

Lufthansa Systems FlightNav

General Navigation Data Information

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Altitude Constraint Coding – Minimum Leg Altitudes

The purpose of this document is to provide information about a change in the Navigation Data Coding procedures at Lufthansa Systems which will affect all Lido FMS Navigation Database Users.

Situation

As of cycle 1202, Lufthansa Systems has stopped coding state published minimum leg altitudes at fixes where **no altitude constraint is published** at the fix **but a minimum leg altitude is published on the leg between two fixes**.

Due to multiple customer feedback, Lufthansa Systems has decided to **reinstate the coding of minimum leg altitudes** in the aforementioned situation and for approach transitions only. STARs and SIDs will not be affected. This will come into effect **cycle 1210**, effective 20-SEP-2012.

Background

Altitude constraint

State sources provide different altitude information. One of these can be altitude constraints, **published at fixes** or fixed positions as part of terminal procedures. These altitude constraints can be minimum altitudes (“at or above”), fixed altitudes (“at”), maximum altitudes (“at or below”) or altitude windows (“between”) and they are always coded in terminal procedures.

Minimum Leg Altitude

Also, state source often provides minimum leg altitudes. These are always minimum altitudes and valid for a **leg between two fixes**. Note the difference to an altitude constraint which is associated with a fix rather than a leg between two fixes.

An example of state published minimum leg altitudes can be found in the RNAV (RNP) Z RWY 10L in KBOI, BANGS transition on the following page (Fig1).

BOISE, IDAHO

AL-57 (FAA)

11321

APP CRS	Rwy ldg	10000
100°	TDZE	2844
	Apt Elev	2871

RNAV (RNP) Z RWY 10L
BOISE AIR TERMINAL (GOWEN FIELD) (BOI)

GPS required. For uncompensated Baro-VNAV systems, procedure NA below -14°C (7°F) or above 41°C (107°F). When VGSI inoperative, procedure NA at night.

MISSED APPROACH: Climb to 7200 via track 100° to FEBES and via track 123° to CANEK and hold.

ATIS	BOISE APP CON	BOISE TOWER	GND CON	CLNC DEL
123.9 290.4	119.6 269.4	118.1 257.8	121.7 348.6	125.9 323.2

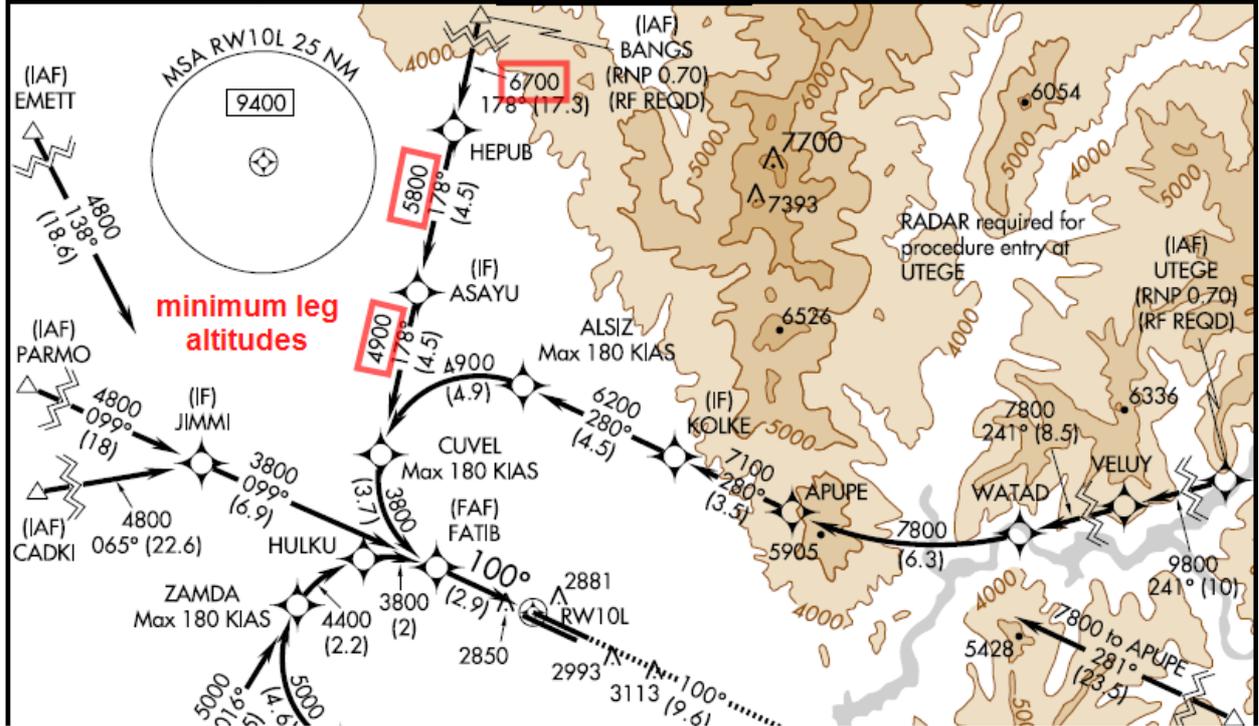


Fig1: KBOI, RNAV (RNP) Z RWY 10L, BANGS transition

In the example above, the highlighted minimum leg altitudes will be coded as minimum altitude constraints at the fixes HEPUB (+6700), ASAYU (+5800) and CUVEL (+4900).

