

Procedure Turn

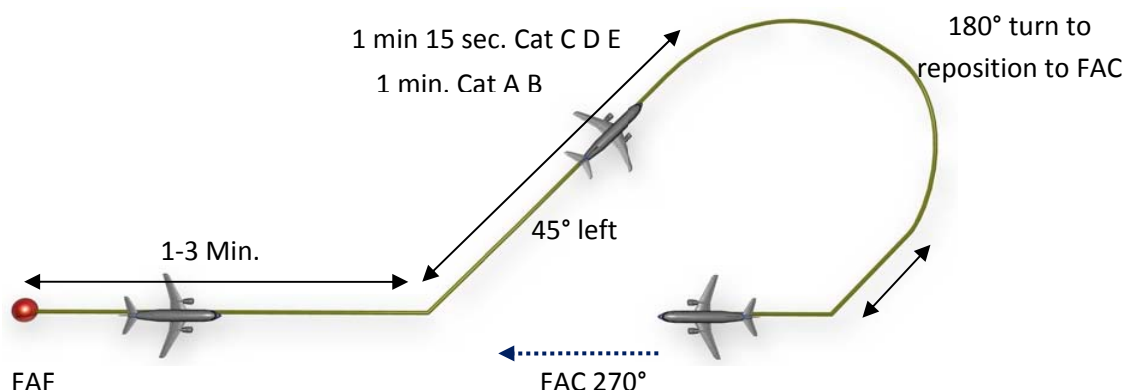
The **procedure turn** (also called: Reversal procedure) is a manoeuver designed to align the aircraft onto the final approach course (FAC), and normally uses a ground-based NAVAID. The NAVAID can be a facility located somewhere on the final approach course, in which case the turn will be flown using the NAVAID itself as a reference point. It could also be located on the field, or even at a distance on the other side of the airport. In such a case, the final approach fix will normally be a fix determined by, for example, a VOR radial and a DME, or a VOR radial and a bearing from an NDB and so on. The procedure turn should be based on the final approach fix, in this case, as depicted on the chart.

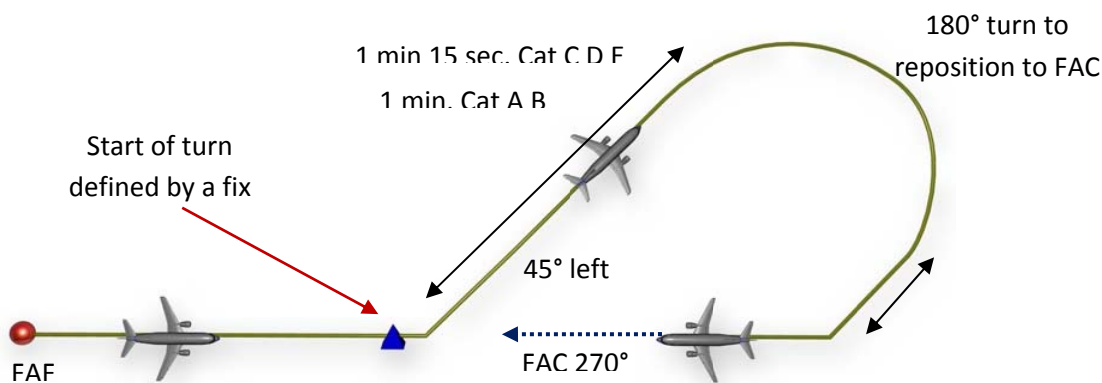
There are three generally recognized manoeuvres related to the reversal procedure, each with its own airspace characteristics:

