lower (1) rudders when airplane power is on the bus or autopilot ground test switch is in the GRD TEST position when using EXT or APU power.

2, 5. YAW DAMPER WARNING FLAGS.
Flag is in view when respective yaw damper is disengaged

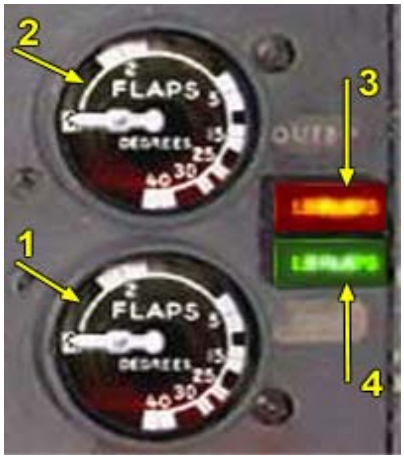
Click on the gauge to switch to trimmer position indicator. Blue flag indicates trimmer position mode is ON.

73. LANDING GEAR ANNUNCIATOR PANEL

1. LANDING GEAR DOOR WARNING LIGHT (Red).
ON – Any gear door open.
2-4. LANDING GEAR DISAGREEMENT LIGHT (3 Red).
ON – gear not locked in landing gear lever position selected or any thrust lever retarded with gear up. Also illuminates if landing gear lever moved out of down detent with aircraft on ground.
5-7. LANDING GEAR DOWN AND LOCKED INDICATOR LIGHT (3 Green).
ON – gear locked down.

74. MASTER WARNING LIGHT (flashing red)
ON – WHEN essential ac bus not energized.
PUSH – extinguishes light on center panel. Will not extinguish power failure warning light on third crewman's upper panel.

75-78. FLAP POSITION INDICATORS and **LEADING EDGE FLAP LIGHTS**



Range marks indicate acceptable needle deviation from selected flap position. Asymmetry protection stops hydraulic drive if needless separate approximately 1 to 3 needle widths.

AMBER ILLUMINATED
- Any leading edge device in transit.
- At flap lever position 2, leading edge device 2, 3, 6 or 7 not extended.

GREEN ILLUMINATED
- At flap lever position 2, stats 2, 3, 6 & 7 fully extended.
- At any other flap lever position, all leading edge flaps and stats fully extended.

No Light – All leading edge flaps and stats retracted

1. FLAP POSITION INDICATOR
2. FLAP POSITION INDICATOR
3. AMBER ILLUMINATED (any leading edge device in transit, at flap level position 2, leading edge device 2,3,6 & 7 not extended)
4. GREEN ILLUMINATED (at flap level position, stats 2 & 3, 6 & 7 7 fully extended, At any other flap level position, all leading edge flaps and stats fully extended)

79-81. LOW OIL PRESSURE and OIL FILTER BYPASS display caution lights (Amber)
Normally the lights should extinguish during engine start.

84. SPEEDBRAKE LEVER
Selects flight spoilers in flight and both flight and ground spoilers on the ground.

RADIO PANEL

1 VHF NAVIGATION AND DME SYSTEMS
- 1.1 FREQUENCY SELECTOR
- 1.2 FREQUENCY INDICATOR
- 1.3 VOLUME CONTROL

2 ATC TRANSPONDER
- 2.1 FUNCTION SELECTOR
- 2.2 DISPLAY WINDOW
- 2.3 TCAS DISPLAY RANGE SELECTOR
- 2.4 IDENT PUSHBUTTON
- 2.5 ALTITUDE SOURCE SELECTOR
- 2.6 CODE SELECTOR KNOBS

3 AUDIO SELECTOR PANELS
- 3.1 TRANSMITTER SELECTORS
- 3.2 COMMUNICATIONS RECEIVE SWITCHES
- 3.3 ADF1 - ADF2 SELECTOR
- 3.4 R/T - I/C SWITCH (spring-loaded to neutral)
- 3.5 MASK / BOOM MICROPHONE SWITCH
- 3.6 FILTER SELECTOR

4 ADF. FORWARD OR AFT ELECTRONIC CONTROL PANEL
- 4.1 LOOP CONTROL
- 4.2 BEAT FREQUENCY OSCILLATOR (BFO) SWITCH
- 4.3 TUNING CONTROL
- 4.4 VOLUME CONTROL
- 4.5 FREQUENCY INDICATOR
- 4.6 TUNING METER
- 4.7 FUNCTION SELECTOR
- 4.8 FREQUENCY BAND SELECT

AUTOPILOT CONTROLS PANEL

1. AUTOPILOT MODE SELECTOR
MAN – Autopilot holds a constant airplane heading and pitch attitude, which can be changed with the turn and pitch controller. The mode selector will spring load from any mode to MAN if the turn controller is not centered.

NAV / LOC – The autopilot will fly the airplane at the existing heading near the course selected until on the captain's instruments. Airplane will then turn to and track the selected course. Automatic crosswind compensation is provided. During passage over a VOR station the autopilot hold the existing heading.

AUTO G/S - The autopilot glide slope mode is armed and will fly the airplane on the localizer until intercepting the glide slope. The pitch controller controls attitude. The glide slope mode is now engaged and will pitch the airplane down and fly the glide slope, while the autopilot the memorizes the rate of descent. After glide slope engaged, the roll and pitch sensitivities are reduced at 1500' on the radar altimeter to compensate for beam convergence. Automatic crosswind compensation is provided. After glide slope engaged, the pitch controller is ineffective.

MAN G/S – Same as AUTO G/S except the airplane will seek and engaged the glide slope from above or below. Pitch controller is ineffective.

2. AUTOPILOT TURN AND PITCH CONTROLLER – controls the airplane angle of bank and rate of pitch change.

3, 4 AUTOPILOT OF AILERON AND ELEVATOR SWITCHES – Engage autopilot roll pitch axis. Will not engage unless a yaw damper engaged and interlock circuit satisfied. Elevator switch will not stay engaged unless aileron switch engaged.