Specials

Minimum leg altitude + minimum altitude constraint

In situations where both a minimum leg altitude is published for a leg from A to B and also a minimum altitude constraint (“at or above”) is published at B which is higher than the minimum leg altitude from A to B, **the altitude constraint at B will be coded**. In other words, an altitude constraint associated with a fix will always overrule a minimum leg altitude published on the leg to the fix unless the minimum leg altitude is higher than the altitude constraint.

An example is the RUNOM transition to the RNAV (GNSS) RWY 16 in LFLY (see Fig2). For the first leg from RUNOM to LY402 a minimum leg altitude of 3800 ft is published. Also, LY402 shows an altitude constraint of minimum (“at or above”) 5000 ft. Below you can find the official chart showing the altitude information:

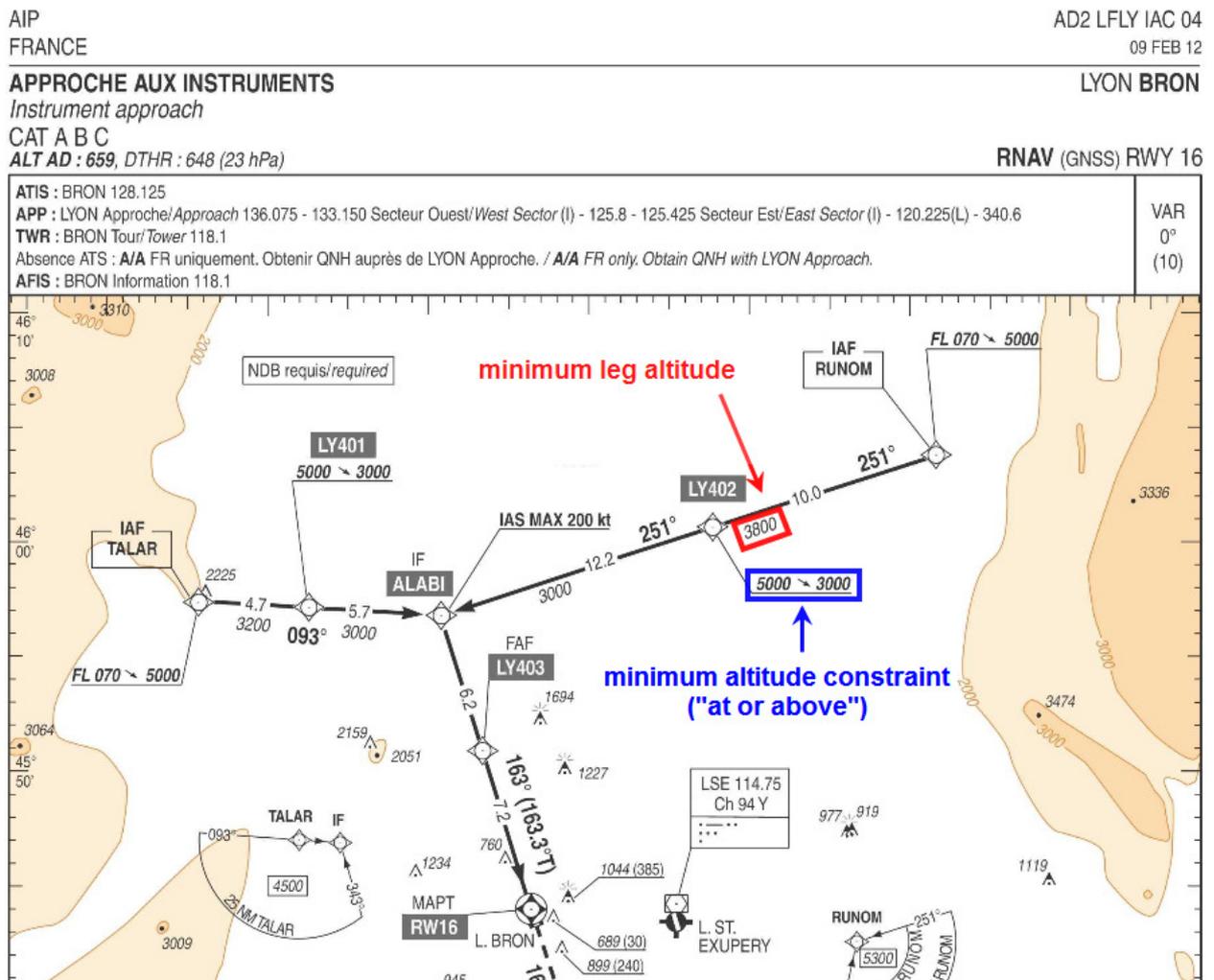


Fig2: LFLY, RNAV (GNSS) RWY 16, RUNOM transition

In this case, +5000 ft will appear at LY402 in the Navigation Database coding of the approach transition.

