FSX Helicopter Auto Pilot (HAP) Gauge – Training mission 2

Lesson 2 – VFR Circuit flight and landing.
Preparation:
For the 2nd lesson, we are going to fly a little VFR tour around Maxwell Air Force Base.
This flight looks like a big left-hand "VFR circuit" and helps you practice flying it with the helicopter.

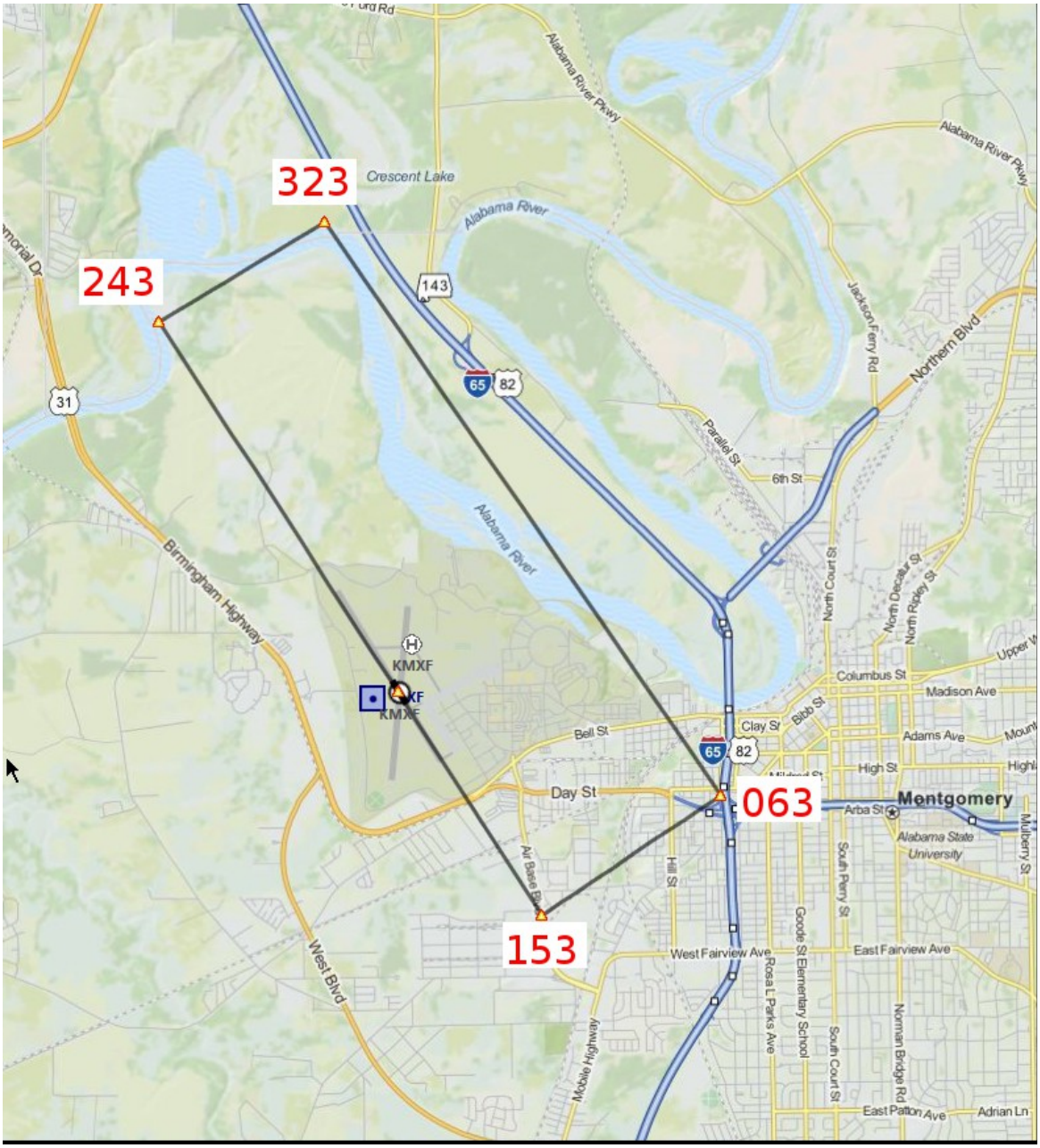

Fig. 1 - VFR flightplan for a little tour around KMXF.

Short mission overview:
- Take off from the helipad into HOVER_MODE.
- *Make transition from HOVER_MODE to FLIGHT_MODE.*
- Fly away from KMXF parallel to the runway - heading 153.
- Perform a standard climb to cruise altitude (1000ft).
- Turn left heading 063 - to see Montgomery city.
- Turn left heading 323 and descend to 700 ft – to fly the downwind leg.
- Turn left heading 243 – to fly the base leg.
- Turn left heading 153 – to fly final approach.
- *Make transition from FLIGHT_MODE to HOVER_MODE.*
- Perform a descend down to hover-height and speed.
- Land on runway 15 on KMXF again.