5. ALTITUDE HOLD SWITCH
ALT HOLD - Autopilot holds constant airplane altitude if elevator switch engaged. Pitch controller is ineffective. On APPR AUTO switch trips OFF when glide slope engages.

6. PITCH CHANNEL SELECTOR
A – Selects hydraulic system A to power autopilot command signals to the left elevator (right elevator acts as a slave).
B – Selects hydraulic system B to power autopilot command signals to the right elevator (left elevator acts as a slave).

7. HDG (HEADING SELECT) – When engaged the autopilot will turn the aircraft to and hold the heading selected on the captain's present heading selector. Effective in MAN and NAV/LOC mode prior to course capture.

OVERHEAD PANEL

1. Aileron switch (system A)
2. Aileron Switch (System B)
3. Spoiler switch (system b) *
4. Spoiler switch (system a) *
5. Elevator switch (system a)
6. Elevator switch (system B)
7-8. Lower rudder switches (standby and system A) *
9. Upper rudder switches (system b) *
10-11. Yaw damper switches *
12. Flight control warning test switch *
13. Anti-skid test switch *
15. Nose gear brake and anti-skid switch *
16. Main gear and anti-skid switch *

14,17-20. (Nose, OUTBD & INBD LEFT and Right) Brake release indicator *
21. Stall warning off light (amber) *
22. Test indicator *
23. Stall warning switch *
24. Flight recorder – off light (Amber)
25. Test light
26. Altitude warning system
27. Altitude warning test switch
28. The #2 compass system switch
29. The #1 compass system switch
30-31. The control stand hooded floodlights
32-33. Rain repellent switches (left and right) *
34. Windshield wiper switch *

35. Emergency exit lights unarmed (armed) *
36. Emergency exit lights switch
37. Cockpit door indication light switch
38. The ignition system switch
39. Engine access door light *
40-42. Engine start switches *
43-46. Window heat power on lights (green) *
47-50. Window overheat lights (amber) *
51-54. Window heat switches *
55. Window heat test switch *
56. Alternate flaps master switch *
57-58. Alternate flaps switches *
59. Anti-ice duct temperature indicator *
60. Anti-ice duct overheat light (amber) *
61. Anti-ice duct temperature selector.
62. Cabin attendant call switch *
63. Cabin attendant call light (blue) *
64. No smoking switch *
65. Fasten seat belts switch *
66. Ground crew call switch *
67. Microphone *
68. Test jack *
69. Test switch *
70. Monitor *
71. Erase switch *
72. Wing anti-ice switch *
73. Temperature symbol *
74. Wing anti-ice valve position light (green) *
75. Temperature symbol *
76. Anti-ice valve position light selector *
77-79. Engine inlet anti-ice valve positions lights (green) *
80-82. Engine inlet anti-ice switches *
83. Ammeters *
84. Pitot static heat ammeters selector *
85. Left pitot static heat switch *
86. Hearer off light (amber) *
87. Right pitot static heat switch *
88. Map light *
89. Left fwd & side panel lights *
90. Centre fwd panel lights *
91. Fwd panel background lights *
92. Compass light *
93. Fwd panel fluor lights *
94. Overhead panel lights *
95. Control stand red lights *
96. Control stand white lights *
97. Light override switch *
98. Right fwd & side panel lights *
99. Map light *
100. Dome red *
101. Dome white *
102-105. Landing lights switches *
106. Taxi light switch *
107-108. Runway turnoff left and right switches *
109. Navigation lights switches *
110. Beacon (anti-collision) light switch *
111. Wing illumination lights switch *
112. Main wheel well lights switch *

NOTE: * - See detailed description

FLIGHT CONTROL HYDRAULIC SHUTOFF SWITCHES

OFF – Shuts off respective hydraulic system pressure to designated flight controls

3. SPOILER SWITCH (system B)
OFF – Shuts off system B hydraulic pressure to inboard flight spoilers.

4. SPOILER SWITCH (system A)
OFF – Shuts off system A hydraulic pressure to outboard flight spoilers.

7-8. LOWER RUDDER SWITCHES (standby and system A)
Switches and guards ganged together.
GUARDS UP, SWITCHES UP – Shuts off system A hydraulic pressure to lower rudder.
Turn on Standby System Pump.

9. UPPER RUDDER SWITCHES (system B)
OFF – Shuts off system B hydraulic pressure to upper rudder.

10-11. YAW DAMPER SWITCHES
ON- Engages upper and lower yaw damper system.
OFF – Disengages respective yaw damper system.

12. FLIGHT CONTROL WARNING TEST SWITCH
SAFETY RELAY BYPASS.
Air sensor signal bypassed so that the in-flight speed brake flap position warning system (intermittent horn) can be checked on the ground.

© 2002 Captain Sim www.captainsim.com

ANTI-SKID SYSTEM

13. ANTI-SKID TEST SWITCH
INBOARD AND NOSE – IND & NOSE indicators BLANK, OUTBD indicator REL
OUTBD AND NOSE – IND & NOSE indicators BLANK, INBOARD indicator REL

15. NOSE GEAR BRAKE AND ANTI-SKID SWITCH
System deactivated.

16. MAIN GEAR AND ANTI-SKID SWITCH
Turns off anti-skid system.
System active only when landing gear lever is down or the nose gear is not locked up and parking brake is off.

14,17-20. (Nose, OUTBD & INBD LEFT and Right) BRAKE RELEASE INDICATOR
IN AIR (GEAR UP) All blank (System deactivated)
IN AIR (GEAR DOWN) All REL
ON GROUND (Above 15 KTS) - blank
ON GROUND (Below 15 KTS) – NOSE – REL, remainder – blank.
PARKING BRAKE ON – All blank (System deactivated)

STALL WARNING SYSTEM

21. STALL WARNING OFF LIGHT (Amber)
EXTINGUISHED – Normal operation
- During test when using APU or external power.

22. TEST INDICATOR
Rotates during test to indicate reliable inputs from stall warning sensor and flap position transmitter.

