Driftdown and Oxygen Procedures Over High Terrain

*An Airline Perspective*

Paul Tate
Manager
Flight Technical Support Services
British Airways
September 2003
Driftdown Scenario

- ISB-LHR
- 777-200IGW GE90-85B
- British Airways procedure
  - Top level down procedure
  - Level of detail increases as required
Requirements to Calculate Driftdown

- JAR-OPS 1.500 – en route one engine Inop
- JAR-OPS 1.505 – en route two engines Inop
• MSA in Flight Planning System based on 20 nm either side of track and distance between points.

• Highest MSA from Flight Planning System is 27,600 ft.
• TOW ~ 250,000 kg, wt @ crit point ~240,000 kg
  – Net level-off height ISA = 18,000 ft
  – Net level-off height ISA+10 = 16,000 ft
  – Net level-off height ISA+20 = 14,000 ft
  – MSA 27,600 ft

• Driftdown analysis required
• MSA may be improved by inserting “ghost” waypoints.
• Doesn’t help in this case
  – Need to look at band width
• ATC constraint - Min FL310 by Paddy and constant FL required

• TOW limitation

• Climb Distance limit, not Altitude capability

• Agreed special departure procedure with ATC
Developed a Spreadsheet Tool to Handle All Data and Analyse Profile

- Terrain information
- Climb and cruise data
- Driftdown
- Profile
Flight Crew Procedures

- TOW restrictions
- Flight level restrictions
- Correction to crit point for wind
- Offset following failure
- Fuel jettison
Other Things to Check

- Geometric height versus pressure altitude
- Fuel jettison
- Escape routings
- Flight crew understanding (advisory material)
- Simulator check
Oxygen Scenario

- ISB-LHR
- 777-200IGW GE90-85B
- British Airways procedure
  - Top level down procedure
  - Level of detail increases as required
 Requirement to Oxygen

- JAR-OPS 1.760 - First Aid Oxygen
- JAR-OPS 1.770 - Supplementary Oxygen - Pressurised aeroplanes
Flight Plan MSA’s

- Worst case scenario
- Max pax and crew
- Time and distance at minimum flight levels
- Cruise at or below 10,000 feet
Flight Plan MSA’s

Distance from ISB, nm

Altitude, ft

Peshawar
Chitral
Firuz
Gerry
Paddy
Topaz
Dinar
Mirzo
Ura-Tyube
Syrdarya
• Reduction of band width
  – 15 nm, 10 nm, 5 nm

• Simplify flight crew procedure
  – Same crit point
  – Simple let down

• Flight crew understanding (advisory material)
• Summary
  – Driftdown and Oxygen Procedure - Airline perspective
  – Lessons learnt

• Future?
  – Flight Planning System calculations