

Intercepting and Tracking Navigational Systems – GPS Course

- OBJECTIVE:** To obtain proficiency in the orientation, interception, and tracking of navigational signals.
- STANDARDS:** Instrument - Airspeed: ± 10 knots, Altitude: ± 100 feet, Heading: $\pm 5^\circ$
No More than 3/4 scale deflection of CDI.
Exhibits adequate knowledge of the elements related to intercepting and tracking navigational systems.
Loads the course appropriately in the GPS navigator.
Sets the course to be intercepted into the course selector.
Intercepts the specified course at a predetermined angle.
Recognizes navigational receiver or RAIM failure and reports it to ATC.
- CONDITIONS:** N/A

NOTE: There can be significant differences in the operation of GPS navigators and there are numerous ways in which a GPS course can be defined. This procedure is not intended to teach the operation of a particular navigator. This procedure assumes the use of two defining waypoints for course definition, that the navigator is set in sequencing or leg mode, and the use of an external course selector / OBS head.

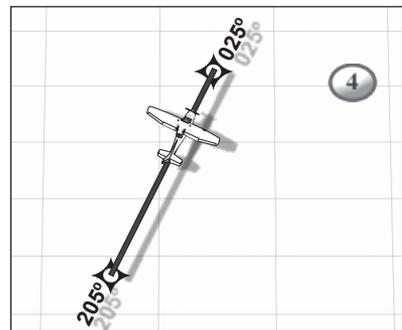
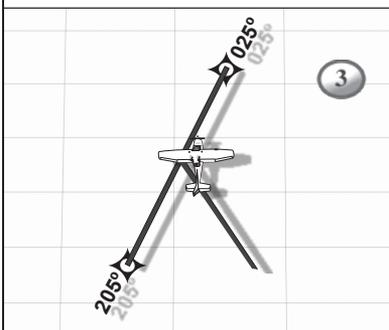
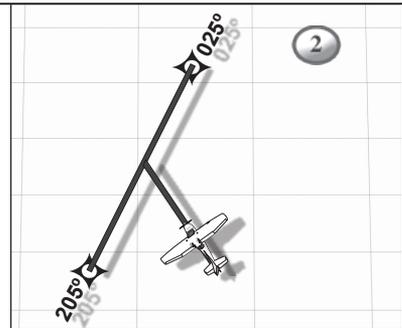
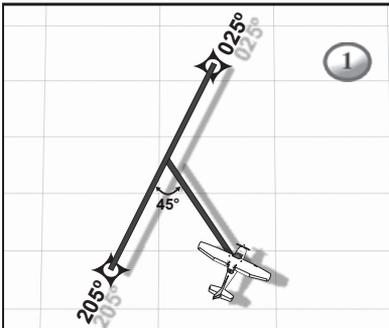
DESCRIPTION:

- Load the course into the GPS navigator and determine the course track for the leg to be intercepted.
- Check and set the heading indicator with the magnetic compass a minimum of every 10-15 minutes.
- Set the OBS to the course track. This is done to silence any messages from the navigator and to assist in the course intercept.
- Turn the aircraft to parallel the course track.
- ① • Using the course track set into the top of the OBS and the direction of the CDI deflection, determine the approximate intercept angle heading. Apply the desired intercept angle to the left or right of the course track, as it corresponds to the direction of the CDI deflection. The maximum intercept angle should be 45° .
- ② • Note the present heading and intercept heading. Turn in the direction closest to the intercept heading, establishing and maintaining the intercept heading.
- Determine the quality of the intercept. The quality of the intercept may be determined using the CDI in a manner similar to its use with a VOR. Alternatively, many navigators have a map mode which shows the course track along with the aircraft's ground track. Utilize this feature to determine if the aircraft's ground track will intercept the course track prior to the next waypoint. If necessary, increase the intercept angle by selecting and establishing a new intercept heading.

NOTE: Absolute maximum intercept angle 90° .

Intercepting and Tracking Navigational Systems – GPS Course

- 3 • As the CDI begins to center, lead the intercept with a turn to the course track heading so as not to fly through the desired course when established on course.
- 4 • Track toward the next waypoint by maintaining the required course heading.
 - Monitor the CDI. If the CDI should show a deflection left or right of center (on course), establish an intercept angle, as necessary.
 - Determine the quality of the intercept as noted previously.
 - Lead the re-centering of the CDI by reducing one-half (1/2) of the intercept angle and maintaining the new heading (wind correction heading) to maintain course.
 - Repeat course intercepts, as necessary, until establishing one heading that maintains the desired course (wind correction heading).



COMMON ERRORS:

- Failing to set up the GPS properly.
- Not using all the information available to resolve the navigation problem.
- Failing to ensure that the GPS is the navigation source for the OBS/ CDI head.