HelicopterSchoolPart1 (V1.0)

created on 06.03.2024

Estimated flight duration 15 to 45min. Per exercise

Difficulty level easy-difficult (depending on flight mode)

Task: Train the hovering

Introduction:

In helicopter school part 1, you will learn how to pick up and set down the helicopter. You will also complete hover exercises in the hover square.

Read in advance the Training documents by Bernhard, a former Bundeswehr helicopter pilot and flight instructor on the AL II.

In HelicopterSchoolPart2, you will be trained in climbing, descending, turns, steep turns, speed changes and quick stops.

Difference between collective and power lever:

Basically:
1) The collective changes the angle of attack of the rotor blades (pitch), i.e. causes climb/descent.
2) The power lever is used on fixed-wing aircraft to "accelerate".

Because the P3d does not have separate control commands for the Collective, the power lever is used for the "Collective" function in helicopters (the engine power remains permanently at 100%).

This is probably why the following problem has occurred:
In P3dV5 and P3dV6, the engine will shut down in 1-2 minutes because the manifold pressure is too low (4.9 in HG).

A text display will ask you to slowly increase the power lever until the boost pressure increases, then set the power lever back to 0%, after which the boost pressure will remain stable between 10 and 15 in HG.

Manifold Pr. 4.9 10 bis 15

The problem does not occur in P3dV4, where the manifold pressure is stable between 10 and 15 in HG.

Start:

You are in South East Asia, at Seletar Airport (WSSL), near Singapore.
It's sunny and windless, ideal for practicing.
Your helicopter, a Robinson R22, is in the center of the hover square with the engine running.

As soon as the boost pressure is stable, you can choose which exercise you want to do:

1 - Pick up and set down

2 - Easy hover exercise (standard route, large margin of error)

3 - Hover exercise difficult (random route, no margin for error)

Depending on the exercise, it continues differently:

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1 - Pick up and set down

In this exercise you have to pick up the helicopter (make it hover) and keep it hovering for at least 5 seconds, then set it down (land).
The helicopter nose must always point north, the maximum permitted deviation is +/-15° .
In addition, the helicopter must remain within the hover zone (purple/green/white) and must not fly higher than 16ft/5m.

a) First you choose the difficulty level by selecting one of 3 hover zones:
Easy (hover area purple) (max. 35ft/10m from center)
Medium (hover area green) (max. 25ft/7.6m from the center)
Heavy (hover area white) (max. 15ft/4.5m from the center)

b) Now select the duration of the exercise (15/30/45min),

depending on the duration you must pick up/drop at least 10/30/60x.

c) Then you can choose whether north direction is displayed.

d) Finally, decide whether you want to see the hover area (purple/green/white).

I realize it's a click orgy, but it's very quick if you know how you want to practice:
Click 3/2/1/2 (for hover area heavy, 30min practice time, North Visible, hover area hidden).
Takes a second and you're ready to go!
This way you can customize the exercise according to your ability.

To avoid immediate frustration, deviating from the north direction will not lead to failure of the task.
In the Kneeboard you can check under Scenario whether you have deviated more than 15/25° from the north direction.

I recommend that you only switch to the next exercise once you have completed the exercise without any errors in the "hover area white".

Practice hovering slowly and with concentration, in 15 minutes you can easily do the required 10 hovering exercises, so there is no need to rush.
On the contrary, the longer you can keep the helicopter hovering stably, the better.

If you are very good at picking up/putting down, you can try to do 100x pick-ups/drop-offs in 15/30/45 minutes.
It can actually be done in 15 minutes!