Types of Reversal procedures

- 45/180 procedure turn
- 80/260 procedure turn
- Base turn

45°/180° procedure turn

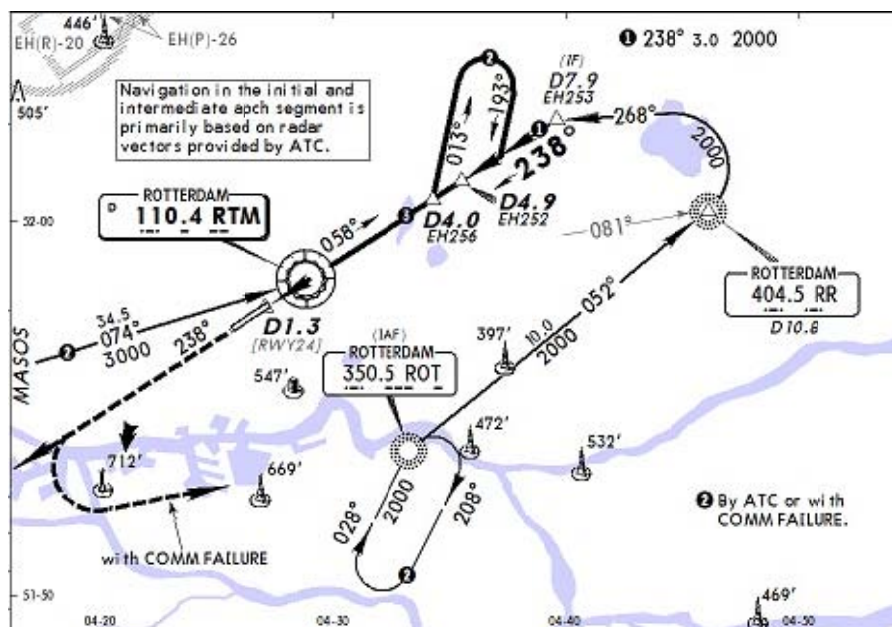




The procedure turn starts at a facility or fix and consists of:

1. A straight leg with track guidance. This straight leg may be timed or may be limited by a radial or DME distance
2. a 45° turn
3. a straight leg without track guidance
 - 1 minute for Cat A and B
 - 1 minute 15 sec for Cat C D and E
4. a 180° turn in the opposite direction to intercept the inbound track (Final approach course)

A nice example of this procedure can be found for instance at EHRD, VOR DME approach runway 24 when coming from MASOS

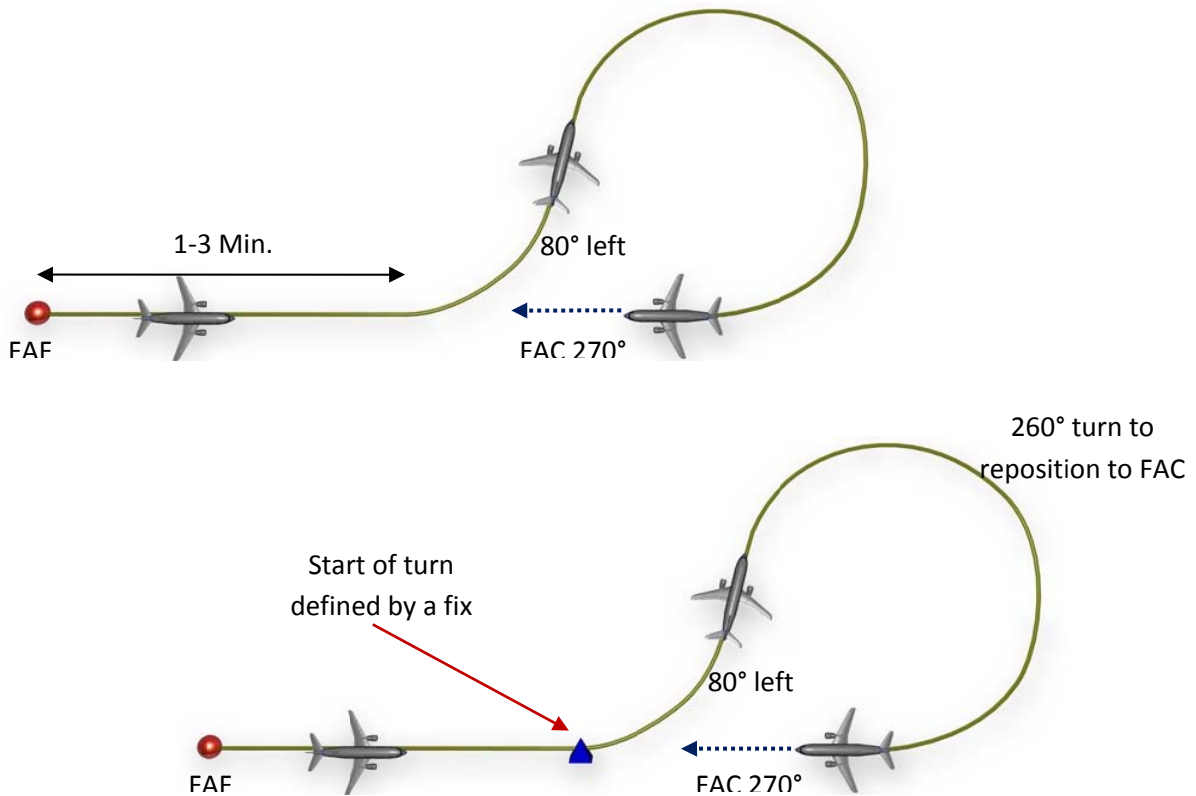


RTM VOR is the FAF where the straight leg with track guidance begins. After 4nm RTM VOR a 45 degree LEFT HAND turn for at least 1 minute followed by the 180° turn back to intercept the FAC 238.