Minimum leg altitude + maximum altitude constraint

In situations where a minimum leg altitude is published for a leg from A to B and also a maximum altitude constraint (“at or below”) is published at B, an altitude window constraint (“between”) will be coded where the minimum leg altitude will be used as the lower limit and the altitude constraint as the upper limit.

An example is the RNAV (RNP) RWY 19 in KDCA (see Fig3). On the approach transition RAYEE, there is a minimum leg altitude published from RAYEE to KIVEY of 3000 ft. Also, at KIVEY there is a maximum altitude constraint of 3800 ft.

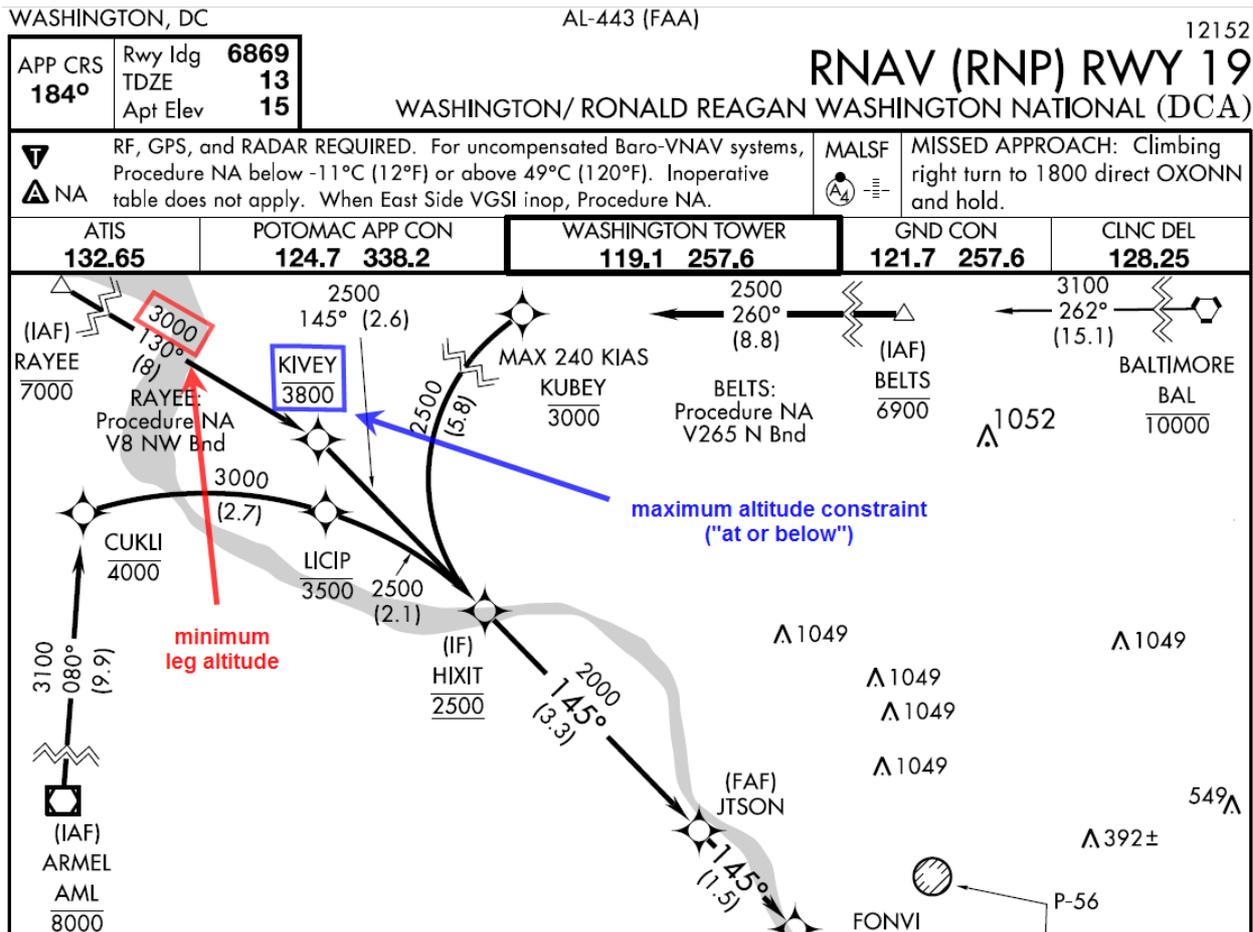


Fig3: KDCA, RNAV (RNP) RWY 19, RAYEE transition

In this case, at KIVEY an altitude window (“between”) will be coded (minimum 3000, maximum 3800).

Please contact us in case of any questions or comments.

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