

RADIAL INTERCEPTION

During instrumental flights, we will fly following radials and courses constantly; it will be essential to know how to intercept any radial/course from our position. To do this, we will have to know which radial/course we are on and set a course to intercept the next one. We will use the RMI as the main instrument, but we can also use the OBI or HSI.

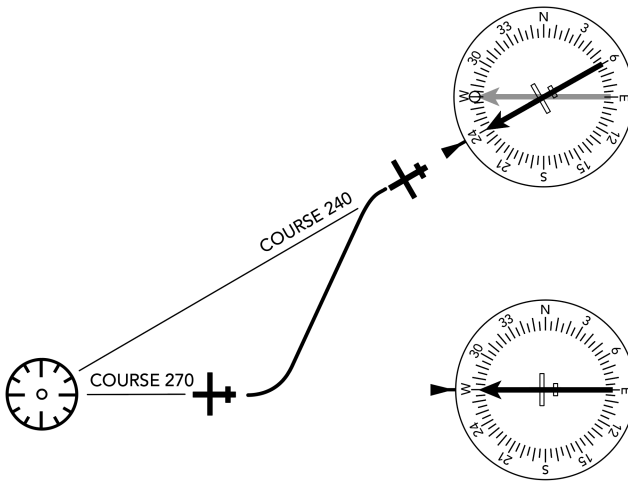


Figure 8.6.1. Example of an interception.

Using the example in Figure 8.6.1, imagine that we are approaching a station on the 240° course, and the controller asks us to approach the station on a 270° course. As you can see, we will have to make a left turn, fly an interception course, and turn right when we are approaching the desired radial/course.

It will be important to have a clear mental picture of where we are and where we are being directed. That is, whether the desired

radial/course is to the left or right of our position. An image like Figure 8.6.1 should instantly pop into our minds.

To see if the desired course/radial is to the left or right of our position, we need to identify the desired course/radial in the RMI and draw a line that passes through the center of the instrument. This is how the arrow will have to stay after we complete the interception.

Imagine that the center of the RMI is the station, the tail of the arrow is the radial you are on, and the imaginary line is the radial/course you have to intercept; you will have to turn towards it.

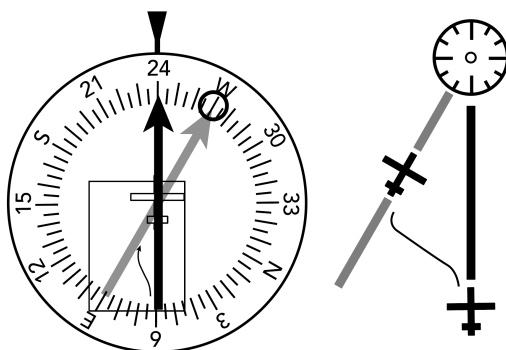


Figure 8.6.2. Interception in RMI.

In any case, with the rules outlined below, it will not be necessary to have a mental image, but it will be helpful to confirm the established interception course.

It is also important to know our distance from the station: if we are far from the station and the difference between the desired radial/course and ours is large, we can ignore the rules and set a higher interception course, and vice versa.

One of the most important ideas is that in RMI the arrowhead tends to fall, and the arrow tail tends to rise. See Figure 8.6.3.

