NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

February 2, 2015

Attachment 27 – B747 Normal Takeoff Procedures

OPERATIONAL FACTORS

DCA13MA081

Before Takeoff Procedure

C	F/O
When cleared for Lineup / Takeoff, before entering the departure runway, both pilots verify that the runway and runway entry point are correct.	
	Notify cabin to prepare for takeoff. Verify that the upper deck is secure.
Select WXR or TERR as needed	
Call "Final Items"	Complete "Final Items" and checklist before crossing the Hold Short line.
When cleared for takeoff, set the inboard LANDING lights switches to ON	When entering the departure runway, set the STROBE light switch to ON. Use other lights as needed. Position transponder mode selector to TA/RA.
Verify that the airplane heading agrees with the assigned runway heading.	
PF	**PM**
Advance the thrust levers to approximately 70% N1. Allow the engines to stabilize. Push the TO/GA switch.	
Verify that the correct takeoff thrust is set.	
	Monitor the engine instruments throughout takeoff. Call out any abnormal indications. Adjust takeoff thrust prior to 80 knots as needed. During strong headwinds, if the thrust levers do not advance to the planned takeoff thrusts, manually advance the thrust levers before 80 knots.
After takeoff thrust is set, the captain's hand must be on the thrust levers until V1.	
Monitor airspeed. Maintain light forward pressure on the control column.	Monitor airspeed indications and call out any abnormal indications.
Verify 80 knots and call "CHECK".	Call "80 KNOTS thrust set".
Verify V1 speed.	Verify the automatic V1 callout or call "V1".

PF	PM
At VR rotate toward 15° pitch attitude. After liftoff, follow F/D commands.	At VR, call "ROTATE". Monitor airspeed and vertical speed.
Establish a positive rate of climb.	
	Verify both the altimeter and vertical speed displays show a positive rate of climb and call "POSITIVE CLIMB"
Verify a positive rate of climb on the altimeter and call "GEAR UP".	
	Set the Landing Gear lever to UP.
Above 400 feet radio altitude, call for a roll mode as needed.	Select or verify the roll mode. Verify VNAV engaged.
Verify that climb thrust is set.	
Verify acceleration at the acceleration height. Call "FLAPS____" according to the flap retraction schedule.	Position Flap lever as directed. Verify VNAV page selected on PF's CDU
	Set the Landing Gear lever OFF after landing gear retraction is complete. Verify air conditioning packs operating.
At Flaps Up speed, call "FLAPS UP, AFTER TAKEOFF CHECKLIST".	After flap retraction is complete: Do the AFTER TAKEOFF checklist.

Flap Retraction Schedule

Takeoff Flaps	At Speedtape "Display"	Select Flaps
20	"10" "5" "1" "UP"	10 5 1 UP
10	"5" "1" "UP"	5 1 UP
Above 309,000 kgs limit bank angle to 15° with flaps up until reaching UP + 20 knots.		

Climb and Cruise Procedure

Complete the After Takeoff Checklist before starting the Climb and Cruise Procedure.

PF	PM
Comply with sterile cockpit procedures below 10,000 feet	
	Above 10,000 feet, position Inboard Landing Light and Turnoff Light switches OFF.
	Set the passenger signs as needed.
At transition altitude, set and crosscheck the altimeters to standard.	
	When the FUEL LOW CTR L or R message is shown and the tank quantity is approximately 3,200 kgs in climb (pitch 5° or greater), set both Center L and R Pump switches off.
	When the FUEL OVD CTR L or R message is shown and the tank quantity is 1,800 kgs or more in cruise (pitch less than 5°), set both Center L and R Pump switches ON.
	When the FUEL LOW CTR L or R message is shown and the tank quantity is approximately 1,300 kgs in cruise (pitch less than 5°), set both Center L and R Pump switches off.