

Bombardier Dash 8Q-400 Flight Tutorial



Flight Preparation

After setting up the tutorial route from San Diego to Los Angeles select the Bombardier Dash 8Q-400 (short Q400) in the fresh green or colorful celebration Horizon livery and use the location dialog to place the aircraft in San Diego on the ramp (white aircraft symbol).

In the control settings in the Autopilot section we need to assign a key/button to the TOGA button ("Take off / go around mode"), because we will need this button later.

Move the throttle to idle and if you have your condition levers assigned, move them all the way forward now. Then press "Start" to begin the flight.

Introduction To The Flightdeck

Take your time and look around the Cockpit for a bit. Directly in front of the pilot two monitors can be found. The left one is the primary flight display (PFD) and the right one is the navigation display (ND).

The PFD displays, left to right, the current airspeed, the attitude, the altitude and the vertical speed. In the lower half of the display you find the horizontal situation indicator (HSI)

Engine Start

You can skip this part if you don't want to do this, the engines should already be running at this point. But if you want to start the engines for yourself go ahead and move your condition levers all the way down to FUEL OFF.

* Item should be completed by default

Engine Start procedure					
No.	Location	Panel Name	Action		Remarks
1	Pedestal	Throttle Quadrant	PARKING BRAKE	ON	*
2	Overhead	EXTERNAL LIGHTS	ANTI COLLISION	ON RED	
3	Overhead	Signs	EMERGENCY LIGHTS	ARM	*
4	Overhead	Signs	FASTEN BELTS	ON	*
5	Overhead	Signs	NO SMOKING	ON	*
6	Overhead	ICE PROTECTION	ENGINE INTAKE 1&2	SET OPN	Press each button 1x
6	Overhead	AIR CONDITIONING	RECIRC	ON	
7	Overhead	AIR CONDITIONING	BLEED 1&2	OFF	*
8	Overhead	APU	PWR	ON	Wait for self test
9	Overhead	APU	START	ON	Wait for green RUN
10	Overhead	APU	GEN	ON	
11	Overhead	APU	BLEED AIR	OFF	*
12	Overhead	DC CONTROL	MAIN BUS TIE	ON	
13	Overhead	ENGINE START	IGNITION L&R	NORM	*
14	Overhead	ENGINE START	SELECT	1	
15	Overhead	ENGINE START	START	PUSH	
16	Pedestal	Throttle Quadrant	PROP LEVER 1	START & FEATHER	Wait for starter cut out (50% NH)
17	Overhead	ENGINE START	SELECT	2	
18	Overhead	ENGINE START	START	PUSH	
19	Pedestal	Throttle Quadrant	PROP LEVER 2	START & FEATHER	Wait for starter cut out (50% NH)

After Start procedure					
No.	Location	Panel Name	Action		Remarks
1	Overhead	APU	GEN	OFF	
2	Overhead	APU	PWR	OFF	
3	Overhead	DC CONTROL	MAIN BUS TIE	OFF	

Taxi

We're now preparing the aircraft for taxi and takeoff.

Taxi preparations					
No.	Location	Panel Name	Action		Remarks
1	Pedestal	Throttle Quadrant	PROP LEVER 1&2	MAX 1020	

Taxi preparations					
No.	Location	Panel Name	Action		Remarks
2	Pedestal	Throttle Quadrant	ELEVATOR TRIM	SET T.O.	Within white TO Range
3	Pedestal	TRIM	AILERON TRIM	SET NEUTRAL	*
4	Pedestal	TRIM	RUDDER TRIM	SET	Slight right trim
5	Overhead	AIR CONDITIONING	BLEEDS	ON/MIN	
6	Pedestal	PROPELLER CONTROL	AUTOFEATHER	SELECT	
7	Pedestal	Throttle Quadrant	FLAPS	FLAP 5°	
8	Pedestal	FUEL CONTROL	TANK 1&2 AUX PUMP	ON	
9	Front Panel	HYDRAULICS	STBY HYD PRESS	ON	
10	Front Panel	HYDRAULICS	PTU CTRL	ON	
11	Front Panel	HYDRAULICS	HYD #3 ISOL VLV	ON	
12	Pilot Panel	Switching Panel	STEERING	OFF	
13	Pedestal	Throttle Quadrant	CONTROL LOCK	OFF	*
14	FLT-CTL	Rudder Pedals	RUDDER	FULL TRAVEL	
15	FLT-CTL	Control Column	ELEVATOR	FULL TRAVEL	
16	FLT-CTL	Control Wheel	AILERON	FULL TRAVEL	
17	Pedestal	Throttle Quadrant	CONTROL LOCK	ON	
18	Pilot Panel	Switching Panel	STEERING	ON	
19	Front Panel	HYDRAULICS	HYD #3 ISOL VLV	OFF	
20	Overhead	ICE PROTECTION	ENGINE INTAKE 1&2	SET OPN	Press each button 1x
21	Overhead	ICE PROTECTION	PITOT STATIC	ON 3x	*
22	Overhead	ICE PROTECTION	PITOT STATIC ISOLATION VALVE	ON (ISO)	
23	Glareshield	Right side	ANTI SKID	ON	*

Release parking brake advance the power lever to start moving. Start taxiing to runway 27.