23. STALL WARNING SWITCH
Spring loaded to the NORMAL position and locked from the HTR OFF position Pulling the switch will bypass the lock.
HTR OFF – Cuts power to the heater for maintenance purposes.
NORMAL – The system including the vane heater is powered when the airplane landing gear safety sensor is in the air position.
TEST
- with APU or external power.
  1. Off light extinguishes.
  2. Indicator spins.
  3. Control columns shake.
- with airplane power.
  1. Off light remains extinguished.
  2. Indicator spins.
  3. Control columns shake.

32-33. RAIN REPELENT SWITCHES (Left and Right)
Measured amount of repellent sprayed on associated windshield

34. WINDSHIELD WIPER SWITCH
PARK – (Spring loaded to OFF) stows wiper blades.
LOW to HIGH – Controls speed of wipers.

35. EMERGENCY EXIT LIGHTS UNARMED (Armed)
Will be on when emergency exit lights switch is either in the ON or OFF positions, provided the battery switch is on.

STARTING SYSTEM

39. ENGINE ACCESS DOOR LIGHT
The access door for the pneumatic ground service connection.

© 2002 Captain Sim www.captainsim.com

40-42. ENGINE START SWITCHES
Switches have three positions: GROUND – OFF – FLIGHT. They are spring – load from the GROUND position to the OFF position, but will remain in FLIGHT, if selected. The FLIGHT position is used for inflight starting.

WINDOW HEAT

43-46. WINDOW HEAT POWER ON LIGHTS (Green)
ILLUMINATED – Power being applied to window.

47-50. WINDOW OVERHEAT LIGHTS (Amber)
ILLUMINATED – Respective window overheated. Power removed.

51-54. WINDOW HEAT SWITCHES
ON: R-1 - Power to windows R-1, R-4, R-5
R-2 - Power to windows R-2, R-4, R-5
L-1 - Power to windows L-1, L-4, L-5
L-2 - Power to windows L-2, L-4, L-5
OFF/RESET:
- Removes power
- Extinguishes overheat

55. WINDOW HEAT TEST SWITCH
Both test positions require window heat switches to be ON.
POWER ON TEST – Verifier power circuit to each window (4 green)
OVERHEAT TEST – Simulates overheat in control unit. Overheat lights illuminate (4 amber).

56. ALTERNATE FLAPS MASTER SWITCH
Operates bypass valve for inboard and outboard trailing edge flaps and slats. Turns on Standby System pump.
Arms alternate flap switches

57-58. ALTERNATE FLAPS SWITCHES
DN (DOWN) – Electrically extends trailing edge flaps. Hydraulically extends leading edge flaps and slaps using Standby System.
UP – Electrically retracts trailing edge flaps only.

62. CABIN ATTENDANT CALL SWITCH
Momentarily pressed illuminates forward and aft pink master call lights and sounds two-tone (hi-low) chime.

63. CABIN ATTENDANT CALL LIGHT (Blue)
Illuminates and single-tone chime sounds in cockpit while captain call switch is pressed at either attendant's panel.

64. NO SMOKING SWITCH
ON – Illuminates signs of passenger service units and sounds a single low tone chime over PA system.
Also Illuminates (dim) the emergency exit lights.

65. FASTEN SEAT BELTS SWITCH
ON – Illuminates signs of passenger service units and a RETURN TO SEAT sign in each lavatory. Sounds a single low tone chime over PA system.

66. GROUND CREW CALL SWITCH
Sounds horn in nose wheel well while switch is pressed.

FLIGHT RECORDER

Maintains a 30-minute record of flight crew communication and cockpit area conversation.

67. MICROPHONE
Pick up all conversation in the cockpit from the time 115V AC is applied to airplane

68. TEST JACK
Plug in headset during test.

69. TEST SWITCH
- Connect headset into monitor jack on panel.
- Press test switch 5 seconds and release.
- Tone will be head and monitor needle will indicate while switch is depressed.

70. MONITOR
- Indicator moves during test.
- Monitors four channels: area microphone, Captain's, First Officer's and Third Crewman's headset circuits.
- Monitors last 30 minutes in audio inputs. Inputs older than 30 minutes are automatically erased.

71. ERASE SWITCH
- Will erase tape if airplane is on the ground and parking brakes set.
- Hold erase switch a minimum of 7 seconds
- Erases all four channels together.

WING & ENGINE ANTI – ICE

59. ANTI-ICE DUCT TEMPERATURE INDICATOR
Temperature indication as determined by duct temperature selector.

60. ANTI-ICE DUCT OVERHEAT LIGHT (Amber)
ILLUMINATED – Excessive temperature if left or right wing anti-ice supply or duck.
- Engine 2 cowl duct.
- Independent of duct temperature selection.

61. ANTI-ICE DUCT TEMPERATURE SELECTOR.
Determines source of temperature displayed by duct temp indicator.
ENG 1 – Wing anti-ice left supply duct temperature.
ENG 2 – Engine 2 cowl duct temperature.
ENG 3 – Wing anti-ice right supply duct temperature.

72. WING ANTI-ICE SWITCH
GRD TEST – Spring loaded to close. Opens wing anti-ice valves on ground for test
OPEN – Opens wings anti-ice valves in flight.

73. TEMPERATURE SYMBOL
Location of Eng 1 and Eng 3 anti-ice supply duct temperature sensors.

74. WING ANTI-ICE VALVE POSITION LIGHT (Green)
ILLUMINATED – Both wings anti-ice valves in the Engine 1 supply duct agree with the Eng 1 wing anti-ice switch position.

75. TEMPERATURE SYMBOL
Location of Eng 2 cowl anti-ice duct temperature and overheat sensors.

76. ANTI-ICE VALVE POSITION LIGHT SELECTOR
Select valves to be checked y the valve position lights.
L – Left inlet valve; Engine 1,2 and 3.
COWL – Cowl valve; Engines 1and 3 – cowl shutoff valve and high pressure valve; Engine 2.
R - Right inlet valve; Engine 1,2 and 3.
WING – Both wing shutoff valves and both wing high stage valves.