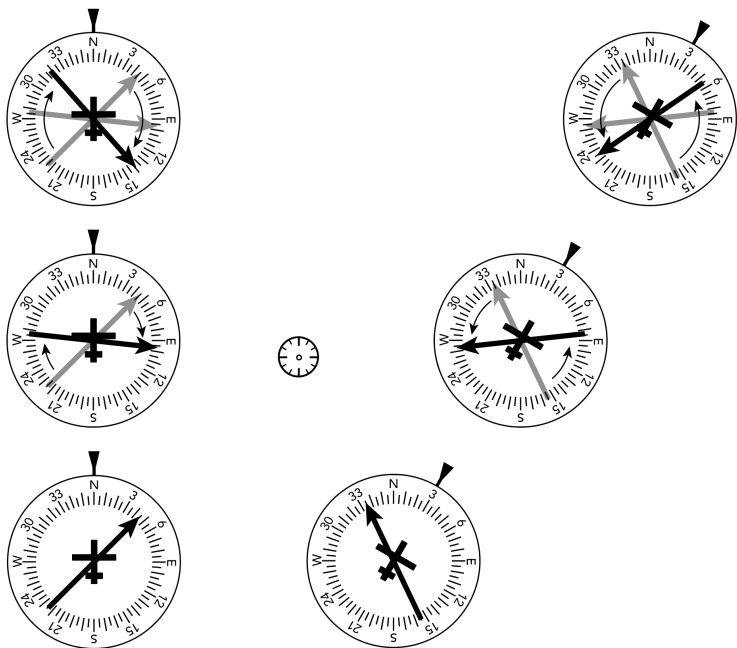


Figure 8.6.3. Arrowhead falls; arrow tail goes up.

If we intend to intercept an approach course, it will have to be below the arrowhead. If we intend to intercept a radial, it will have to be above the tail of the arrow.

INBOUND INTERCEPTIONS

In the inbound interceptions, we will fly in the direction of the station.

The first thing we will do is find our current course to the station, indicated by the RMI arrowhead. For the HSI and OBI, the course

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selector should be turned until the CDI needle is centered and the TO/FROM indicator shows "TO".

The following is about how to identify the approach course that we want to intercept. If we were asked to intercept a radial, we would have to add or subtract 180° to determine the desired inbound course. It is a common mistake to confuse radial with the inbound course to the station, not to add or subtract 180° , and to make a wrong interception.

In the following example, we are on the 300° inbound course (radial 120°), and we want to approach on the 260° course.

To figure out our interception course, we will put our eyes at the desired course (260°). We will continue in the direction of the arrowhead (300°), and we will add 30° in this direction. The result will be our interception course (330°).

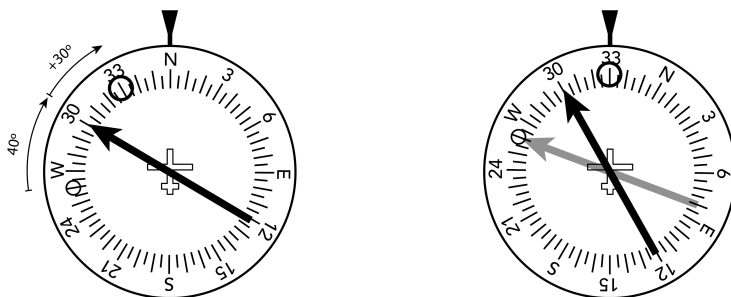


Figure 8.7.1. Interception in the RMI.

If the difference between the desired course and the current one is small, ($<15^\circ$) adding 30° will be excessive and less will be enough.

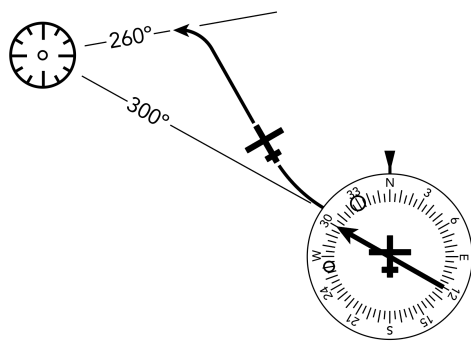


Figure 8.7.2. Example on the map.

$\geq 90^\circ$ (PASSED INTERCEPTION)

If we were asked to approach the station where the difference between the arrowhead and the desired course is more than 90° , we will be facing the situation in Figure 8.8.1.

In these cases we will set a course contrary to the desired inbound course (desired inbound course $+180^\circ$), we will wait to pass abeam the station, and we will count one minute before turning 90° towards the station (arrowhead) to intercept the desired course.