We suggest you to do a flight from EGSS to EHRD.



80°/260° procedure turn

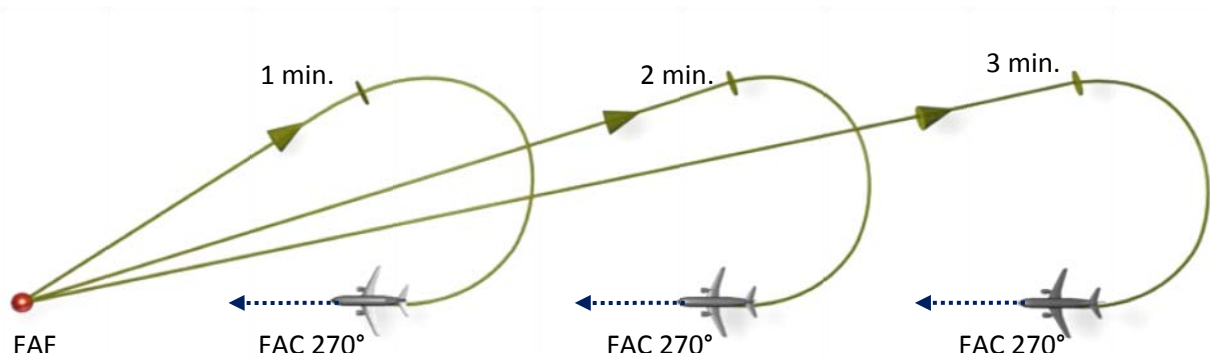


The procedure turn starts at a facility or fix and consists of:

1. A straight leg with track guidance. This straight leg may be timed or may be limited by a radial or DME distance
2. an 80° turn
3. directly followed by a 260° turn in the opposite direction to intercept the inbound track (Final approach course)



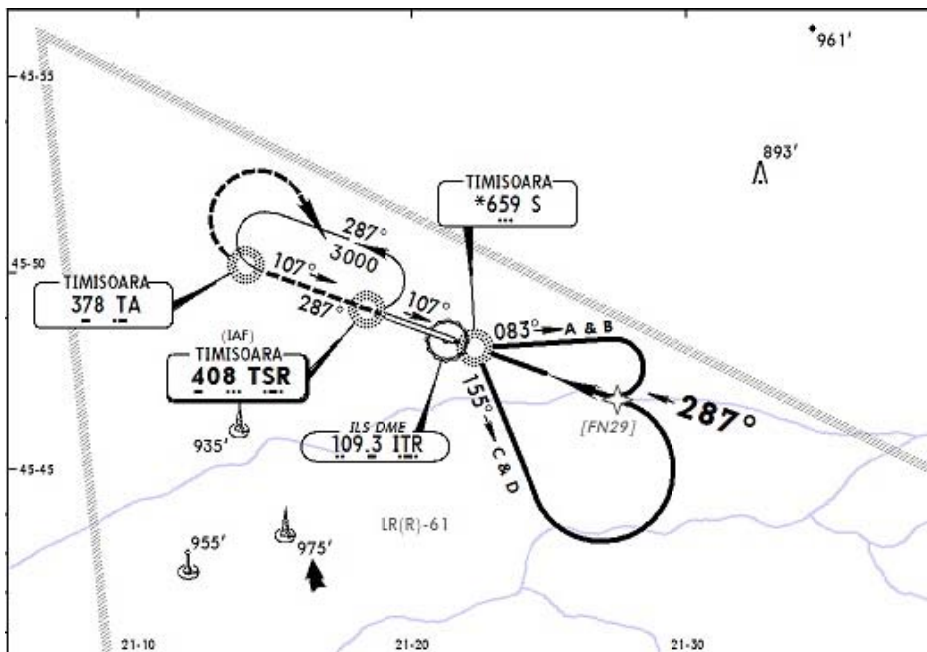
BASE turn



The base turn procedure starts at a facility or fix and consists of:

1. A specific outbound track and timing or DME distance from a facility followed by:
2. a turn in the opposite direction to intercept the inbound track (Final approach course)

The outbound track and/or the timing may be different for the various categories of aircraft. Where this is done, separate procedures are published.



