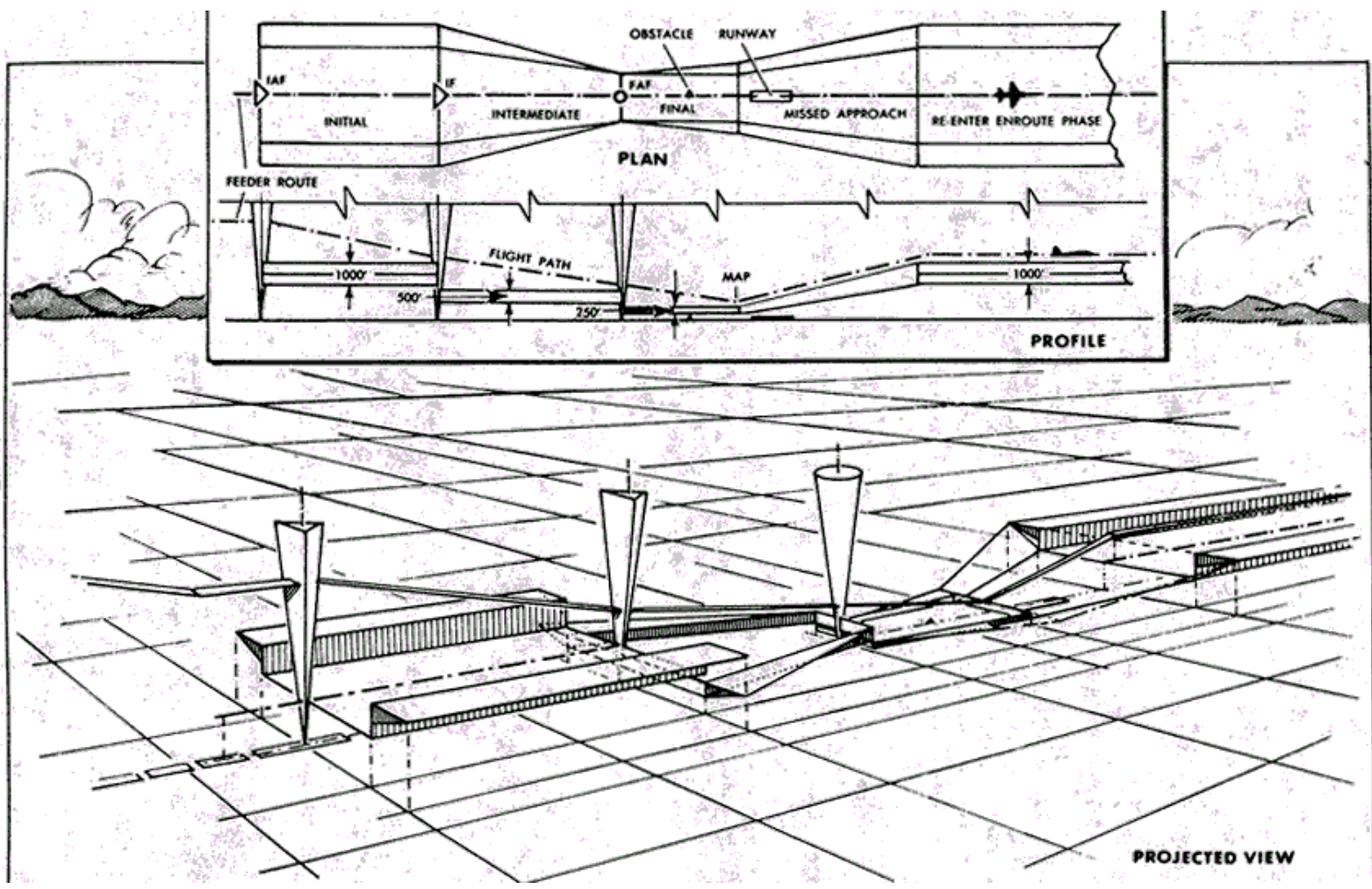# Procedure Turns

Ed Williams

SMXGIG 2001

IFR approaches are designed with four segments

Initial -> Intermediate -> Final -> Missed

The initial approaches feed the intermediate segment from the IAFs.

