



Agenda Item 2: SAM airspace optimisation
b) PBN in terminal areas

CONTINUOUS DESCENT AND CONTINUOUS CLIMB OPERATIONS

(Presented by the Secretariat)

SUMMARY	
This working paper presents a proposal for analysing the aeronautical information that should be provided to pilots and controllers when continuous descent and continuous climb (CDO and CCO) procedures are provided for arrivals and departures.	
REFERENCE	
<ul style="list-style-type: none">• Reports of the workshops/meetings of the SAM Implementation Group.	
ICAO Strategic Objectives:	<i>A - Safety</i> <i>C - Environmental protection and sustainable development of air transport</i>

1. Background

1.1 Through letter LT2/3A.39-SA204, the Secretariat sent a survey to SAM States to be responded by 8 May 2013. The Regional Office, using funds from its Regular Programme, hired an expert to analyse the information, complete the missing information, and develop a dynamic template to be used as the baseline for the status of implementation of improvements in regional efficiency.

2. Discussion

2.1 PBN implementation in TMAs and their restructuring entail the use of continuous descent and continuous climb operations known as CDOs and CCOs, which are closely related to SIDs and STARs.

2.2 Although information has been obtained on the application of continuous descent and continuous climb techniques in the PBN STARs and SIDs of the SAM Region, and although there are many STARs that contain CDO elements, they have not been published as such and do not have an indication specifically alerting the pilot or the ATCO of such condition.

2.3 Furthermore, the current ICAO documentation on publication of these procedures does not refer specifically to showing this condition or reflecting it somehow in the charts. This publication gap may seriously affect the situational awareness of both pilots and controllers.

2.4 The Secretariat has received, for review by the Meeting, some examples (shown in **Appendix A** to this working paper) concerning the AICs of France and Singapore, which make reference to the CDO, and some CDO procedures at the Los Angeles airport where no specific reference is made to the CDO. It may be inferred that the same is probably true for continuous climb operations (CCO).

3. **Suggested action:**

3.1 The Meeting is invited to:

- a) review the information contained in Appendix A; and
- b) recommend the actions it may deem appropriate regarding the publication of CCOs and CDOs in order to ensure situational awareness of pilots and controllers.

APPENDIX A

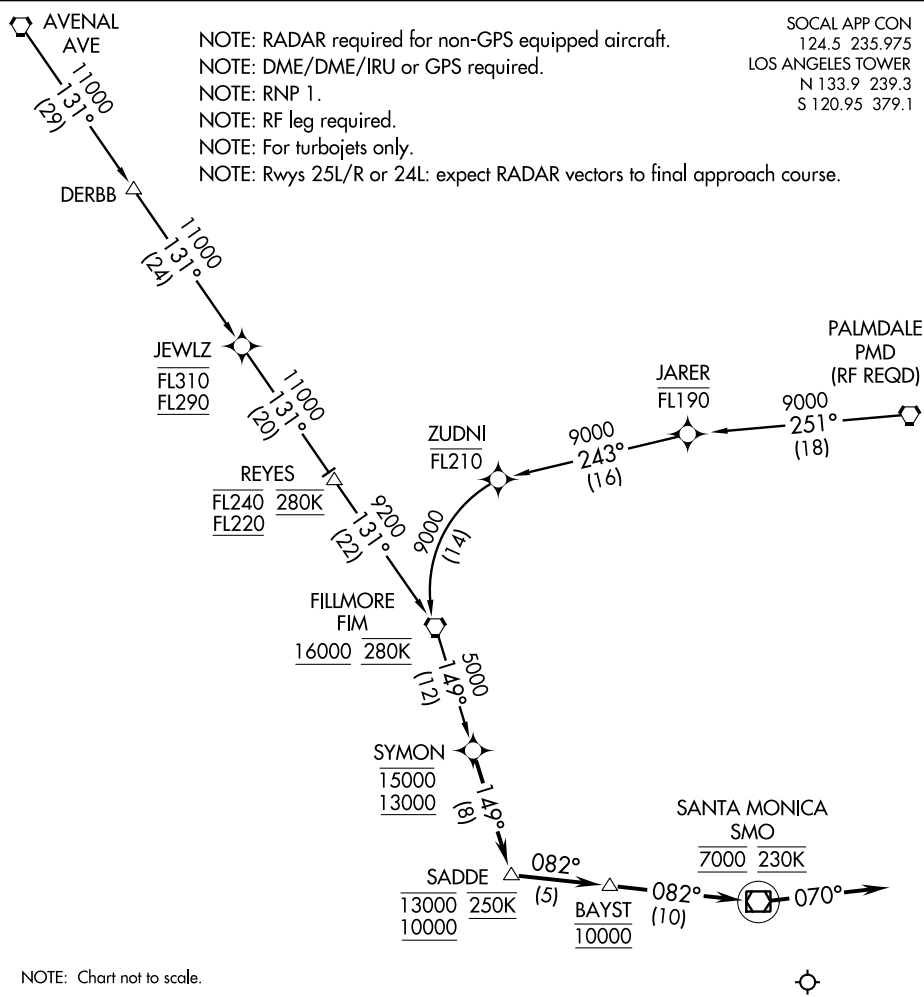
EXAMPLES OF PUBLICATIONS

(SYMON.SYMON1) 12264

SYMON ONE ARRIVAL (RNAV)

