DUBROVNIK (DBV/LDDU)

Elevation 527ft

CATEGORY B

- AV Brief not available
- Review RNAV VPT FCOM procedure

REGULATION

- VOR A approach to Rwy 29 not permitted for use by BAV aircraft

GENERAL

- The airfield is located on the coast 8 nm SE of the city of Dubrovnik.

Threats

CFIT
- Terrain rises rapidly inland toward the mountainous interior and is shown well on Navigraph IACs.
- Terrain ~1500ft amsl 1 nm NE of the airfield, and ~6,200ft amsl ~12nm E of the airfield.
- Coastal ridge SE of the airfield with peaks to approx. 1,900ft amsl
- Circling and missed approaches must be flown with care in order to remain clear of the terrain
- The navigation database contains coding to fly Circling with Prescribed Tracks using FINAL APP mode. It is recommended to always use this capability. Follow guidance in the Approach section.
- Deviations N of the centrelines on final approach should be avoided.

Runway Incursion
- Large sections of runway may not be visible from the flight deck when lining up or backtracking due to the runway slope

Runway Excursion
- Both runways have unusual visual pictures with terrain rising up to the thresholds and significant runway slope.
- Possibility of downdrafts and WINDSHEAR mean that both short and deep landings have been recorded
- Rwy 11 is the preferred landing runway and tailwinds are common
- Terrain slopes up rapidly toward the Rwy 11 threshold leading to very late radalt callouts
- At 1000R the height above the landing threshold is approx. 480ft. Consideration should be given to achieving a fully stabilised approach by 1,500ft QNH (approx. D4.8 DBK).
- THR 29 RWY turn pad for aircraft with wheelbase greater than 22.8m/74.8ft requires a turn made with nose gear steering angle greater than 45°

Loss of Control
- Gusts, Wind shear and turbulence can be expected on final Approach and on RWY in conditions of strong North-Easterly wind.
- Go arouds and diversions due to windshear are common when such conditions exist
- Birds in the vicinity of the Airfield

Mid Air Collision
- Most arriving traffic will approach from the north regardless of runway in use, giving rise to potential conflict between arriving aircraft and departures or go-arounds from Rwy 29

ARRIVAL

Diversion Airports			
SPLIT	SPU/LDSP	104 nm/290°T	CAT B
NAPLES	NAP/LIRN	205 nm/241°T	CAT B
ROME (Fiumicino)	FCO/LIRF	275 nm/260°T	CAT A
BOLOGNA	BLQ/LIPE	330 nm/291°T	CAT A
PISA	PSA/LIRP	355 nm/281°T	CAT B
ROME (Ciampino)	CIA/LIRA	260 nm/260°T	CAT B
VENICE (Tessera)	VCE/LIPZ	315 nm/305°T	CAT A
BRINDISI	BDS/LIBR	115 nm/187°T	CAT A

- Arrivals from the north are via NERRA.
- Rwy 11 is the preferred landing runway. Expect ILS Rwy 11 for landing.
- If Rwy 29 is in use, ATC will give vectors to the downwind leg for a circling or visual approach

Approach Rwy 11

- ILS Rwy 11 is straight in from the normal company route with the potential to be kept high and fast.
- DBK DME reads D1.5 at the threshold, giving a false impression of distance to touchdown.
- Final approach over the sea with terrain rising up to the Rwy 11 threshold at 512ft amsl on short final. **The 1000ft radio altimeter call will therefore occur much later in the approach than is normal.**
- Wind effects crossing the rising terrain near the threshold may destabilise the approach in the final stages.

Approach Rwy 29

- **VOR A Approach to Rwy 29 not permitted for use by BAV crews.**
- Approaches to Rwy 29 are via circling with prescribed tracks. The Navigraph chart shows the surrounding terrain and obstacles clearly.
- **Circling to Rwy 29 is a challenging procedure due to terrain and an unusual visual picture. It is <u>strongly</u> recommended to utilise the coded RNAV guidance which allows the use of FINAL APP to the minimum AP disconnect height.**
- Depending on departing traffic, circling may be via the published prescribed tracks following an ILS approach, or radar vectors may be given to a visual downwind position. Guidance on how to achieve this using the coded guidance is given below.
- The final approach to Rwy 29 is over rising terrain. Combined with the runway upslope, this can create an unusual visual picture.
- The PAPIs are set to the approach angle of 3.2° but may be difficult to see until established on the centreline.

- Turbulence can be expected with northerly/north-easterly winds. The potential for windshear exists through base leg and on to short final. Consider how the recovery could be flown from different points on the approach.

RNAV Visual with Prescribed Tracks (RNAV VPT) Approach

To aid approach success and reduce workload, BA fly the circling approach with prescribed tracks via the FMS navigation database. The approach coded is similar to the RNP Rwy 29 (AR) procedure, though not the same. As the RNAV Visual is not available in the Navigraph database, at BAV we can fly the RNP Rwy 29 as an RNAV Visual instead. It is important to note that this is flown as an RNAV **Visual** approach to the **circling** minima provided on the "CIRCLING RWY 29" (19-10) approach chart, and **not** as an RNP AR procedure with accompanying lower minima. As with any circling/visual approach, the runway must always remain in sight throughout the circling portion of the procedure and descent below the circling minima may only be initiated once the visual references have been acquired and can be maintained.