During Taxi					
No.	Location	Panel Name	Action		Remarks
1	FLT-CTL	Pedals	BRAKES	TEST	
2	Pedestal	ENGINE CONTROL	RDC TOP TRQ	PRESS up to 5x	Optional for reduced power takeoff, recommended: 2x for 4% reduction
3	Glareshield	Autopilot	YD (YAW DAMPER)	ON	
4	(assigned key/button)	Autopilot	TOGA button	PRESS	
5	Glareshield	Autopilot	ALT SEL	PRESS	
6	Glareshield	Autopilot	SELECTED ALTITUDE	SET INITIAL ALT	CRZ ALT 15000ft for this tutorial
7	Glareshield	Autopilot	HDG	PRESS	
8	Glareshield	Autopilot	SELECTED HEADING	SET RWY	HDG 273° for this tutorial
9	Glareshield	Autopilot	NAVIGATION SOURCE	SET FMS1	*

During Taxi					
No.	Location	Panel Name	Action		Remarks
10	Front Panel	PFD	DH/MDA SELECTOR	SET TO MDA EDIT	Turn outer knob to the right
11	Front Panel	PFD	DH/MDA INCREMENT	SET MDA (Elevation + 1500ft)	Turn inner knob to the left until the MDA on the PFD displays 1500 ft
11	Front Panel	PFD	V-SPEEDS	SET	*
12	Pilot Panel	Switching Panel	T/O WARN TEST	ON then OFF	No audible warning should sound

Entering The Runway

Runway entry procedure					
No.	Location	Panel Name	Action		Remarks
1	Pedestal	Throttle Quadrant	CONTROL LOCK	OFF	*
2	Overhead	EXTERNAL LIGHTS	ANTI COLLISION	ON WHITE	
3	Overhead	EXTERNAL LIGHTS	LANDING	ON	
4	Overhead	EXTERNAL LIGHTS	FLARE	ON	
5	Overhead	AIR CONDITIONING	BLEEDS	AS REQUIRED	ON/MIN
6	Front Panel	PFD	CHECK AFCS MODES: HDG SEL, GA + ALT SEL	SET/CHECKED	HDG 273° set, flight director visible and shows 9 deg pitch
7	Pilot Panel	Switching Panel	STEERING	OFF	Once lined up

We have now reached the takeoff configuration. When you set the aircraft onto the runway using the location dialog in the main menu almost all the steps above will be completed already.

Takeoff

Advance your throttle levers fully forward to set the pre-selected takeoff power. Maintain the aircraft on the center line using the rudder. When the airspeed on the PFD reaches VR easy the nose up gently and rotate with about 3° of pitch rate. Positive rate - Gear up! Fly a speed about 10kts above V2 and engage the autopilot if desired. The autopilot will switch to PITCH HOLD mode which can be controlled with the vertical wheel in the center of the autopilot panel if necessary. Scrolling with the mousewheel will lower the nose and allow speed to increase or increase the pitch attitude and slow the aircraft down. Monitor the indicated speed and correct the selected pitch as necessary.

After Takeoff

In the initial climb phase up to about 1000ft there isn't much to do if the autopilot is flying. Use the rudder trim to reduce the slip angle as indicated on the PFD at the top of the attitude indicator.

At 1000ft above the airport press the "NAV" button on the autopilot panel. With the already selected navigation source "FMS1" this will tell the autopilot to follow the planned lateral flight plan. Check if "LNAV" is engaged in the top left corner of the PFD. If you already deviated from the flight plan too

much the autopilot will select the mode "LNAV HDG SEL". To fix this make an adjustment to the selected heading and turn it towards the route. Upon reaching the route the autopilot should switch to "LNAV".

When reaching the MDA (1500ft above airport) press the "IAS" button on the autopilot panel. Then use the vertical wheel to increase the selected airspeed to 210 kts. When the aircraft is accelerating though V-FRI (Flap Retraction Indicated speed) the flaps can be selected to up. Set climb power by reducing the condition levers to 900 and continue the climb. Re-trim the aircraft with rudder trim if the slip indicator on the PFD isn't centered.

After Takeoff procedure					
No.	Location	Panel Name	Action		Remarks
1	Front Panel	LANDING GEAR	LANDING GEAR	UP	
2	Pedestal	Throttle Quadrant	FLAPS	ZERO	Above V-FRI
3	Pedestal	Throttle Quadrant	PROP LEVER 1&2	900	
4	Overhead	AIR CONDITIONING	BLEEDS	ON/NORM	
5	Front Panel	HYDRAULICS	STBY HYD PRESS	OFF	
6	Front Panel	HYDRAULICS	PTU CTRL	OFF	
7	Pedestal	PROPELLER CONTROL	AUTOFEATHER	OFF	
8	Pedestal	FUEL CONTROL	TANK 1&2 AUX PUMP	OFF	
9	Pedestal	TRIM	RUDDER TRIM	AS REQUIRED	Center the slip indicator

Climb

Above transition altitude (18,000ft in USA, about 5,000ft in Europe) push the BARO SET knob left of the PFD. This will set the pressure to 1013 hPa or 29.92 InHg (which at the current development state it already is). In this tutorial this won't be necessary as we are flying in the USA but stay below the 18 thousand feet anyway.

Cruise

Descent preparation

Descent

Approach

Landing

After landing

Parking

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