**Track Error Correction**

**Easy correction of heading error due to actual wind being different from forecast.**

It is important to be able to correct aircraft heading due to the actual wind at cruising altitude being different from that forecast.

For this method to be effective, accurate heading holding is essential.

Before flight, the pilot calculates heading based on the forecast wind and then, having flown that heading for some time, notices that the aircraft is off-track. The following simple method will show you how to correct the error and then maintain a better heading for the remainder of that segment of the route.

**Example 1 (with explanation):** Let’s say you plan to fly a route segment from A to B as shown below. The track true is East or 090(T). The forecast wind is northerly at 20 knots; that is W/V = 360(T)/20 and your TAS will be 100 knots. You calculate the Hdg(T) as 078 with a GS of 98 knots. If Mag. Var. is 6oW, then the **Hdg(M) is 084**. So you set off and start the clock over the point A with 084 on the D.I. exactly!

Your first waypoint or checkpoint is at X but instead of being over X you notice that you are left of track at Y, approximately **5o left of track and you note that it is 8 minutes** since you were over the starting point A.

5o

Y

A

B

C

X

Now, to get back on track and hold it, do the following.

1. Double the track error: 2 x 5o = 10o
2. Turn right 10o {Hdg(M) = 084+10=094} and hold this heading for another 8 minutes (same as the time from A to X-Y)
3. When the 8 minutes has elapsed at point C, change the heading to the original Hdg plus the track error; that is Hdg(M) = 084+5 = 089 and maintain this for the rest of the route segment.

See, it’s easy!

Remember, be careful to hold the heading and always write down the time over waypoints.

**Example 2:** Planned Hdg(M) = 228. **After 13 minutes,** **you notice you are 3o right of track**. What do you do?

1. Turn left (2x3) = 6o and hold for the next 13 minutes. That’s Hdg(M) 228 - 6 = 222
2. Then turn to Hdg(M) 228 - 3 = 225o and continue.

That’s it – simple!

**Example 3:** Planned Hdg(M) = 342. **After 15 minutes,** **you notice you are 8o left of track**. What do you do?

1. Turn right (2x8) = 16o and hold for the next 15 minutes. That’s Hdg(M) 342 + 16 = 358
2. Then turn to Hdg(M) 342 + 8 = 350o and continue.

**Remember:** Do not leave your heading until you have calculated a new heading.

See below a table to assist in estimating the angle off track from an estimate of the distance off track which is easier to assess when looking at a chart:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | The angle from desired track is given in the blue shaded area | | | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | Distance off track | | | | | | | | | |
| Distance travelled | NM | 0.5 | 1 | 1.5 | 2 | 2.5 | 3 | 3.5 | 4 | 4.5 | 5 |
| 5 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 | 54 | 60 |
| 6 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 |
| 7 | 4 | 9 | 13 | 17 | 21 | 26 | 30 | 34 | 39 | 43 |
| 8 | 4 | 8 | 11 | 15 | 19 | 23 | 26 | 30 | 34 | 38 |
| 9 | 3 | 7 | 10 | 13 | 17 | 20 | 23 | 27 | 30 | 33 |
| 10 | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 |
| 11 | 3 | 5 | 8 | 11 | 14 | 16 | 19 | 22 | 25 | 27 |
| 12 | 3 | 5 | 8 | 10 | 13 | 15 | 18 | 20 | 23 | 25 |
| 13 | 2 | 5 | 7 | 9 | 12 | 14 | 16 | 18 | 21 | 23 |
| 14 | 2 | 4 | 6 | 9 | 11 | 13 | 15 | 17 | 19 | 21 |
| 15 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 |
| 16 | 2 | 4 | 6 | 8 | 9 | 11 | 13 | 15 | 17 | 19 |
| 17 | 2 | 4 | 5 | 7 | 9 | 11 | 12 | 14 | 16 | 18 |
| 18 | 2 | 3 | 5 | 7 | 8 | 10 | 12 | 13 | 15 | 17 |
| 19 | 2 | 3 | 5 | 6 | 8 | 9 | 11 | 13 | 14 | 16 |
| 20 | 2 | 3 | 5 | 6 | 8 | 9 | 11 | 12 | 14 | 15 |
| 21 | 1 | 3 | 4 | 6 | 7 | 9 | 10 | 11 | 13 | 14 |
| 22 | 1 | 3 | 4 | 5 | 7 | 8 | 10 | 11 | 12 | 14 |
| 23 | 1 | 3 | 4 | 5 | 7 | 8 | 9 | 10 | 12 | 13 |
| 24 | 1 | 3 | 4 | 5 | 6 | 8 | 9 | 10 | 11 | 13 |
| 25 | 1 | 2 | 4 | 5 | 6 | 7 | 8 | 10 | 11 | 12 |
| 26 | 1 | 2 | 3 | 5 | 6 | 7 | 8 | 9 | 10 | 12 |
| 27 | 1 | 2 | 3 | 4 | 6 | 7 | 8 | 9 | 10 | 11 |
| 28 | 1 | 2 | 3 | 4 | 5 | 6 | 8 | 9 | 10 | 11 |
| 29 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 30 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |