ATTACHMENT 21

to Operations/Human Performance Group Chairman's Factual Report

Standard Operating Procedures

DCA10IA001

En Route

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PILOT FLYING	PILOT MONITORING
At Top of Climb:	
	If operating in RVSM airspace: • Record readings of both primary and standby altimeters and verify that the primary agree within +/- 200 feet. • Confirm the operation of autopilot and altimetry systems at least hourly.
En Route:	
Monitor and/or manage systems operation at level off and periodically as necessary. When work load permits, enter cruise and/or descent wind/temperature data, if not completed during preflight.	
Fuel Management Procedures:	
Monitor fuel distribution/balance and fuel burn progress.	At top of climb and approximately each hour, accomplish the fuel awareness check as outlined in SMAC 4.131.
Navigation Procedures: Detailed instructions are listed in the Airway Manual and the Crew Duties tables.	
The pilot flying will normally perform navigation duties. However, both pilots will continuously monitor navigation of the aircraft.	
Over each waypoint (Class I or On Airways)	
	Verify in NAV Verify proceeding to the next correct waypoint. Enter Flight Plan information (Time, Fuel, etc.) Make ATC and/or Company position reports, if required. Make a check mark (✓) next to the waypoint where a Company position report was made. **Note:** Flight plan markings (circles, slashes) are not required for "On Airways" waypoints.

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PILOT FLYING	PILOT MONITORING
Within the first hour of flight/Prior to entering Class II airspace segments: **Note:** Flights operated solely within the contiguous 48 United States and Canada are exempt from this requirement. Detailed instructions for operation in Class II airspace are listed in the International Operations section of this manual.	
Verify transponder is set in accordance with international route procedures.	Perform a navigation accuracy check within the first hour on those flights that will enter Class II airspace.
Prior to entry into RNP/BRNAV Airspace: Detailed instructions for operation in RNP/BRNAV airspace are listed in Volume I, International Operations section.	
Verify that all required autopilot and navigation systems are functional. Ensure that IRS update requirements are met.	
Oceanic Crossing (Class II Off Airways)	
Referencing the FMS, PF verifies all Oceanic/Class II Clearance waypoints, clearance altitude and cruise Mach are correctly loaded. ❶ ❷ ❸	After receiving ATC Full Route Clearance and prior to entering Class II airspace, PM reads all Oceanic/Class II clearance waypoints, clearance altitude and cruise Mach to PF. ❶ ❷ ❸
	Draw the first diagonal through all previously circled waypoints to signify clearance has been accurately loaded and verified with the FMC. ❶
❶ If your ATC clearance (verbal or PDC) is not "Cleared as filed", the amended portion of the Oceanic/Class II routing must be verified by re-accomplishing the procedure. ❷ Immediately after executing a Class II Off-Airway reroute clearance, verify the name and full lat/long coordinates of the revised clearance. ❸ Pilots not present during the verification of the oceanic crossing clearance should, upon assuming PF or PM duties, verify the FMS and oceanic crossing clearance concur.	
Approaching each waypoint (Class II Off Airway) (approximately 10 minutes prior):	
Referencing the FMS, the PF reads to the PM the name or FMS identifier of the active waypoint and the next 2 waypoints.	
	Referencing the flight plan, the PM verifies the name or FMS identifier of the active waypoint and the next 2 waypoints.

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PILOT FLYING	PILOT MONITORING
Over each waypoint (Class II Off Airway):	
• Verify NAV engaged. ❹	• Verify NAV engaged.❹
	• Record AIREP/ATC position reporting data as per FOM - Flight Planning. • Transmit AIREP position report to controlling agency as required. • Transmit company position report as required. • Draw a second diagonal line crossing out the circled identifier of the overflown waypoint.
❹ During weather deviations verify the proper waypoint sequencing has occurred.	
After passing each waypoint (Class II Off Airway) (approximately 10 minutes later):	
	• Confirm NAV engaged • Confirm the aircraft is tracking to the next (active) waypoint
Communication Procedures: Detailed communications procedures are listed in AOM Vol I, 4.131.	
	Time and conditions permitting, send departure delay inputs via ACARS to: Departure Station (C) and Flight Ops (S). Fill in the T/O and LAND ID lines on the ACARS Arrival Data page. Make En Route Position Reports as specified in the Jeppesen System Route Manual, Communications section. When arrival ATIS can be received, obtain the current ATIS for the destination airport. Transmit the ACARS In-Range downlink. All non-essential PA's (i.e. "thank you" PA's) need to be accomplished prior to commencing the descent.
Engine Condition Monitoring (ECM): Detailed ECM requirements and procedures are listed in the COM Supplemental Procedures.	
	Accomplish ECM checks as required.

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PILOT FLYING	PILOT MONITORING
As soon as adequate landing information is available and prior to Top of Descent:	
Verify that the displayed Approach Data Card agrees with the estimated landing weight.	Ensure that the ACARS MGL LANDING PERF page reflects desired runway and environmental conditions for landing. Check the allowable landing weight using the ACARS MGL Landing Performance system (primary), OP-302 card, or the QRM. **Note:** The LLM/Wet Landing Distance data provided on the OP-302 cards may be used as an acceptable alternate to the ACARS MGL or the QRM. Select and display the Approach Data Card for the estimated landing weight. Update the estimated arrival time via ACARS, if necessary.

Fuel Awareness

Procedure

In order to increase fuel state awareness, the flight crew must record the time and fuel remaining on all flights. For recording, use the space provided on the flight plan and the following guidelines:

- For flights scheduled for one hour or less, record the time and fuel remaining at the top of climb and at least one additional waypoint listed in the flight plan. The captain may elect to delete the additional waypoint recording if the flight is so short that the record will not assist in management of the flight.
- For flights scheduled for more than one hour, the crew must record the time and fuel remaining at the top of climb and at selected waypoints listed in the flight plan, spaced approximately one hour apart.

The crew must compare actual fuel burn to planned fuel burn. Each fuel tank must be monitored to verify proper burn off and appropriate fuel remaining. If a significant discrepancy is detected attempt to determine the reason for the difference, consider all factors including a possible fuel leak.

The PM will keep the flight plan record/HOWGOZIT and communicate the information to the PF.

Navigation

General

The pilot flying will normally perform navigation duties. However, both pilots will continuously monitor navigation of the aircraft. Normally, one pilot should have the FLIGHT PLAN page displayed at all times.

In Class I airspace, the FMS with navigation aid updating should be used as the primary navigation reference. Outside of Class I airspace, the FMS, using the GPS/IRS or IRS, remains the primary navigation reference. The FMS accuracy is self-monitored, and may be checked on the PROG page.

Check the coordinates of any pilot created or other waypoints that were not verified against the flight plan during preflight.

Monitor navigation aids along the route of flight to enhance position awareness. Periodically compare FMS bearing and distance with VOR/DME bearing and distance when a tuned navaid is the TO waypoint.

Navigation Accuracy Check

A navigation accuracy check will performed and recorded within the first hour on those flights that will enter Class II airspace. Flights operated solely within the contiguous 48 United States and Canada are exempt from this requirement. See the International Operations chapter, section 4.202 for detailed instructions.