- Published NoPT routes
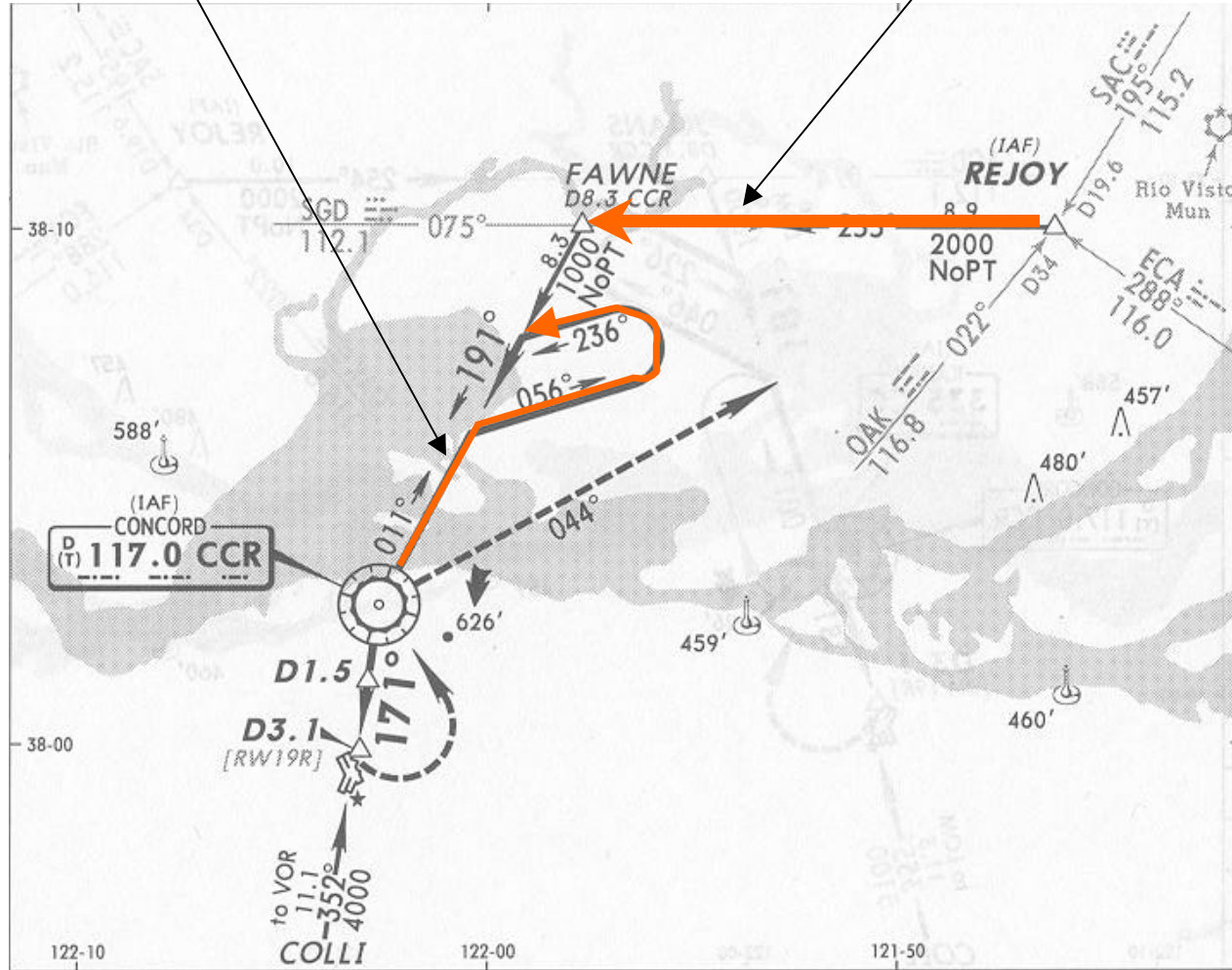
- Radar Vectors

- Procedure turns

- Other reversals

The different procedures accommodate arrivals from different directions and altitudes.
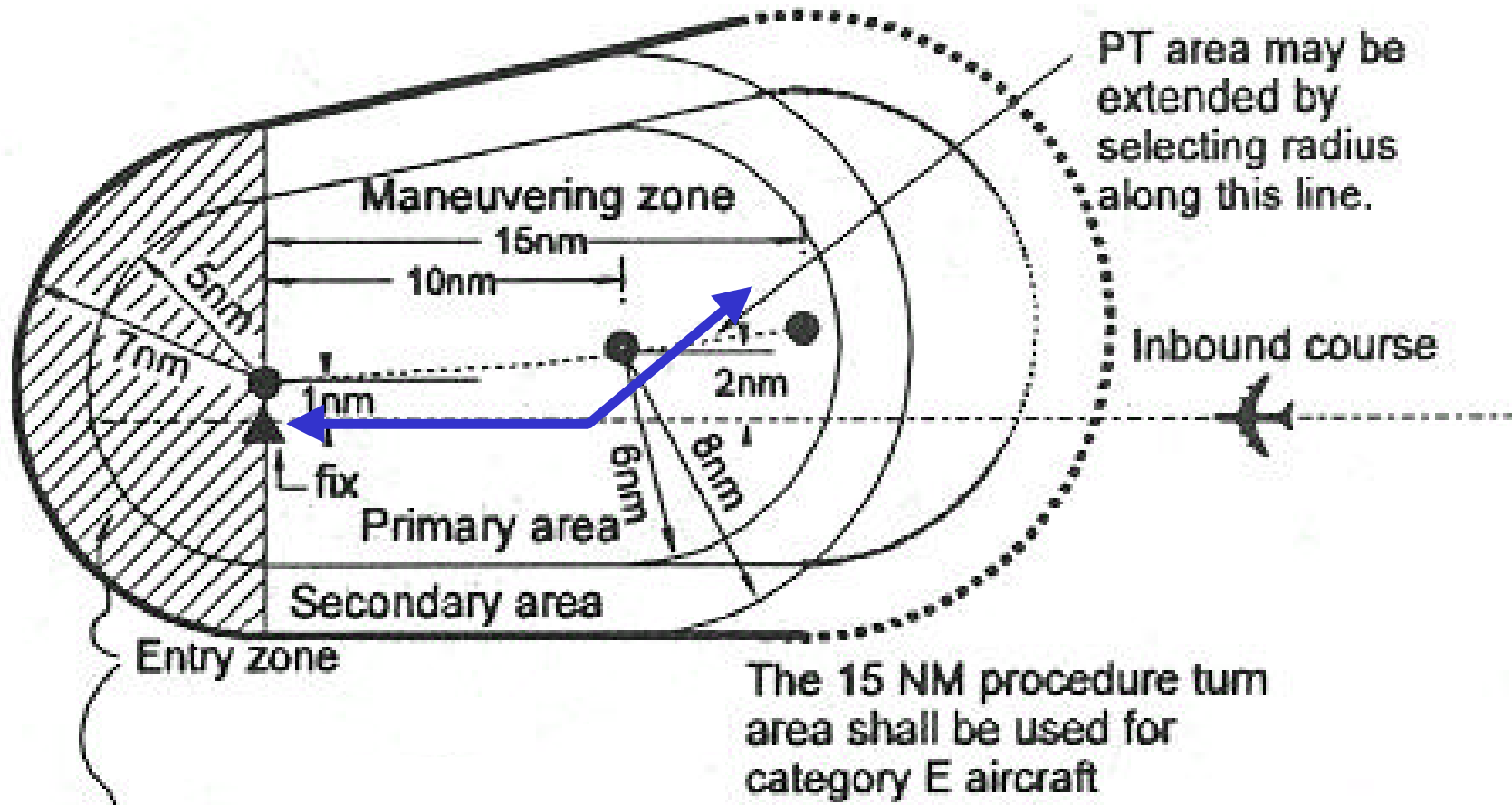
CCR VOR 19R - plan view
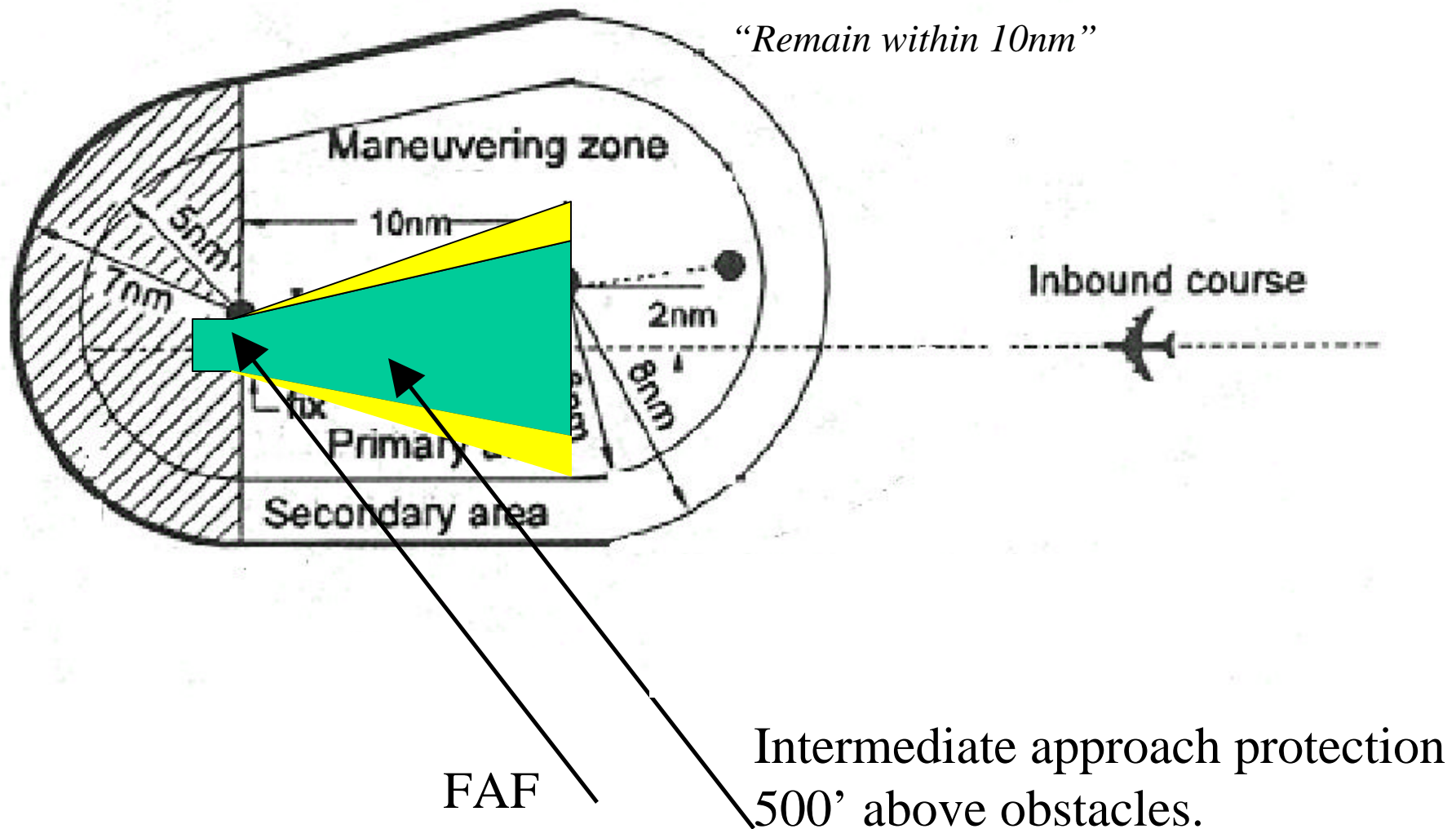
P. Turn from
CCR

Published initial
from *REJOY*

Protected airspace for a procedure turn.

PT area may be extended by selecting radius along this line.

Maneuvering zone

15nm

10nm

5nm

7nm

1nm

fix

Primary area

Secondary area

Entry zone

2nm

6nm

8nm

Inbound course

The 15 NM procedure turn area shall be used for category E aircraft

1000' clearance in primary area

Example intermediate segment - PT fix is FAF.

"*Remain within 10nm*"

Maneuvering zone

10nm

5nm

7nm

Inbound course

2nm

8nm

fix

Primary

Secondary area

FAF

Intermediate approach protection 500' above obstacles.