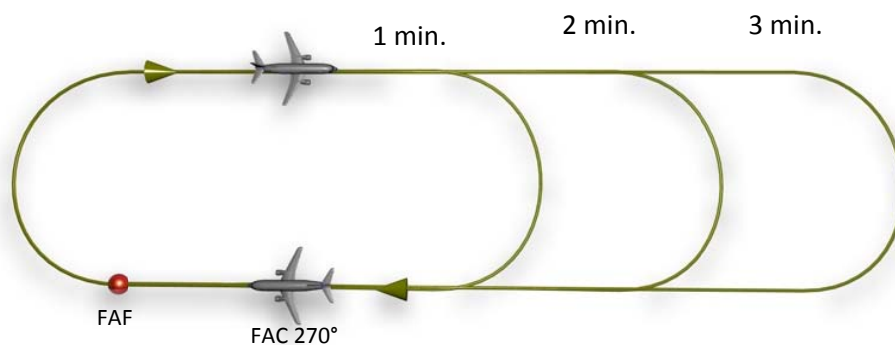
A nice example of this procedure can be found for instance at LRTR, NDB rwy 29.

here we see a combination procedure containing a HOLD, no FAF but IAF, a guidance track 107 and the base turn procedure.



NOTE: So far we have shown you the different types of LEFT HAND reversal procedures. No need to say that RIGHT HAND procedures exist as well. It all depends on the area where the procedure must be flown in order to stay clear of restricted airspace !

The racetrack procedure turn



This procedure has been discussed in detail in the document:
" FLYING HOLDING PATTERNS "

In a similar manner, the racetrack can be used to get aligned with the FAC.

HOW to enter these procedures?

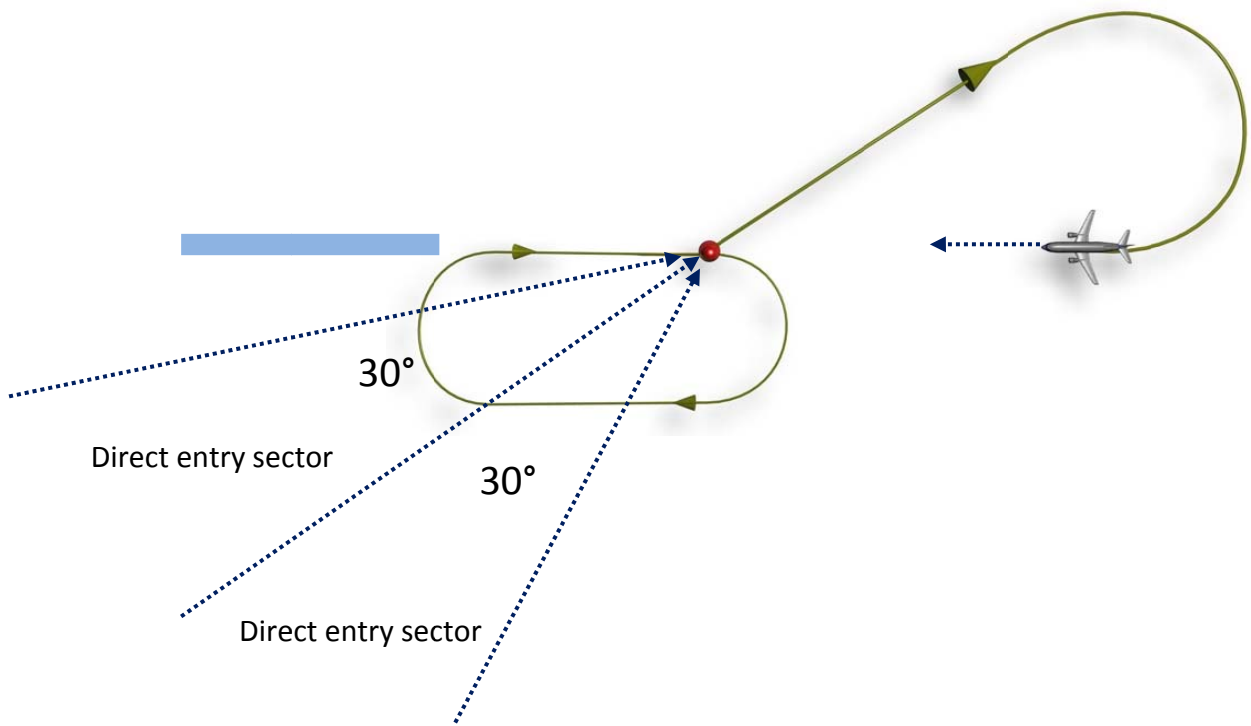
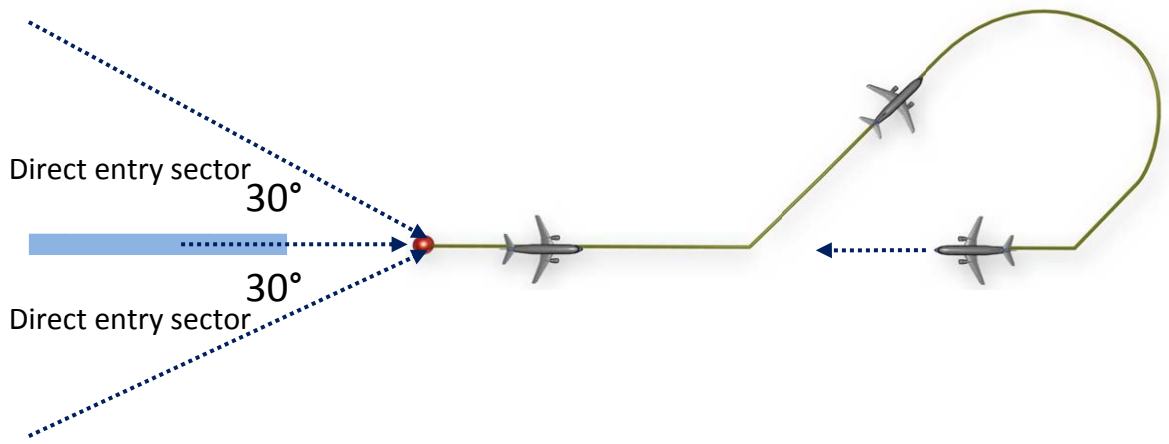
We can be very short about this.