77-79. ENGINE INLET ANTI-ICE VALVE POSITIONS LIGHTS (Green)
ILLUMINATED – Valve position agrees with switch position.

80-82. ENGINE INLET ANTI-ICE SWITCHES
OPEN – Opens all engine anti-ice valves for respective engine.

© 2002 Captain Sim www.captainsim.com

PITOT STATIC HEAT

83. AMMETERS
Current for selected units.

84. PITOT STATIC HEAT AMMETERS SELECTOR
Select input in ammeters:
AUX P – Auxiliary pitot.
STATIC – Static ports
P – pitots
T PROBE – Total air temperature probes
ELEV P – Elevator feel system pitots

85. LEFT PITOT STATIC HEAT SWITCH
ON – Applies heat to:
Left pitot
Left static ports
Left temperature probe
Left elevator feel system pitot.

86. HEARER OFF LIGHT (Amber)
ILLUMINATED
- Pitot static heat switch OFF.
- Pitot static heat switch ON and left or right pitot probe heater inoperative.

87. RIGHT PITOT STATIC HEAT SWITCH
ON – Applies heat to:
Right pitot
Right static ports
Right temperature probe
Right elevator feels system pitot.
Auxiliary pitot

LIGHTING SYSTEM. COCKPIT LIGHTS CONTROLS

88. MAP LIGHT
Located in the Captain's NO. 4 window.

89. LEFT FWD & SIDE PANEL LIGHTS
Controls integral Instrument illumination on left forward and side panels.
Also controls panel light for first and second observes.

90. CENTRE FWD PANEL LIGHTS
Controls integral Instrument illumination on centre panel.

91. FWD PANEL BACKGROUND LIGHTS
Controls lights located under light shield.

92. COMPASS LIGHT
Controls lights in standby compass

93. FWD PANEL FLUOR LIGHTS
Controls white fluorescent lights under light shield.

94. OVERHEAD PANEL LIGHTS
Controls integral Instrument illumination on overhead panel.

95. CONTROL STAND RED LIGHTS
Controls red floodlights located in overhead panel for illuminating the control stand.

© 2002 Captain Sim www.captainsim.com

96. CONTROL STAND WHITE LIGHTS
Controls white floodlights located in overhead panel for illuminating the control stand.

97. LIGHT OVERRIDE SWITCH
FLIGHT ONLY position – Turn off or prevents turning on the cockpit fluorescent panel lights, white control stand, and white dome lights.
NORMAL position – Allows all white lights to be controlled by there respective light switches.
All WHITE position - turn on the cockpit fluorescent panel lights, white control stand lights to full intensity and allows selection of the dome lights by their switches.
The background lights in the pilots and Second Officer's light shields and the cockpit red lights are not affected by the override switch.

98. RIGHT FWD & SIDE PANEL LIGHTS
Controls integral Instrument illumination on right forward and side panels.

99. MAP LIGHT
Located in the First Officer's NO. 4 window.

100. DOME RED
Controls three red dome lights.

101. DOME WHITE
Controls three white dome lights.

THE LOWER EDGE OF THE LIGHTING SYSTEM

102-105. LANDING LIGHTS SWITCHES
LANDING, INBOARD Left and Right and LANDING, OUTBOARD Left and Right lights provides high intensity lighting for takeoff and landing.

106. TAXI LIGHT SWITCH

107-108. RUNWAY TURNOFF Left AND Right SWITCHES
The lights provide ground roll illumination.
Do not illuminate LANDING and RUNWAY TURNOOF lights for more than 5 minutes while stationary on the ground.

109. NAVIGATION LIGHTS SWITCHES
Navigation lights, red Left and green Right, are provided in the outboard edge of each wing.
ON – lights are powered by 28 V AC. (The ON position will be used for all flight operations)
ON BAT - lights are powered by 28 V DC.

110. BEACON (Anti-Collision) LIGHT SWITCH
The beacon lights on the top and button of fuselage, provide high intensity red flashes, as a proximity warning of the aircraft.

111. WING ILLUMINATION IIGHTS SWITCH
Two wing illumination lights are mounted flush with the fuselage and forward of the wing leading edge.

112. MAIN WHEEL WELL LIGHTS SWITCH
NORMAL – The wheel well lights are controlled by the switch in each respective wheel well.
ON - The wheel well lights will be on regardless of the switch position in the wheel well.