The details of the procedure turn are at the pilot's discretion

SMX
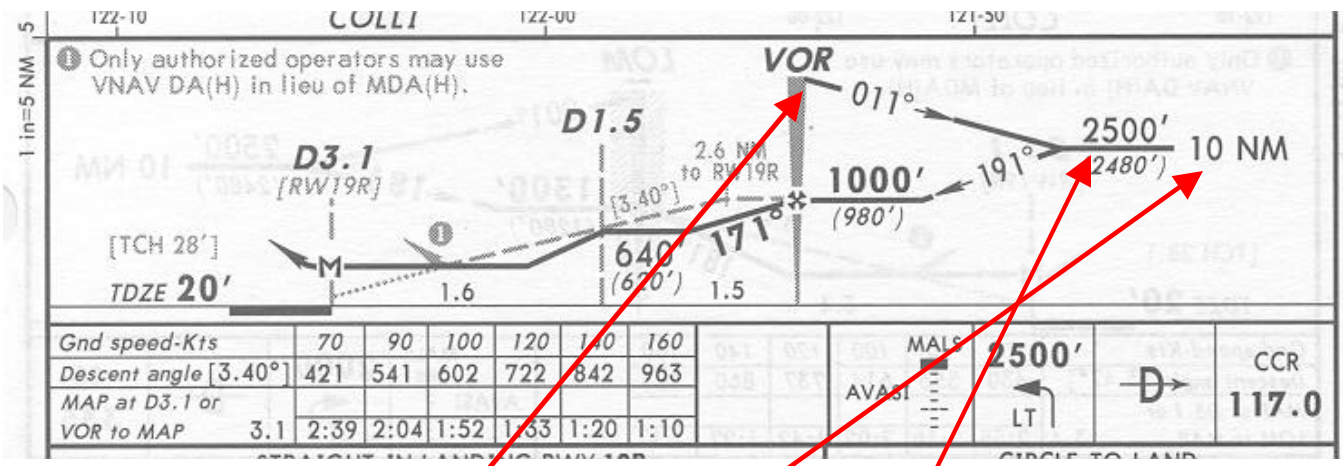
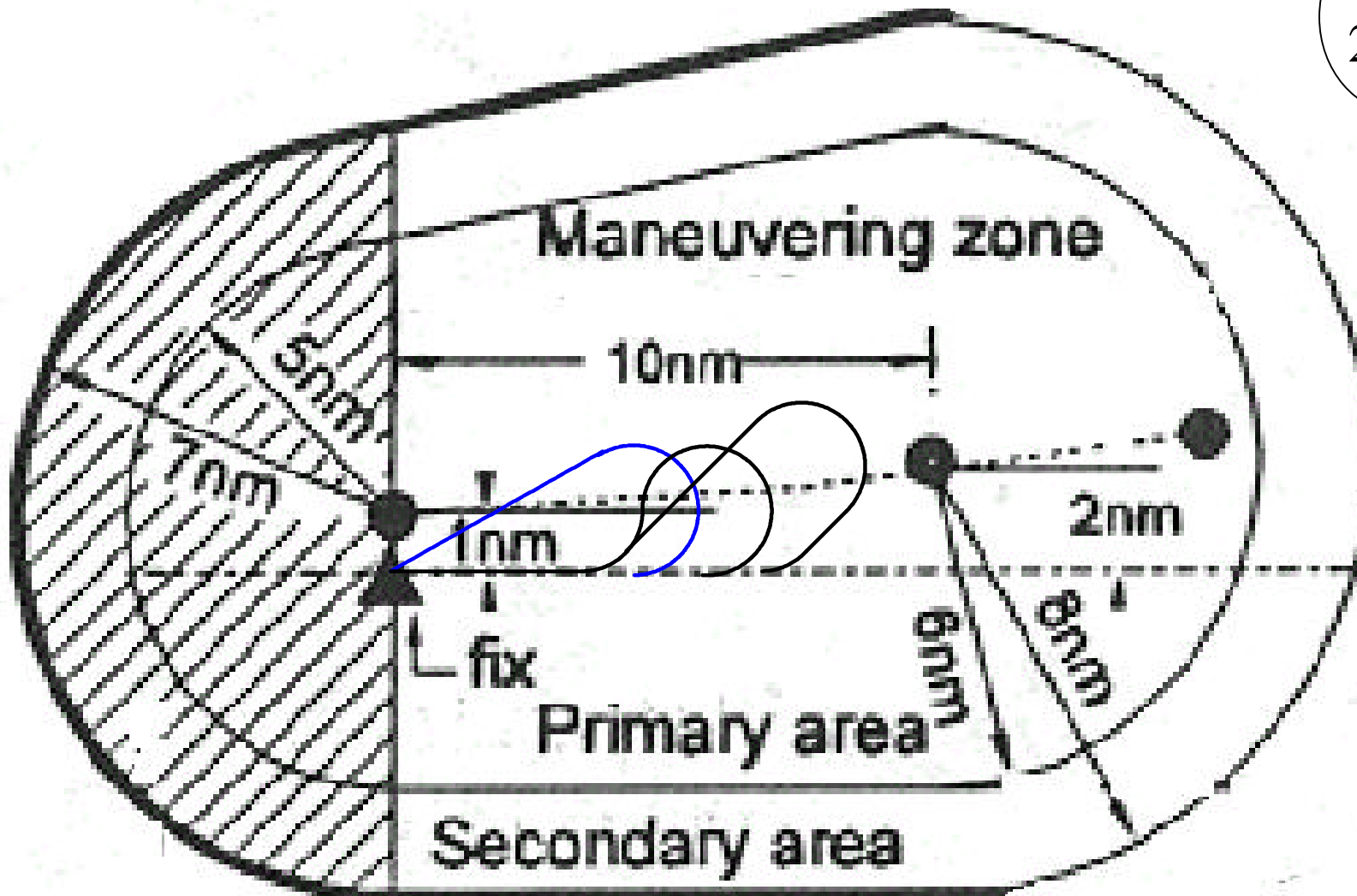Start at PT fix