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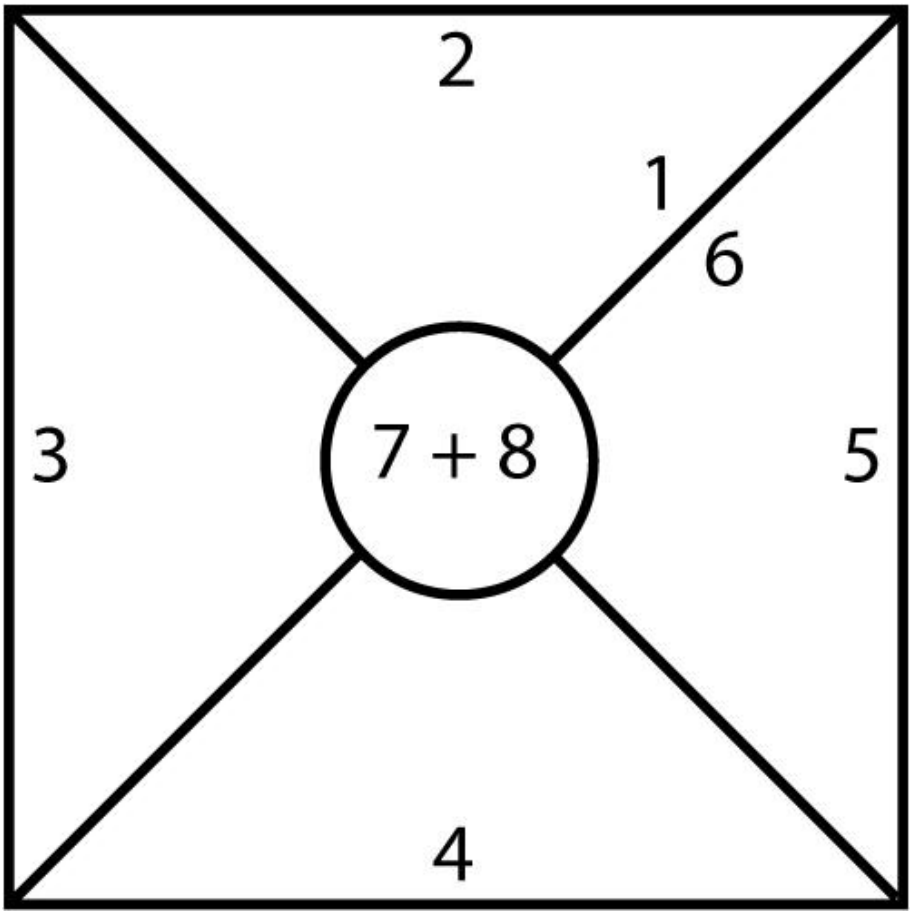
2 - Easy hover exercise (standard route, large margin of error)

In this exercise you will fly the "standard route" in the hover square, which is described in the training documents.



Pick up
1 = diagonally to the front right
2 = sideways to the left
3 = backwards (at double height)
4 = sideways to the right
5 = forwards
6 = backwards to the rear left to the center
(at double height)
7 = normal height 360° turn right
8 = normal height 360° turn left
Set down and park

a) First you can choose to view a preview of this exercise, duration 30 seconds.

b) Then you can choose whether the north direction is displayed.

c) Then select the level of difficulty:

c1) Easy (north direction tolerant, ground contact permitted)
- Display +/-15 degrees north deviation.
- Display +/-25 degrees north deviation.
- Ground contact permitted.
- Display higher than 20ft/6m.
- Hover square left sideways 197ft/60m.

The flight continues anyway, in the kneeboard under Scenario you can see what has been achieved/failed.

C2) Severe (max. +/- 15 degrees north deviation)
- Less than +/-15 degrees north deviation.
- Ground contact not allowed.
- Stay below 15ft/4.5m.
- Do not leave hover square laterally 164ft/50m.
Any error will result in failure of the mission!
For practice purposes, you can click "X" to remove the "Scenario Resolution - INCOMPLETE" message and still fly the flight to the end.

3 - Hover exercise difficult (random route, no margin for error)

In this exercise you will fly a random route in the hover square.

a) First, you can choose to view a preview of this exercise, lasting 30 seconds.

b) Then you can choose whether north direction is displayed.

c) Then select the duration of the exercise (5/10/15 hover points)

The following applies to this exercise:
- less than +/-15 degrees north deviation.
- Touching the ground is not permitted.
- Stay below 15ft/4.5m.
- Do not leave the hover square sideways 164ft/50m.
Any error will result in failure of the mission!
For practice purposes, you can click "X" to remove the "Scenario Resolution - INCOMPLETE" message and still fly the flight to the end.

Tipps:

1) If the helicopter seems like a wild bull at the beginning and you can't get a grip on the helicopter due to a lack of "PoPometer" (the feeling in your body), a second display window with an external view of the helicopter may help.
I consider such a display (at the beginning) to be legitimate, because this display only compensates for the missing "popometer" (seat-of-the-pants feel). Over time, a Simmer also manages to fly purely with the visual stimuli.

2) During the two hover exercises, you can switch the mission compass on/off (default key assignment "K"). This way you can always see exactly which corner of the hover square you have to fly to.

3) If everything is too hectic for you, reduce the simulation rate to 1/2 or 1/4 to give you more time to react. However, the "slowing down of time" also tempts you to pull harder on the controls. Always remember: minimal control movements!

I hope you enjoyed this flight, if so, please send feedback to p3d@andi20.ch . Please also send any error messages (spelling mistakes, incorrect information, etc.) to p3d@andi20.ch, I appreciate any feedback.