© 2002 Captain Sim www.captainsim.com

SECOND OFFICER PANEL

AIR CONDITIONING & PRESSURIZATION PANEL

ELECTRICAL POWER PANEL

HYDRAULIC SYSTEMS PANEL

FUEL SYSTEM PANEL

1. Dc voltmeter *
2. Dc ammeter *
3. Dc meters selector *
4. Battery switch *
5-7. Generator drive disconnect switch *
8-10. Generator drive low pressure light (amber)
11-13. Generator drive temperature switch*
14-15. Galley power switches *
16. External power switch *
17. External power connected light (clear) *
18-20. Generator drive oil temperature indicator
21. Essential power selector *
22-24. Bus the breaker light (amber) *
25-27. Bus tie breaker switch *
28-30. Generator breaker light (amber) *
31-33. Generator breaker switch *
34-36. Generator field light (amber) *
37-39. Generator field switch *
40. Essential power failure warning light (red) *
41. Residual volts switch *
42. Ac voltmeter *
43. Frequency indicator *
44. KVAR switch *
45-47. Power meter *
48-50. Frequency control knob *
51-52. Synchronizing light (clear) *
53. Ac meters selector *
54-57. Fuel aft boost pump switch *
58-61. Fuel fwd boost pump switch *
62-69. Fuel boost pump low pressure light (amber) *
70-72. Fuel quantity indicator test switch *
73-75. Fuel tank quantity indicator *
76-78. Fuel crossfeed manifold valve in transit light (blue) *
79-81. Engine fuel shutoff valve in transit light (blue) *
82-84. Fuel crossfeed manifold valve switch *
85-86. Engine fuel shutoff valve switch *
87-89. Fuel heat. Icing eng. 1,2,3 lights (amber)
90-91. Fuel heat. Valve in transit eng. 2,3 lights (green)
92. Flight crew oxygen pressure indicator
93. Passenger oxygen pressure indicator
94. Passenger oxygen switch *
95. Oxygen pressure indicating light (amber) *
96. Auto pack trip cutout switch *
97. Valve position indicator *
98. Zone control switch *
99. Zone temperature overheat light (amber) *
100. Cargo heat outflow switch *
101. Gasper fan switch *
102. Air conditioning pack reset switch *
103-104. Cooling doors switch
105-106. Cooling doors position indicator *
107. Pack temperature indicator *
108. Pack temperature indicators *
109. Pneumatic duct pressure indicator *
110. Auto pack trip armed light (green) *
111-112. Air conditioning pack switch *
113-114. Pack trip off light (amber) *
115-116. Engines no. 1 /no. 3 bleed air switch *
117-118. Engines no. 1/ no. 3 trip off light (amber) *
119-120. Engine no. 2 bleed air switch (2) *
121. Engine no. 2 overheat light (amber) *
122. Duct overheat reset switch *
123-124. Duct overheat light (amber) *
125-126. Air mix valves indicator *
127-128. Temperature selector *
129. Air temperature indicator *
130. Air temperature selector switch *
131. Cabin altimeter and differential pressure gage *
132. Cabin rate of climb indicator *
133. Cargo door light (amber) *
134. Cabin pressure control indicator *
135. Manual cabin pressure control indicator *
136. Altitude horn cutout switch *
137-139. Start valve open of engines 1,2,3 lights (amber)
140. Smoke detection system
141. Secondary main landing gear position indicate lights (green) *
142. Wing anti-ice auto trip off switch *
143. Wing anti-ice auto trip off light (amber) *
144-146. Overheat lights (amber) *
147. Test switch *
148. Clock
149-151. The oil quantity instruments *
152-154. Oil temperature indicators *
155-157. Oil pressure indicators *
158. Oil quantity test
159. Engine vibration indicator.
160. Panel flour switch
161. Control circuit breaker lights
162. Control panel background lights
163. Control panel lights
164. Control table lights
165. Service interphone switch.
166. Second officer's lower instrument panel *
167. Lights test switch
168-169. System a hydraulic fluid shutoff switch *
170-173. Systems A,B pump low pressure light – (amber) *
174-175. System A hydraulic pump switch *
176-177. System B hydraulic pump switch *
178. System A hydraulic overheat light – (amber) *
179. System B hydraulic overheat light – (amber) *
180. Ground interconnect switch *
181. Standby hydraulic system quantity indicator *
182. Standby hydraulic system light – (green) *
183. Standby hydraulic system overheat light –(amber) *
184. System A hydraulic pressure indicator *
185. System B hydraulic pressure indicator *
186. System A hydraulic quantity indicator *
187. System B hydraulic quantity indicator *

© 2002 Captain Sim www.captainsim.com

188. Hud. Brake interconnect light (green)
189. Hud. Brake interconnect switch
190. Oxygen emergency lever
191. Oxygen diluter lever
192. Flow indicator
193. Oxygen supply lever
194. Oxygen mask microphone switch
195. Mic – hand – boom switch
196. Oil cooler selector switch (csd) *
197. No equipment cooling light (amber) *
198. Elevator feel differential pressure light (amber) *
199. Rudder load limiter light *

NOTE: * - See detailed description

ELECTRICAL POWER PANEL

1. DC VOLTMETER
Indicates voltage of selected source.

2. DC AMMETER
Indicates DC current of selected source.

3. DC METERES SELECTOR

BAT - indicate battery current and voltage when no AC power on airplane. Battery charging shows positive voltage.

ESS TR / TR1 / TR2 - indicate transformer-rectifier current and TR bus voltage.

4. BATTERY SWITCH
ON -- battery serves as a buck-up for battery busses.
OFF -- battery isolated from loads except those on hot battery busses, but continues to charge. Trips the APU (if running).

5-7. GENERATOR DRIVE DISCONNECT SWITCH
Disconnect drive from engine and trips generator breaker.

11-13. GENERATOR DRIVE TEMPERATURE SWITCH
RISE – indicates oil temperature increase through generator drive
IN - indicates temperature of oil at in-put.

14-15. GALLEY POWER SWITCHES
ON - galley power available to galleys as selected.

16. EXTERNAL POWER SWITCH
ON - external power on the bus tie. When external power is connected, the generator breakers and APU generator breaker automatically trips for over voltage or phase unbalance faults.
OFF – if external power connected, external power DC bus, battery transfer bus, and external power 115V AC bus powered.
GRD SERVICE - 115V AC transfer bus also powered.

17. EXTERNAL POWER CONNECTED LIGHT (Clear)
ON – ground power available at external power connection.

21. ESSENTIAL POWER SELECTOR

ESSENTIAL POWER SELECTOR is a rotary switch with STANDBY -- APU -- GEN1 -- GEN2 -- GEN3 – EXT PWR position. Any of these source, except STANDBY, can be selected to supply the essential AC bus by manual position of the switch.

Selects power source for essential AC bus. If no fault exists, a generator can supply essential power with the generator breaker tripped. Neither external power nor the APU can supply essential power unless it is on the sync bus and the bus the breaker is closed. In standby position, required flight instruments and radios are powered from battery bus and static inverter.

22-24. BUS THE BREAKER LIGHT (Amber)
ON – bus the breaker open and generator operating isolated.

25-27. BUS TIE BREAKER SWITCH
Opens circuit between respective A.C. bus and bus TIE. Automatically trips due to excitation faults or overload if perspective generator breaker is closed. A phase unbalance on the bus tie will trip all bus tie breakers.

