

FMS/RNAV SIDs AT STOCKHOLM/ARLANDA

Note: This information must be included in Company Route Manuals.

GENERAL

FMS/RNAV SIDs at Stockholm/Arlanda are designed in order to minimize noise dispersion resulting from ACFT flying outside designated tracks.

APPROVED USERS, EQUIPMENT AND OPERATIONS

According to chapter 6 and 8 of the Swedish Civil Aviation Regulations (BCL-D) 1.21, a Swedish operator with an Air Operator Certificate (AOC) must have an FMS/RNAV approval by the Aviation Safety Department at the Swedish Civil Aviation Authority in order to use FMS/RNAV SIDs.

Foreign operators with ACFT with FMS/RNAV equipment, which has a lateral position accuracy equal to or better than +/- 1NM for 95% of the flight time (RNP 1), may use the FMS/RNAV SIDs without a specific approval.

Other types of RNAV equipment (e.g. Stand-alone GPS) must not be used for FMS/RNAV SIDs.

Note: A Basic RNAV (B-RNAV) approval does not constitute an approval for FMS/RNAV use.

RESTRICTED USE FOR CERTAIN ACFT TYPES

B757, B767 and MD-11 have FMS equipment which do not get the ACFT inside designated tracks after first turn. (This restriction is not valid for B757/767 with Honeywell Pegasus FMS.)

A note in the description of certain SIDs requires these ACFT types to use following procedure:

1. After TKOF disregard FMS.
2. At a specified DME distance, turn to a specified track.
3. When established on the specified track, use FMS and fly direct to a specified WPT.

FMS/RNAV EQUIPMENT FAILURE

If the airborne FMS/RNAV equipment fails, ATS shall be informed as soon as practicable. ATC will then provide radar vectors.

NON FMS/RNAV EQUIPPED AIRCRAFT

Departing aircraft that is not equipped for FMS/RNAV SID shall inform Clearance Delivery by using phraseology "UNABLE RNAV SID DUE RNAV TYPE". After receiving a SID, Non FMS/RNAV aircraft shall follow instructions in "ACFT unable to follow FMS/RNAV SID", that contains tracks and speed and can expect radar vectors to the exit point stated in the flight plan.

Additionally at first contact with STOCKHOLM CONTROL, aircraft shall report altitude to verify SSR Mode C, and once again report that aircraft is unable to follow FMS/RNAV SID by using phraseology "UNABLE RNAV SID".

APPLIED PRACTICE FOR LOW SPEED AIRCRAFT

ACFT, described below, will during daytime 0600-2100 (0500-2000) be cleared to follow low speed departure routes (climb-out on a heading to an altitude) instead of SIDs. These low speed departure routes will be assigned by ATC.

- Propeller driven ACFT with a MTOW less than 9 tons.
- Propeller driven ACFT with a MTOW more than 9 tons which fulfil the requirements in ICAO Annex 16 chapter 3 or 5.

Note:

Some high speed propeller driven ACFT will be cleared to follow SIDs (e.g. SAAB 2000, Dash 8 Q400).

Some noisy propeller driven ACFT will be cleared to follow SIDs due to environmental restrictions. (e.g. Lockheed C-130 Hercules, Hawker Siddley HS 748).

SID INSTRUCTION

For each SID, there is a description as a list of waypoints in sequence, where FLY-OVER WPTs are printed underlined. If there is a speed limit, it will be notified in the list. There is also a description of the database coding to be used by navdatabase suppliers only. The coding is according to ARINC 424 standard.

Note: In order to adapt SID coding to certain FMS equipment, a minimum 1500 ft altitude restriction is added at some waypoints in those first turns where a speed restriction is prescribed.

WAYPOINT TYPES

FLY-OVER WPTs are designed to guide an ACFT to pass over the waypoint and, if a turn is required, immediately after the passage initiate a turn.

FLY-BY WPTs are designed to guide an ACFT towards a waypoint. If a turn at the waypoint is required, the FMS initiates a turn at a distance before the waypoint. The turn anticipation varies with speed and magnitude of turn.

Fly-over wpt



Fly-by wpt

**WAYPOINT NAMING**

The naming convention used is based on the two last letters in the Airport code, SA, followed by 3 digits numbered from 400 to 999. The digits are divided into four quadrants of a circle with centre at ESSA ARP:

0° - 89°	400 – 549
90° - 179°	550 – 699
180° - 269°	700 – 849
270° - 359°	850 – 999

WAYPOINT LIST

A separate list of co-ordinates in WGS-84 for all waypoints used at Stockholm/Arlanda is provided.

DME FAILURE

All FMS/RNAV SIDs are based on DME/DME availability for position update. Failure of one DME in Stockholm TMA will not affect FMS/RNAV navigation based on DME/DME.

REPORTING

Malfunctioning FMS shall, for statistical reasons, be reported briefly to address below. Pilots and operators are also requested to report any error or difficulty (e.g. discontinuity) with SIDs to:

Airspace team

LFV-ASD/PRO

Fax: +46-(0)11-19 22 46

E-mail: maria.ullvetter@lfv.se