Remain with 10 (5, 15) nm

Maneuver on the protected side

Speed <= 200 kts

Remain at or above the PT altitude until established on the intermediate course.
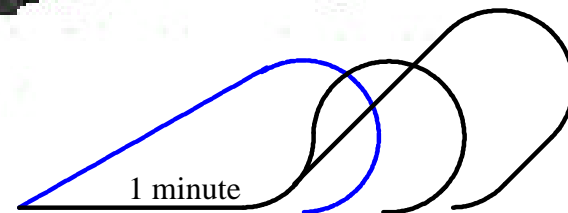
Three PTs at 180 knots- no wind.

Maneuvering zone

|← 10nm →|

5nm

7nm

1nm

fix

2nm

6nm

8nm

Primary area

Secondary area

Teardrop, 90/270 and ''NOS'' PTs.

1 minute

Which PT to use?

Am I ready?

How much altitude needs to be lost?

Where's the wind from?

Was my clearance delayed?

VOR 26L ELP

VOR RWY 26L
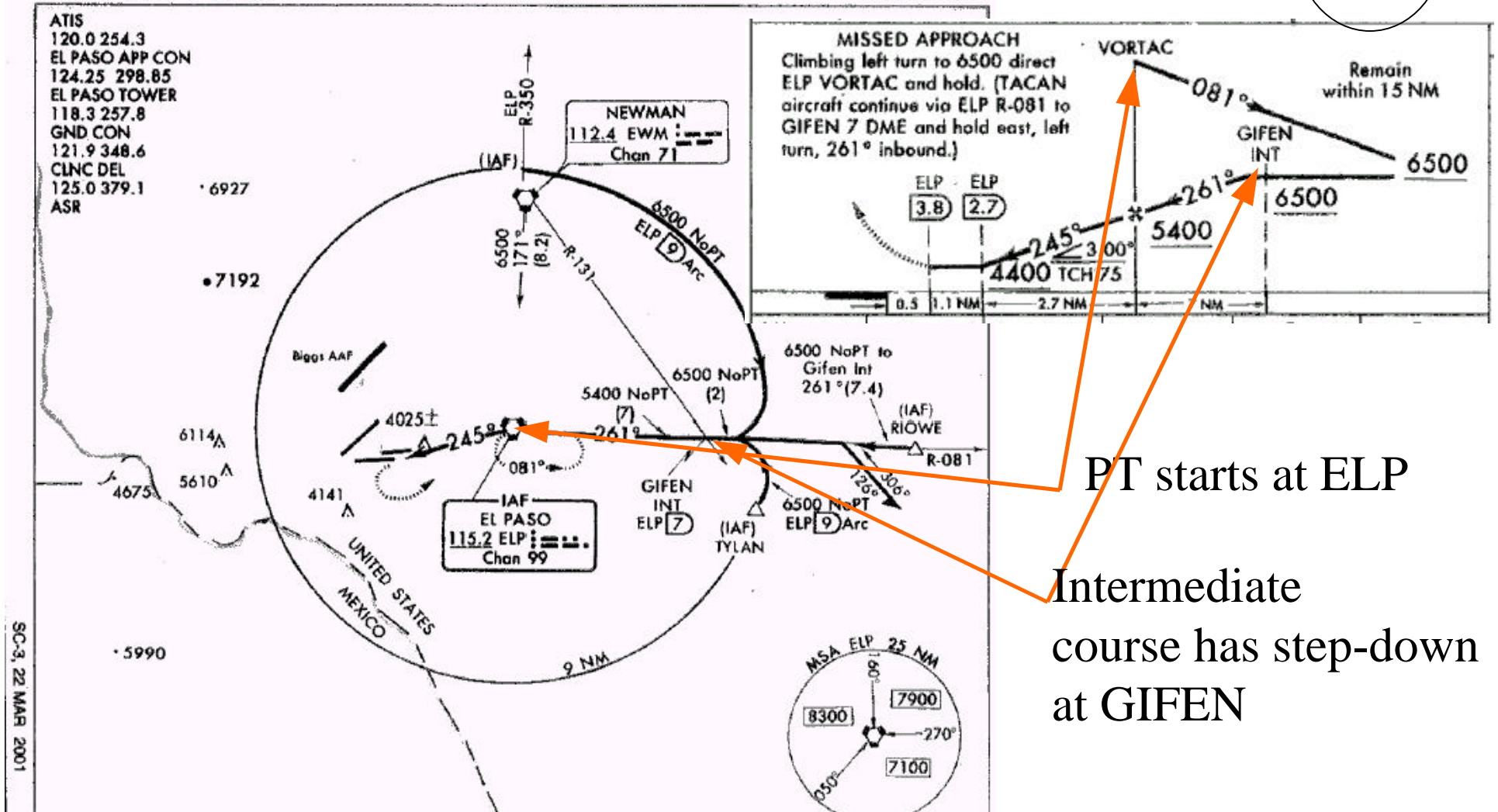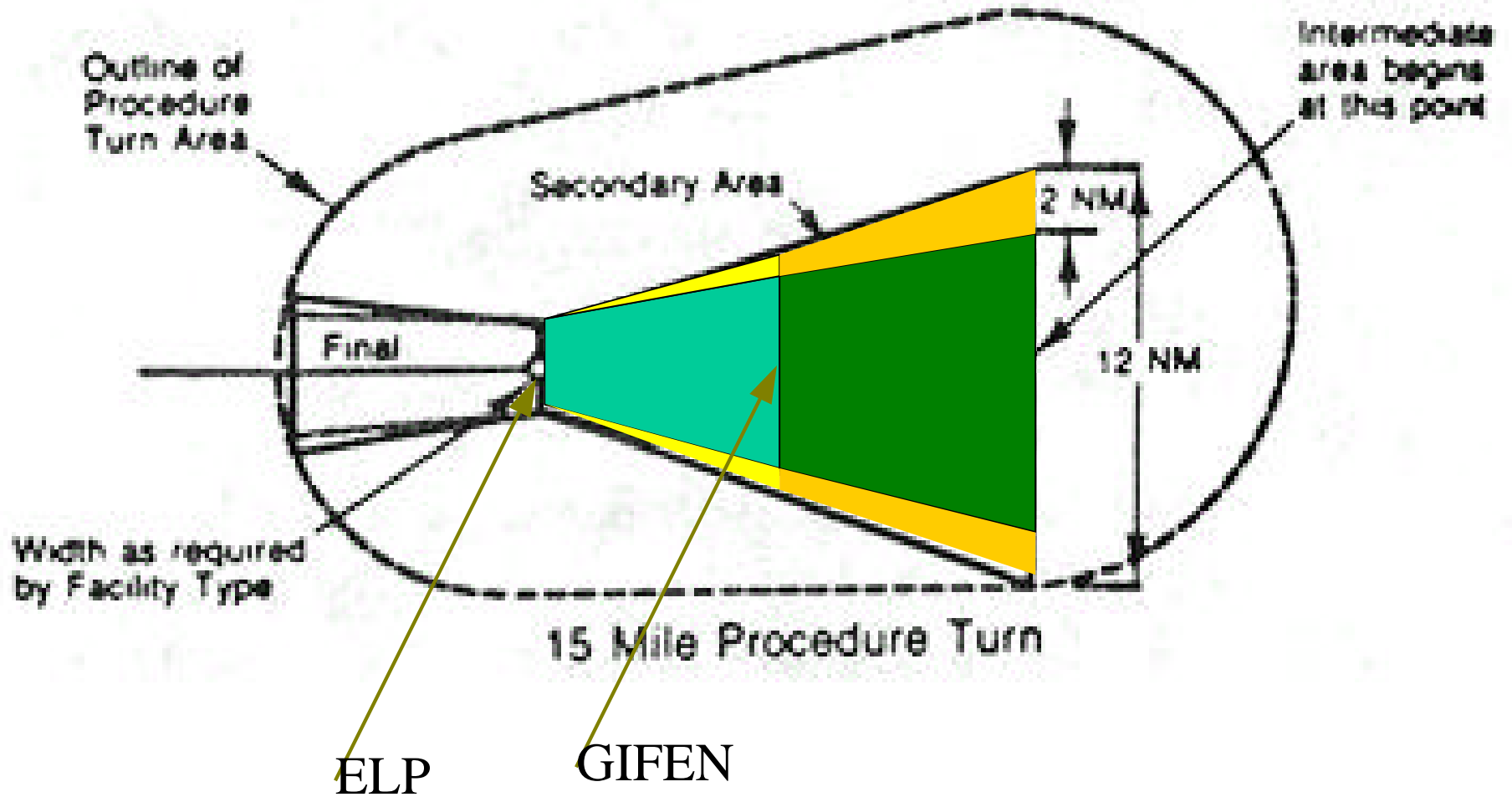
Amdt 29C 00111

AL-134 (FAA)

EL PASO INTL (ELP)
EL PASO, TEXAS

ATIS
120.0 254.3
EL PASO APP CON
124.25 298.85
EL PASO TOWER
118.3 257.8
GND CON
121.9 348.6
CLNC DEL
125.0 379.1
ASR

MISSED APPROACH
Climbing left turn to 6500 direct
ELP VORTAC and hold. (TACAN
aircraft continue via ELP R-081 to
GIFEN 7 DME and hold east, left
turn, 261° inbound.)

NEWMAN
112.4 EWM
Chan 71

IAF
EL PASO
115.2 ELP
Chan 99

PT starts at ELP

Intermediate course has step-down at GIFEN

PT does NOT have to go outside GIFEN before the turn inbound!

GIFEN is a step-down on the intermediate course.

Outline of Procedure Turn Area

Secondary Area

Intermediate area begins at this point

2 NM

Final

12 NM

Width as required by Facility Type

15 Mile Procedure Turn

ELP

GIFEN

244(a)(3) When establishing a stepdown fix within an intermediate/initial segment underlying a PT area:
(a) Table 1A shall be applied.
(b) Only one stepdown fix is authorized within the intermediate segment
that underlies the PT maneuvering area.
(c) The distance between the PT fix/facility and a stepdown fix underlying the PT area **shall not exceed 4 NM**.
(d) The MAXIMUM descent gradient from the IF point to the stepdown fix is 200 feet/NM.
The MAXIMUM descent gradient from the stepdown fix to the FAF is 318 feet/NM.