28-30. GENERATOR BREAKER LIGHT (Amber)
ON – generator breaker open and generator disconnected from load bus.

31-33. GENERATOR BREAKER SWITCH
Opens circuit between respective generator and A.C. bus automatically trips due to generator drive speed faults, if the drive is disconnected, or if the generator field is off. Trips on engine shutdown. Closing a generator breaker trips the external power contactor or the APU generator breaker.

34-36. GENERATOR FIELD LIGHT (Amber)
ON – generator field relay open, and generator field deenergized.
Generator electrically inoperative and essential power not available from this source.

37-39. GENERATOR FIELD SWITCH
Turns off generator field. Automatically trips due to
generator voltage faults, differential faults, generator overload, or if engine fire switch pulled.

40. ESSENTIAL POWER FAILURE WARNING LIGHT (Red)
ON – loss of essential power. Master warning light also illuminates.

41. RESIDUAL VOLTS SWITCH
Changes voltmeter scale from 150 to 30 volts. Indicates residual generator voltage to check rotation and proper functioning.

42. AC VOLTMETER
Indicate voltage as selected

43. FREQUENCY INDICATOR
Indicate frequency as selected

44. KVAR SWITCH
Push switch for KVAR.

45-47. POWER METER
Indicates generator real (KW) or reactive (KWAR) load.

48-50. FREQUENCY CONTROL KNOB
Remits frequency adjustment isolated generator.

© 2002 Captain Sim www.captainsim.com

51-52. SYNCHRONIZING LIGHT (Clear)
Connected between the bus tie and the position of the AC meters selector. Blink rate is proportional to frequency differences.

53. AC METERS SELECTOR

AC selector is a rotary switch with APU -- BUS TIE -- GEN1 -- GEN2 -- GEN3 – EXT PWR position. With the switch in any position, the synchronizing lights are connected between that power source the synchronizing bus.

The AC voltmeter and frequency indicator display the voltage and frequency of source selected by the AC meter selector.

FUEL SYSTEM PANEL

54-57. FUEL AFT BOOST PUMP SWITCH
ON – for fuel boost pump operation

58-61. FUEL FWD BOOST PUMP SWITCH
ON – for fuel boost pump operation

62-69. FUEL BOOST PUMP LOW PRESSURE LIGHT (Amber)
Indicates low boost pump discharge pressure from respective pump.

70-72. FUEL QUANTITY INDICATOR TEST SWITCH
Respective quantity indicator display will change to 0 quantity and indicate ERR after to 10 seconds. Upon release system will self test and return to normal fuel quantity reading.

73-75. FUEL TANK QUANTITY INDICATOR
Indicates usable fuel in respective tank.

76-78. FUEL CROSSFEED MANIFOLD VALVE IN TRANSIT LIGHT (Blue)
ON – during respective valve transit
OUT – after valve attains new position.

79-81. ENGINE FUEL SHUTOFF VALVE IN TRANSIT LIGHT (Blue)
ON – during respective valve transit.
OUT – after valve attains new position.

82-84. FUEL CROSSFEED MANIFOLD VALVE SWITCH
Switch shown closed. Bar align with fuel flow line when open.
OPEN – opens valve to crossfeed manifold to supply fuel to other engines from respective tank.

85-86. ENGINE FUEL SHUTOFF VALVE SWITCH
Operates respective engine fuel shutoff valve. Must be open for engine operation valve overrides closed when respective engine fire switch pulled, or engine start lever in cutoff.

OXYGEN SYSTEM

94. PASSENGER OXYGEN SWITCH
NORMAL – System is armed for automatic activation at 14,000 feet cabin altitude, if properly reset.
ON – Pressurizes passenger oxygen system. Passenger oxygen light illuminates and masks deploy.

95. OXYGEN PRESSURE INDICATING LIGHT (Amber)
ILLUMINATED – Passenger oxygen system is pressurized.
AIR CONDITIONING AND PRESSURIZATION PANEL

96. AUTO PACK TRIP CUTOUT SWITCH
NORMAL – Auto pack trip system will arm for takeoff.
CUTOUT - Auto pack trip system deactivated.

97. VALVE POSITION INDICATOR
Shows position of forward and AFT zone control valves with regard to the relative temperature selected.

98. ZONE CONTROL SWITCH
Controls position of the forward and AFT zone control valves in selecting temperature of AFT zone.

99. ZONE TEMPERATURE OVERHEAT LIGHT (Amber)
ON – indicates forward or AFT zone control supply air temperature is excessive. The respective zone control valve that was open is automatically driven closed. The light wills extinguish and the system will reset when the overheat condition no longer exists.

100. CARGO HEAT OUTFLOW SWITCH
NORMAL – opens cargo outflow valve causing passenger air to flow along the sides of the EFD. Cargo compt. for warming. Automatically close & opens cargo heat outflow valve when pressure outflow valve is 1/2 a degree from closed & 3 – ½ degrees back from closed, respectively.
OFF – valve is closed and no warming air is provided.
NOTE: must be closed to maintain a large cabin differential during single pack operation.

101. GASPER FAN SWITCH
Increases individual air outlet airflow.

102. AIR CONDITIONING PACK RESET SWITCH
Restore normal circuit control of the respective valves following automatic pack or engine bleed air trips. The respective light will extinguish if the over temperature condition no longer exists.

105-106. COOLING DOORS POSITION INDICATOR
Modulates the ram air inlet cooling doors and heat exchanger exhaust doors to control the airflow through the heat exchangers.

107. PACK TEMPERATURE INDICATOR
Indicates air temperature at air cycle machine compressor discharge. Serve as a reference for pack cooling door operation. OPT INFLT temp. 30° – 40° C.

108. PACK TEMPERATURE INDICATORS
Indicates the temperature of the air entering the secondary heat exchanger.

109. PNEUMATIC DUCT PRESSURE INDICATOR
Indicates pneumatic duct pressure sensed at points indicated by dotted lines on panel. Pressure monitored to indicate proper operation of bleed air system, APU, or external air sourc4e for engine starting and air conditioning.