The reversal procedure may be entered directly ONLY when your heading is less than +/- 30 degrees from the straight leg guidance or the outbound track.

If not? then you must enter the holding prior to the reversal procedure.!

When there is no hold available....ATC did not set you up correctly and you may refuse.





Arrivals from the Direct entry sector may enter the reversal procedure directly



The 45° procedure turn, the racetrack pattern (holding pattern), the teardrop procedure turn, or the 80°/260° course reversal are mentioned in the AIM as acceptable variations for course reversal. When a holding pattern is published in place of a procedure turn, pilots must make the standard entry and follow the depicted pattern to establish the aircraft on the inbound course. Additional circuits in the holding pattern are not necessary or expected by ATC if pilots are cleared for the approach prior to returning to the fix. In the event additional time is needed to lose altitude or become better established on course, pilots should advise ATC and obtain approval for any additional turns. When a teardrop is depicted and a course reversal is required, pilots also must fly the procedural track as published. A procedure turn is the maneuver prescribed to perform a course reversal to establish the aircraft inbound on an intermediate or final approach course. The procedure turn or hold-in-lieu-of-procedure turn (PT) is a required maneuver when it is depicted on the approach chart. However, the procedure turn or the hold-in-lieu-of-PT is not permitted when the symbol "No PT" is depicted on the initial segment being flown, when a RADAR VECTOR to the final approach course is provided, or when conducting a timed approach from a holding fix. The altitude prescribed for the procedure turn is a minimum altitude until the aircraft is established on the inbound course. The maneuver must be completed within the distance specified in the profile view. The pilot may elect to use the procedure turn or hold-in-lieu-of-PT when it is not required by the procedure, but must first receive an amended clearance from ATC. When ATC is Radar vectoring to the final approach course, or to the Intermediate Fix as may occur with RNAV standard instrument approach procedures, ATC may specify in the approach clearance "CLEARED STRAIGHT-IN (type) APPROACH" to ensure that the pilot understands that the procedure turn or holding in-lieu-of-PT is not to be flown. If the pilot is uncertain whether ATC intends for a procedure turn or a straight-in approach to be flown, the pilot shall immediately request clarification from ATC (14 CFR Part 91.123).