If using Navigraph charts, the **RNP RWY 29 (AR)** (12-20) chart can be used as reference to verify the procedure loading. The **CIRCLING RWY 29** (19-10) approach should however be referred to for minima and for the missed approach procedure.

The coded approach can be used following an ILS approach to descend to the circling MDA in poor weather, or after radar vectors to a downwind position in good weather.

Because the RNP Rwy 29 (AR) is a much wider approach track than the published visual circling procedure or the BA coded procedure, in marginal weather conditions the required visual references will not be achieved and the circling approach will need to be flown manually (refer to guidance for a manually conducted circling approach below).

Aircraft Capability

- The aircraft **must** be capable of NAV in Go Around
- The aircraft must achieve a minimum of **RNP1** during the procedure.

Approach Preparation

- Review FCOM PRO-NOR-SOP Approach Guidance – RNAV Visual

  Note: The BARO/MDA field on the PERF APPR page is left empty.

- The approach is approved for **Day only**.

RNAV VPT Following ILS Rwy 11

Approach Preparation

- Set up FMGC in the same manner as for a regular circling approach:
  - **F-PLN – ILS Rwy 11**
  - **SEC F-PLN – Select RNAV29 (via OLEGU).**
  - Insert point "CV" prior to OLEGU

Configuration Management

- Be at F Speed with F3 and GEAR DOWN prior to level-off at 2,500ft

Guidance Management

- Level off at 2,500ft
- When required visual conditions for circling are satisfied and approaching "CV":
    - **PULL HDG** and **TURN** toward OLEGU then;
    - **ACTIVATE SEC F-PLN** then;
    - **DIR-TO DU500** (or PUSH NAV if on the CV-OLEGU track);
    - **PRESS APPR Pb**

      Note: If all engagement conditions are met, FINAL APP may engage immediately. If this is the case, there will be no "blue descent arrow" near DU504 as FINAL is already engaged.
    - Complete final configuration (if required) and LANDING CHECKLIST prior to final descent (approx. DU504)

Final Approach RF Leg

- The RF leg aligns with the RWY extended centreline at approx. 5nm
- AP can be used to minimum AP disconnect height.

Failures

- Aircraft failures resulting in less than the capability required in FCOM PRO-NOR-SOP Approach Guidance – RNAV Visual and/or RNP degradation to >1nm require mitigation.
- It may be possible to complete the approach visually, however if any doubt exists as to the stability of the approach – **Go Around**.

Circling Rwy 29 Conducted Manually

- The guidance below is provided to cover aircraft unserviceability or the event that weather conditions preclude flying the RNP approach as an RNAV Visual. It is recommended to use the RNAV guidance whenever practical and available.
- If visually positioned downwind, consideration should be given to re-joining the published procedure by the end of the downwind leg to ensure the base turn is commenced at the optimum position.
- DBK 157R/3.2 DME can be used as an approximate position for the end of the published downwind leg.
- The downwind leg is over the sea, therefore expect the Radalt to ramp rapidly when crossing the cliff
- The bas leg is flown between two peaks on the coastal ridge. Accurate tracking is necessary to ensure safe terrain clearance is maintained.
- The published circling track is wider than a standard visual circuit and so a continuous base turn may leave the aircraft south of the centreline. It may be necessary to roll wings level for a short period on base leg or turn with a reduced bank angle, particularly in strong northerly winds.
- Delay descent from the circling minima until the aircraft is visually on the correct vertical profile for Rwy 29.

GROUND

- Emergency Turn Procedures (ETP) for Rwy 11 – refer to the A320 Dispatch Performance Manual in the OM B section of Docstore
- Use of taxiway B is prohibited to aircraft code letter E due to infrastructure restrictions
- Backtrack required for Rwy 29 full length
- Departing Rwy 29, early vectors to the west may be given to maintain separation from arriving traffic.

DEPARTURE

- RWY 11 preferred
- NADP RWY29: Take-off and climb to 1350ft QNH at V_2 +10 kt. Passing 1350ft, adjust and maintain engine/thrust in accordance with the noise abatement power/thrust schedule provided in the FCOM, maintain climb speed V_2 +10kt to 20kt with flaps and slats in the T/O configuration. At 3500ft maintain positive rate of climb, accelerate and retract flaps/slats on schedule

WEATHER

- Summers are short, warm, and mostly clear and the winters are long, cold, wet, windy, and partly cloudy. Over the course of the year, the temperature typically varies from 5°*C* to 29°*C* and is rarely below 0°*C* or above 33°*C*, June-September being warm and dry
- Surface wind from E winter, SE in spring and autumn and NW or SE in summer.
- Cold, squally “Bora” NE katabatic wind during winter months causes extreme turbulence
- Thunderstorms are infrequent but generally occur over the mountainous terrain inland in late summer.
- Early morning low stratus or fog during autumn, winter and spring usually lifts or clears by midday.

OPERATIONAL INFORMATION

Handling Agent	Dubrovnik Airport AVBL
Handling Agent VHF	131.750 MHZ
Potable Water	Uplift permitted

IF ONLY Electrical Power is required	Use APU
If BOTH electrical power and air conditioning is required:	Use APU (ACU equipment is not available)