110. AUTO PACK TRIP ARMED LIGHT (Green)
ON – indicates automatic pack shot-down is armed. Light normally on when engine thrust exceeds 1.5 ERD and the flaps are NOT UP. Will not arm in the air.

111-112. AIR CONDITIONING PACK SWITCH
Controls LH/RH pack valves. With the air conditioning pack switch ON, the pack cooling fan will run if the flaps are extended or the airplane is on the ground. If a pack trip has occurred on the ground, the fan will continue to run until trip is reset. Pack switches must be off for engine start.

113-114. PACK TRIP OFF LIGHT (Amber)
ON – indicates pack has tripped off and air temperature is excessive at (1) the compressor discharge, (2) the turbine inlet, or (3) the supply duct.
The pack valve overrides close and then the air mix valve goes to full cold position. Loss of thrust on any engine during takeoff will cause both packs to trip off (if auto pack trip system is armed).

115-116. ENGINES NO. 1 /NO. 3 BLEED AIR SWITCH
Controls bleed air valve. Must be open to start engine. Valve overrides close if the engine fire switch pulled.

117-118. ENGINES NO. 1/ NO. 3 TRIP OFF LIGHT (Amber)
ON – bleed air overheat. Bleed air valve overrides close. Light extinguished by reset button.

119-120. ENGINE NO. 2 BLEED AIR SWITCH (2)
Each switch controls the NO. 2 engine bleed air valve and one crossfeed valve to allow air conditioning operation from engine 2. The NO. 2 engine bleed valve overrides closed if engine fire selector switch is pulled.

121. ENGINE NO. 2 OVERHEAT LIGHT (Amber)
ON – indicates engine NO 2 bleed air overheat.

122. DUCT OVERHEAT RESET SWITCH
Extinguishes duct overheat lights and restores normal control of air mix valves.

123-124. (Control and passenger cabins) DUCT OVERHEAT LIGHT (Amber)
ON – indicates excessive supply duct temperature, air mix valves override full cold.

125-126. (Control and passenger cabins) AIR MIX VALVES INDICATOR
Show relative position of cabin air mix valves.

127-128. (Control and passenger cabins) TEMPERATURE SELECTOR
AUTO – automatic temperature regulator controls temperature of the cabin as selected.
MANUAL – air mix valves controlled manually and automatic temperature regulator bypassed.

129. AIR TEMPERATURE INDICATOR
Indicator shows passengers cabin, supply duct, or pack temperature downstream of water separator as selected.

131. CABIN ALTIMETER AND DIFFERENTIAL PRESSURE GAUGE
Indicates cabin altitude (inside dial) and differential pressure (outside dial)

132. CABIN RATE OF CLIMB INDICATOR
Shows rate of cabin pressure (altitude) changes.

136. ALTITUDE HORN CUTOUT SWITCH
Silences intermittent horn, which sounds if cabin altitude exceeds 10.000 feet.

141. SECONDARY MAIN LANDING GEAR POSITION INDICATE LIGHTS (Green)
Left and Right main landing gear down and locked.

ICE AND RAIN PROTECTION SYSTEMS

142. WING ANTI-ICE AUTO TRIP OFF SWITCH
GROUND TEST – Simulates trip condition.
NORMAL – System armed.
GROUND RESET – Resets trip light and wing anti-ice valves after trip or test. Reset can only be accomplished on the ground.

143. WING ANTI-ICE AUTO TRIP OFF LIGHT (Amber)
ILLUMINATED – Wing anti-ice duct rupture. All wing anti-ice valves close.

ENGINE OIL SYSTEM

149-151. THE OIL QUANTITY INSTRUMENTS
Measured in gallons. Indicate usable quantity of oil remaining.

152-154. OIL TEMPERATURE INDICATORS
Maximum oil temperature for all operating conditions is 120° C

155-157. OIL PRESSURE INDICATORS
The normal operating oil pressure are 45 to 55 PSI

PANEL LIGHTS CONTROLS

166. SECOND OFFICER'S LOWER INSTRUMENT PANEL

1. FWD ENTRY
2. L GEAR DOOR
3. AFT AIRSTAIR
4. CARGO V CLOSED
5. L SERVICE DOOR
6. NOSE GEAR DOOR
7. EQUIP ACCESS
8. AFT ENTRY
9. AFT AIRSTAIR
10. TAIL SLID
11. GALLEY
12. FWD CARGO
13. R GEAR DOOR
14. APU
15. AFT CARGO
16. R SERVICE DOOR

HYDRAULIC SYSTEMS

168-169. SYSTEM A HYDRAULIC FLUID SHUTOFF SWITCH
Except when A malfunction dictates the shutoff switches should not be closed.
Should the pumps be operated under the above condition, the operating time must be logged as maintenance is required.
Overrides closed if engine fire switch is pulled.

170-173. SYSTEMS A,B HYDRAULIC PUMP LOW PRESSURE LIGHT – (Amber)
1. Goes out as pressure increases at 950 – 1450 PSI.
2. Comes on as pressure decreases at 1350 700 PSI
3. Deactivated by engine fire switch.

174-175. SYSTEM A HYDRAULIC PUMP SWITCH
Used to depressurize engine driven pumps.

176-177. SYSTEM B HYDRAULIC PUMP SWITCH
Operate electric motor driven pumps.

178. SYSTEM A HYDRAULIC OYERHEAT LIGHT – (Amber)
Indicates overheat in hydraulic pump return line.

179. SYSTEM B HYDRAULIC OYERHEAT LIGHT – (Amber)
ON – B pump overheating.
OFF – when overheating pump is switched off.

180. GROUND INTERCONNECT SWITCH
1. Allows system **A** operation from system **B** pumps, for ground check-out.
2. Requires external AC power plugged in or APU on bus to open; otherwise will automatically close.