Lesson 2 - The flight.
I'll skip the “cold-and-dark” start-up phase and continue this lesson, sitting in the choppers cockpit that is ready for take-off. (see trainings mission 1 document for that).

	Press **[STAB]** to turn on the HAP-gauge.
	Press **[F/TDN]** to engage HOVER_MODE: >> HOV is indicating HOVER_MODE. >> 136 is the current Heading >> HHT = Hover HeighT. *Note:* *HHT is automatically set to 20 ft above ground level*

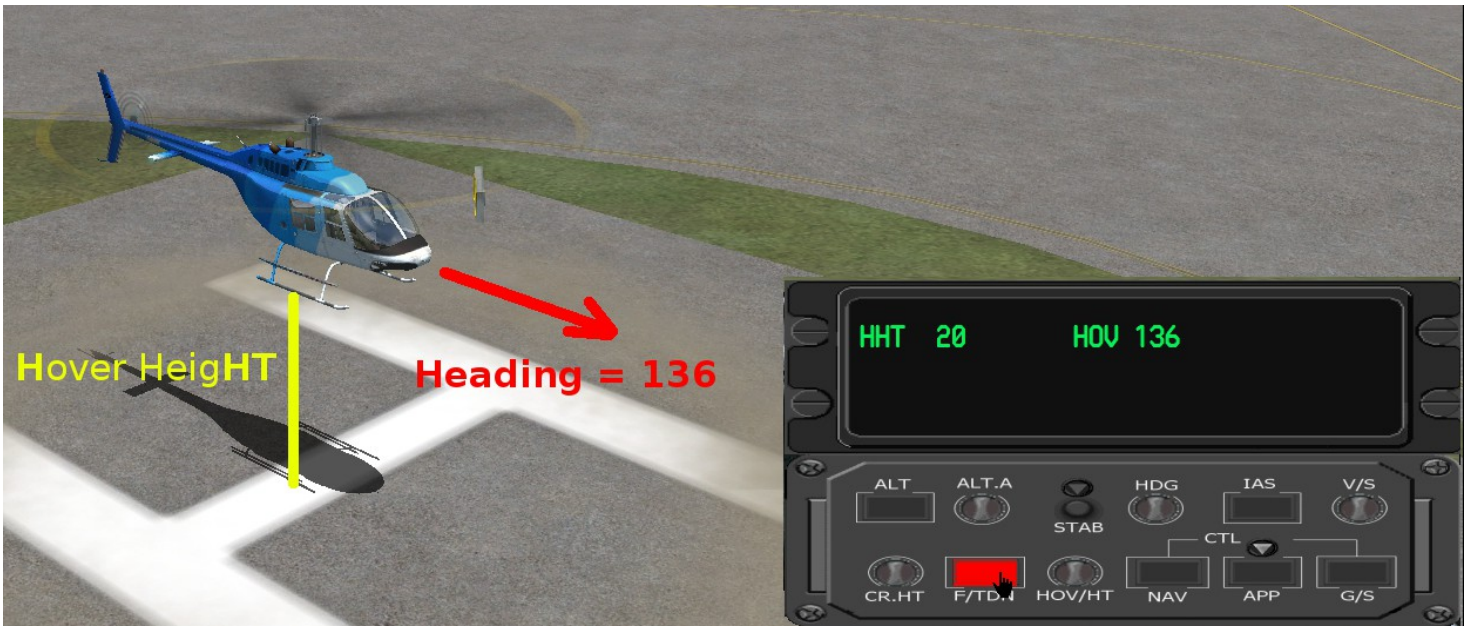

Fig. 2 – The chopper is hovering at 20 ft, nose pointed to compass course / heading 136.

Fig. 3 – Hovering at 20ft, Set [HDG] to 153, ready for departure.

Fig. 4 – Press [F/TDN] to engage FLIGHT_MODE.
The HAP-gauge confirms this transition with the Green (TUP) message on the display.

Fig. 5 – Over 40kts IAS, the HAP-gauge automatically switches to FLIGHT_MODE.
- Setting VS=500 ft/min, IAS=75 kts.

Fig. 6 – Turn on [ALT.A] (green spot) and set cruise altitude (red dot) to 1000 ft.
Note: **[ALT.A]** is shown in BLUE since the desired altitude has not been acquired yet!

Fig. 7 - Cruise Altitude reached, leaving KMXF to the South-East.
Note: The Blue **[ALT.A]** message has disappeared from the display!

Fig. 8 - Change [HDG] to 063 to see Montgomery city.

Fig. 9 - Change [HDG] to 223, to fly “the downwind leg”.

Fig. 10 - Descending to 700ft on “the downwind leg”.
Turn on **[ALT.A]** (green spot) and set the new altitude (red spots) to 700ft.

Fig. 11a - Descending to 700ft on "the downwind leg" (part 2).
Fig. 11b - Turn OFF **[ALT]** by clicking on the button (green square).
Fig. 11c - Turn ON **[V/S]** (green spot) and adjust V/S to -100 ft/min (red spot).

Fig. 12 - Set [HDG] to 243 to fly "the base leg".