!FDC 1/2628 ELP FI/T EL PASO INTL, EL PASO, TX.
   VOR RWY 26L, AMDT. 29C ...
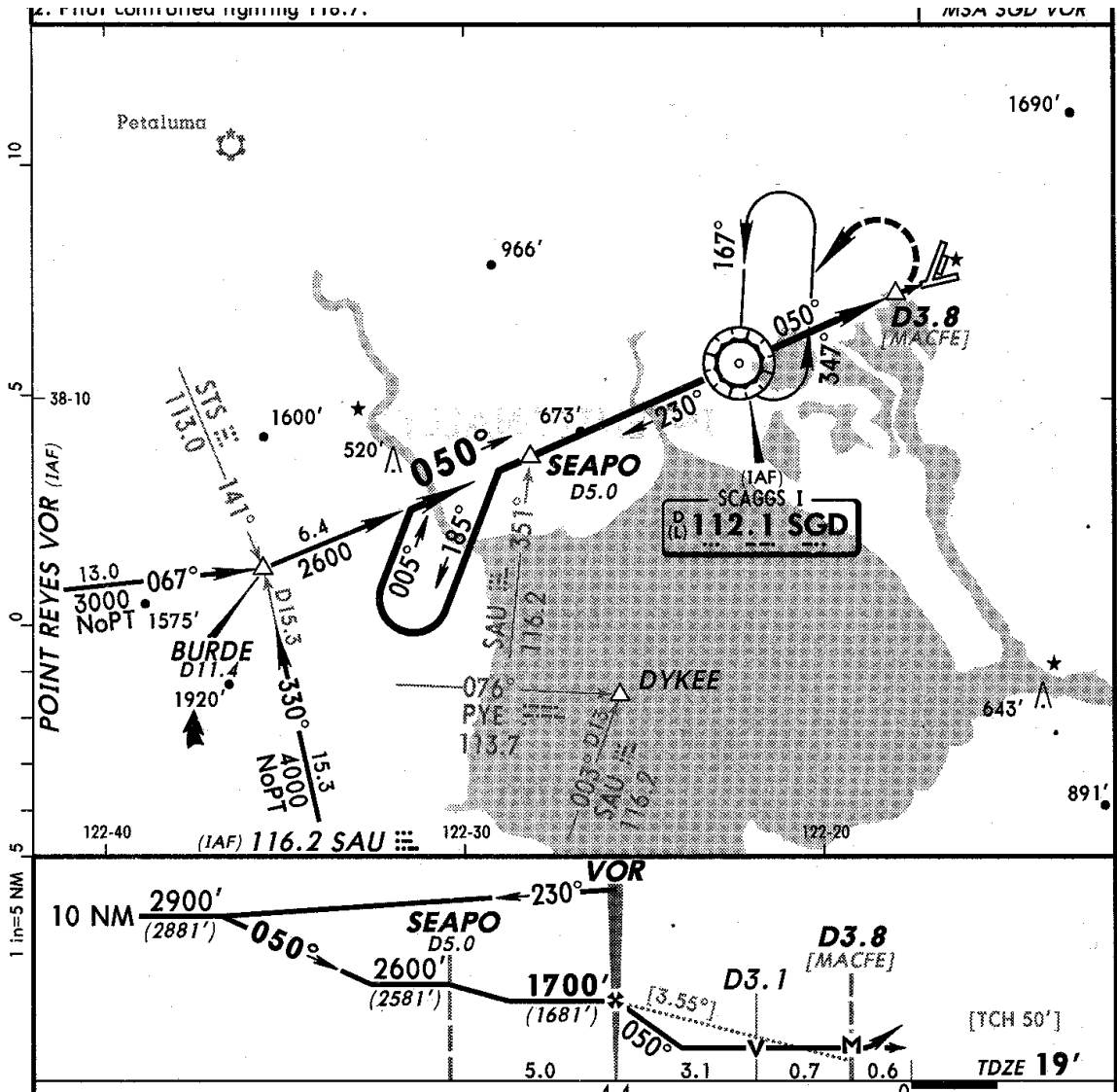   TERMINAL ROUTE NEWMAN (EWM) VORTAC TO EL PASO (ELP)
VORTAC NA.
   PTN NA.
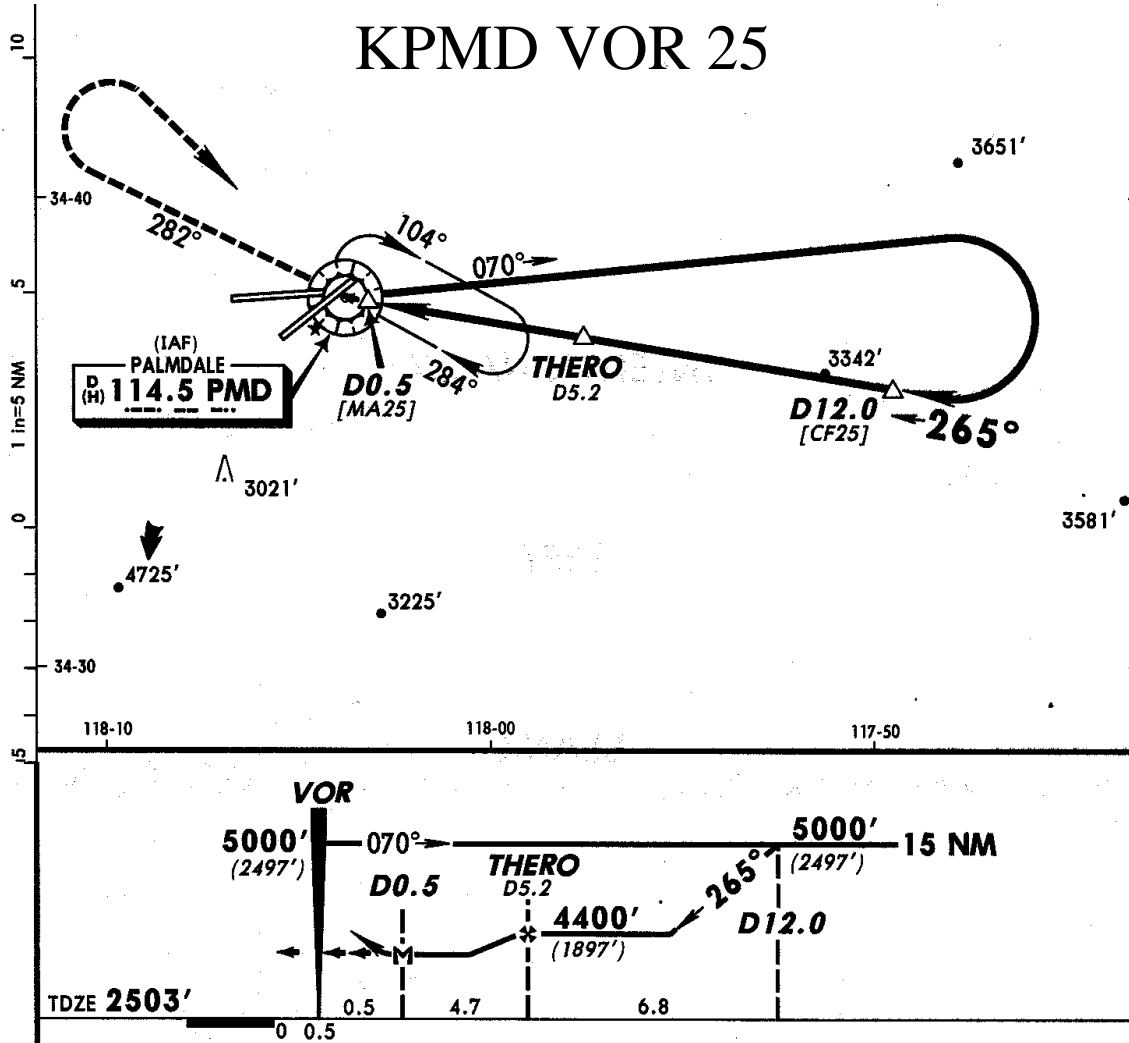
It's "an attractive nuisance". *(Wally Roberts)*