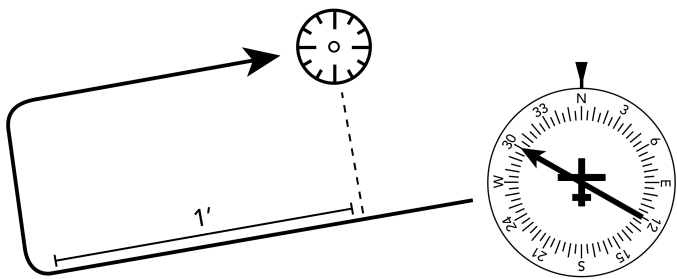


Figure 8.8.1. Example of a passed interception.

OUTBOUND INTERCEPTIONS

In the outbound interceptions, we are going to intercept a radial to get away from the station.

Similar to inbound interceptions, we will have to find the radial for our location. The tail of the arrow indicates our radial in the RMI. For the HSI and OBI, the course selector must be turned until the CDI needle is centered and the TO/FROM indicator shows “FROM”.

Then we will have to identify the radial that they ask us to fly.

Once we have identified our current radial and the desired radial, we will apply the appropriate rule. As said before, these rules are only a suggestion to choose the course of interception. The distance to the station, and the difference between the desired radial and ours, will be important elements in choosing this heading.

In the following example, we will go to the arrow tail (120°). We will continue in the direction of the desired radial (080°), and we will add 45° in this direction. The result will be our interception course (035°).

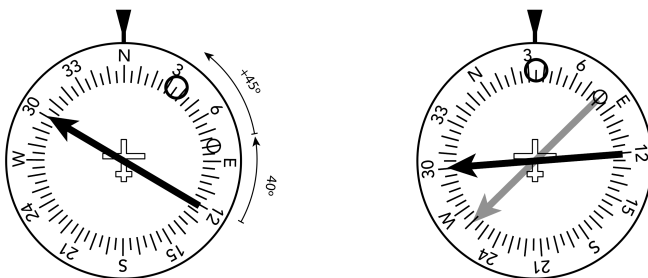


Figure 8.9.1. Example in the RMI.

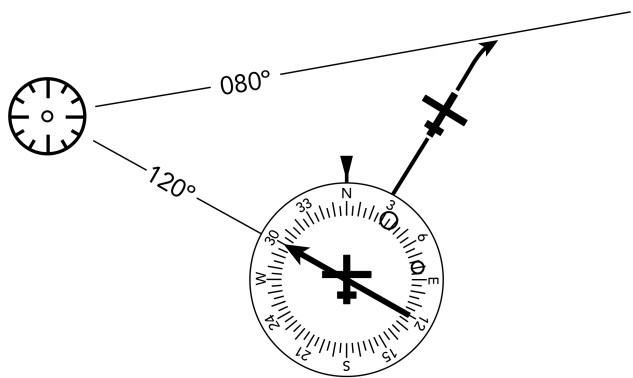


Figure 8.9.2. Example on the map.

>90° (PASSED INTERCEPTION)

If the difference between the arrow tail and the desired radial is more than 90°, we will do a passed interception.

In these cases, we will set the radial course and wait to pass abeam the station. We will then count one minute before turning 45° towards where the desired radial (arrowhead) is to intercept it.

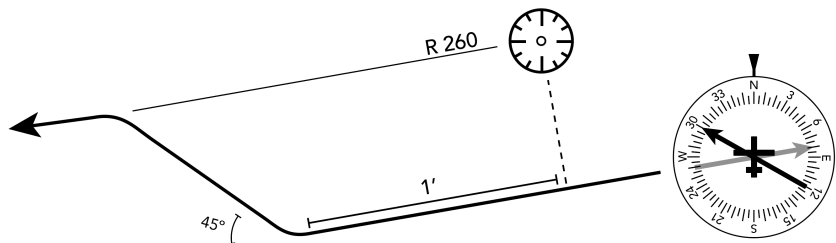


Figure 8.10.1. Example of the passed interception on the map.