Now we are entering the busiest part of the flight, the landing.

You need to take care of the fact that you are doing things in the right order! Here is how that goes...

Fig. 13 - Set [HDG] to 153 (runway heading) to fly “the final approach”.

Fig. 14 – Make small heading corrections to aim the helicopters nose towards the center of the runway.

Fig. 15 – Reduce your horizontal speed to 40 kts (this is the minimum IAS in FLIGHT_MODE). Press the [CTRL][SHIFT][L] to reduce the IAS setting on the HAP-gauge.

Fig. 16a – Turn [ALT] and [IAS] OFF.
Fig. 16b – Turn [V/S] ON and set descent speed to ~100ft/min.
Fig. 16c – Press [F/TDN] to tell the HAP-gauge to switch from FLIGHT_MODE to HOVER_MODE.

Fig. 17 – The Switch from FLIGHT_MODE to HOVER_MODE is now complete.
*Note: The TDN (**T**ransition **D**ow**N**) has turned Green to indicate this fact.*
The HAP gauge automatically controls the descends-to-hover phase.
- It reduced the helicopters forward speed 0 kts.
- Its lowers the helicopters altitude further down to 20 ft above ground level.

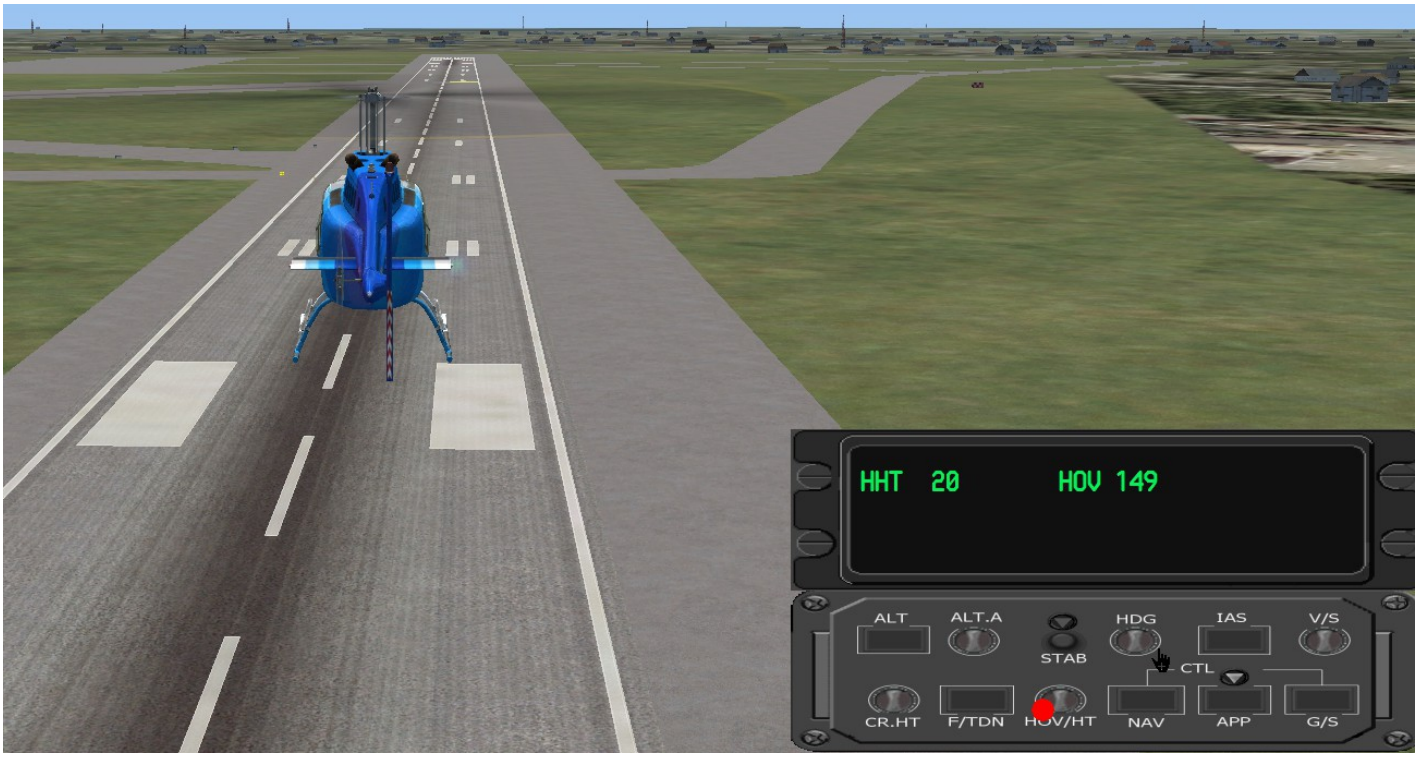

Fig. 18 – Set [HOV/HT]=0 to land the chopper on the runway.

Fig. 19 – Press [STAB] to turn off the HAP and shutdown the chopper.

Congratulations, you have just made you first HAP controlled VFR helicopter flight and landing!

End of training mission 2