ST-237 (FAA)

LOS ANGELES INTL (LAX)
LOS ANGELES, CALIFORNIA



SW-3, 04 APR 2013 to 02 MAY 2013

SW-3, 04 APR 2013 to 02 MAY 2013

ARRIVAL ROUTE DESCRIPTION

- AVENAL TRANSITION (AVE.SYMON1)
- DERBB TRANSITION (DERBB.SYMON1)
- PALMDALE TRANSITION (PMD.SYMON1)

From SYMON on track 149° to cross SADDE at or above 10000 and at or below 13000 and at 250K, then on track 082° to cross BAYST at 10000, then on track 082° to cross SMO VOR/DME at 7000 at 230K then on 070° heading. Expect vectors to final approach course.

SYMON ONE ARRIVAL (RNAV)

(SYMON.SYMON1) 12264

LOS ANGELES, CALIFORNIA
LOS ANGELES INTL (LAX)

KEACH ONE ARRIVAL (RNAV)

ST-237 (FAA)

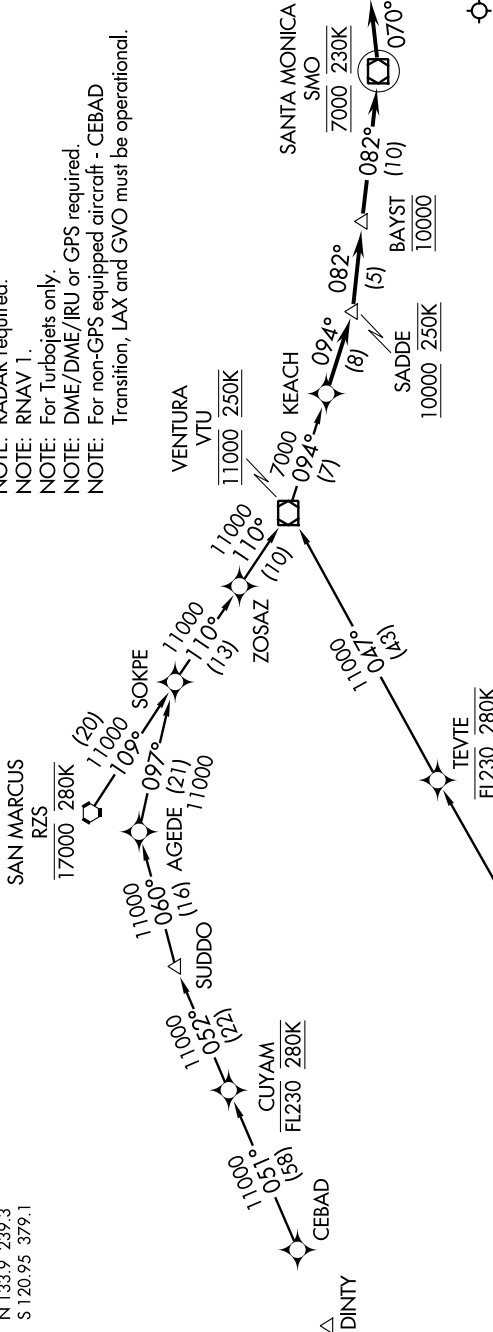
LOS ANGELES INTL (LAX)

LOS ANGELES, CALIFORNIA

SW-3, 04 APR 2013 to 02 MAY 2013

SOCAL APP CON
124.5 235.975
LOS ANGELES TOWER
N 133.9 239.3
S 120.95 379.1

NOTE: Rwy 25L/R or 24 L/R: Expect RADAR vectors to the final approach course.
NOTE: RADAR required.
NOTE: RNAV 1.
NOTE: For Turboprops only.
NOTE: DME/DME/IRU or GPS required.
NOTE: For non-GPS equipped aircraft - CEBAD Transition, LAX and GVO must be operational.



ARRIVAL ROUTE DESCRIPTION

- CEBAD TRANSITION (CEBAD.KEACH1)
- FENUK TRANSITION (FENUK.KEACH1)
- SAN MARCUS TRANSITION (RZS.KEACH1)
- VENTURA TRANSITION (VTU.KEACH1)

From KEACH on track 094° to cross SADDE at or above 10000 at 250K, then on track 082° to cross BAYST at 10000, thence as depicted to cross SMO VOR/DME at 7000 at 230K, then on heading 070° for RADAR vectors.



△ ELKEY

NOTE: Chart not to scale.

KEACH ONE ARRIVAL (RNAV)

LOS ANGELES, CALIFORNIA

LOS ANGELES INTL (LAX)

SW-3, 04 APR 2013 to 02 MAY 2013