It may be commenced
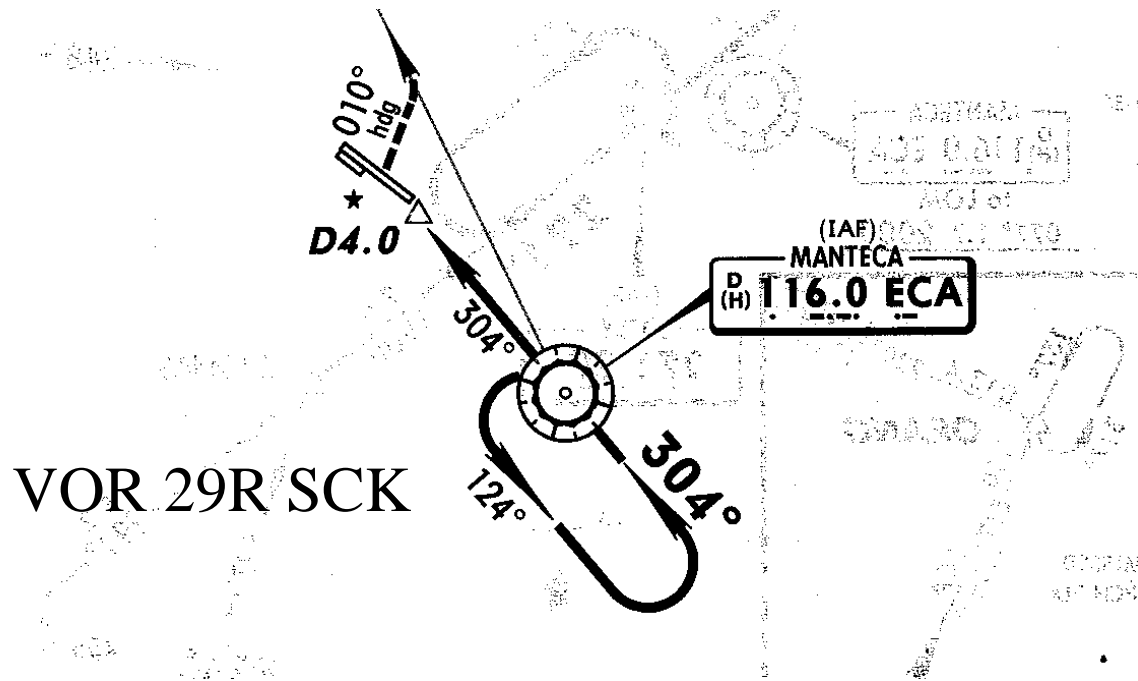prior to SEAPO!

Here a teardrop PT is mandatory.

KPMD VOR 25

There is no requirement to turn inbound outside 12 DME!

You should turn outside THERO.

Course reversal by holding entry mandatory here.

Protected template
is smaller than PT
- but size is not
readily determined.

Respect holding
pattern speed limits.

VOR 29R SCK