181. STANDBY HYDRAULIC SYSTEM QUANTITY INDICATOR
1. .52 US GAL full *
2. .28 US GAL minimum dispatch quantity.

182. STANDBY HYDRAULIC SYSTEM LIGHT – (Green)
Comes on when standby system is pressurized.
Goes out when standby pressure bleeds off.

183. STANDBY HYDRAULIC SYSTEM OVERHEAT LIGHT –(Amber)
Indicates standby hydraulic fluid overheat.

© 2002 Captain Sim www.captainsim.com

184. SYSTEM A HYDRAULIC PRESSURE INDICATOR

1. 3000 PSI normal operating.
2. 2000 PSI normal operating.
3. 0, if precharge is lost.

185. SYSTEM B HYDRAULIC PRESSURE INDICATOR

1. 3000 PSI normal operating.
2. 2000 PSI normal operating.
3. 0, if precharge is lost.

186. SYSTEM A HYDRAULIC QUANTITY INDICATOR

1. 4.4 US GAL full (gear down).
2. 3.6 US GAL full (gear up).
3. 3.9 US GAL full (gear, flaps up).
4. 3.9 US GAL minimum dispatch quantity

187. SYSTEM B HYDRAULIC QUANTITY INDICATOR

Normally full, if system A quantity over 2.5 US GAL.

196. OIL COOLER SELECTOR SWITCH (CSD)

FLIGHT ON – Turns on cooler ejector in-flight for additional CSD oil cooling.
NORMAL – Cooler off in flight. ON on ground. On causes ejector to pull cooling air across heat exchanger.
GROUND
OFF - Ejector off, automatically resets to normal on takeoff.

197. NO EQUIPMENT COOLING LIGHT (Amber)

ON – indicates no airflow in equipment cooling duct.

198. ELEVATOR FEEL DIFFERENTIAL PRESSURE LIGHT (Amber)

Illuminated when the pressure differential between the two hydraulic outputs from the elevator feel computer to the elevator feel control unit is excessive.

199. RUDDER LOAD LIMITER LIGHT

Illuminated when the lower rudder is in the high pressure configuration with flaps up, or in the low pressure configuration

PANELS

1. FUEL DUMP SYSTEM PANEL

The Fuel Dump lights indicate the selected dump valve is open and are blue. The fuel dump system uses the fuel pump switches on the S/O fuel panel. When operating with all fuel pumps on, the system will dump the fuel to a level of aprox. 3,500 lbs in each tank at a rate of 2,300 lbs per minute.

1.1 FUEL DUMP VALVE IN TRANSIT LIGHT (Blue)
1.2 FUEL DUMP SWITCH
1.3 FUEL DUMP NOZZLE VALVE SWITCH
1.4 FUEL DUMP NOZZLE VALVE IN TRANSIT LIGHT (Blue)

2. E.L.T. (EMERGENCY LOCATOR TRANSMITTER) CONTROL SWITCH.
The red LED will illuminate if the switch is turned to on or if the E.L.T. is triggered from an impact.

3. APU PANEL
3.1 APU MASTER SWITCH
ON – Opens the Fuel Shutoff valve and arms the automatic Start circuit.
START – Energizes the starter motor, activates the automatic start circuit.
OFF – Shuts down the APU.
NOTE: Battery switch is ON, APU Fire Switches closed, Remote APU stop switch is in the NORMAL position; APU Fire Warning Test-Reset switch has been reset.

3.2. GENERATOR BREAKER LIGHT (Amber)
ILLUMINATED – Generator disconnected from synchronous bus.

3.3 GENERATOR BREAKER SWITCH
CLOSE – Connects APU generator to airplane synchronous bus. Closing the APU generator switch will automatically trip the airplane generator breakers or external power contactor.
TRIP – disconnects circuit between APU generator and synchronous bus.

3.4 FIRE SWITCH
When pulled, will arm the respective APU bottle discharge switch, trip the APU generator field relay and close the APU fuel shutoff and bleed air valves.

3.5 FIRE WARNING LIGHT (Red)
ILLUMINATED – indicates tire in APU shroud. Fire alarm bell (in cockpit) and intermittent APU fire warning horn (in nose wheel well) also sound. Master Fire Warning Lights also illuminate.

3.6 GENERATOR FIELD LIGHT (Amber)
ILLUMINATED – Generator field relay open, generator field de-energized.

3.7 GENERATOR FIELD SWITCH
CLOSE – Closes generator field relay and energizes field.
TRIP - De-energizes APU generator field. Automatically trips doe to voltage or differential faults or if APU fire shutdown system is activated. Automatically trips APU generator breaker.

3.8 BOTTLE DISCHARGE SWITCH
Armed only if APU fire switch pulled.

3.9 AUTO FIRE SHUTDOWN ARMING SWITCH
ARMED – A fire warning or test will automatically shutdown APU.
OFF - Automatic shutdown deactivated.
NOTE: If shutdown is initiated by either fire switch or the automatic fire shutdown relay, the fuel shutoff valve will close immediately accompanied by other normal shutdown actions.

3.10 FIRE WARNING TEST-RESET SWITCH
TEST – Heats fire detector to trigger fire warning system.
CAUTION: Limit test time to 60 seconds.
RESET – Will silence fire warning bell and horn and extinguish Master Fire Warning Lights. When APU Fire Warning Light is extinguished, resets automatic fire shutdown to allow starting the APU.

3.11 APU AMMETER
Indicates APU or external power current flow.

3.12 EGT INDICATOR
Green band indicates normal operating range, yellow band indicates caution range. Red line indicates maximum temperature.

4. LEADING EDGE DEVICER ANNUNCIATOR PANEL
4.1 – TEST SWITCH
LIGHT TEST – Illuminates all lights
POSITION TEST –
Amber – Flap or slat in transit.
Green - Flap or slat extended.
No light - Flap or slat retracted.
4.2 - LEADING EDGE FLAP AND SLAT LIGHTS