



## DeIDOT Pilot Qualification UAV Maneuvers

1. Minimum Operating Climb Altitude (MOCA)
  - a. Purpose: Establish the minimum height plus ten feet that the aircraft should climb to so that it will not strike an object during the abort of a flying maneuver.
  - b. Maneuver: With the camera set in its level position, the Student Pilot will climb straight up after take-off until the aircraft is even with any obstacles within the area of operations. The pilot will do this by looking at the screen and seeing the top of obstacle and the horizon behind it. The pilot will then yaw the aircraft 360 degrees to ensure that he/she has identified the tallest obstacle. The screen will then indicate how high the highest obstacle is above ground level. The Student Pilot will then add 10 feet to this height to obtain the MOCA.
2. Accuracy Landing
  - a. Purpose: Pilots will need to demonstrate that they can perform a controlled descent and landing within a one square foot area.
  - b. Maneuver: The Instructor will identify a location on the ground that the Student Pilot must land the aircraft. The Student Pilot should do a controlled descent to approximately 10 feet above the target and slowly descent using the camera facing straight down. At approximately 2 feet above the target the Student Pilot should hold; make any final adjustments; raise the camera; then land the aircraft.
3. Complex Figure 8
  - a. Purpose: To provide the Student Pilot with a task that tests their hand to eye coordination as the Student Pilot will need to watch the aircraft and manipulate the sticks at the same time.
  - b. Maneuver #1: The Student Pilot will need to fly a figure eight pattern, with each circle approximately 30 feet in circumference. Cross over point should be directly in front of pilot 30 feet out with aircraft flying the pattern with the nose of the drone facing in the same direction (away) from the Student Pilot at all times.
  - c. Maneuver #2: The Student Pilot will need to fly a figure eight pattern, with each circle approximately 30 feet in circumference. Cross over point should be

directly in front of pilot 30 feet out with aircraft flying a pattern with the nose of the aircraft leading the maneuver throughout the entire flight.

#### 4. Blind Landing

- a. Purpose: To build the Student Pilots confidence in maneuvering the aircraft. This maneuver will also build the communication skills between the pilot and visual observer.
- b. Maneuver: The Student Pilots Visual Observer (VO) will guide the Student Pilot flying the drone from at least 50 feet above the ground and at least 30 feet away from the landing point with verbal commands. The VO will have the Pilot position the aircraft with the nose of the aircraft facing away from the pilot at all times. Pilot and VO's should have already established commands such as "Transition Left" "Transition Right, 3,2,1, stop" "descend 10 feet, 5,4,3,2,1, on the deck", etc.  
  
- The Student Pilot will not use First Person View on their controller and will only maneuver the aircraft according to the VOs commands.

#### 5. Road Course

- a. Purpose: To build confidence in the Student Pilots ability to maneuver the aircraft using the control sticks, First Person View, and Visual Observers at the same time.
- b. Maneuver: Student Pilots would be required to fly down the center of the road inside the Fire School training center at 10 feet AGL clockwise and counter-clockwise. The pilot will momentarily lose sight of the aircraft around structures and will have to rely on the video image or VOs to guide them.

#### 6. Point of Interest

- a. Purpose: The Student pilot should know how to apply the Point of Interest maneuver. This maneuver is used a lot during incidents when the video is being streamed into the Transportation Management Center.
- b. Maneuver: The Student Pilot will pick a building and perform the DJI Point of Interest maneuver. Aircraft will circle the building two complete rotations and then go the opposite direction at least two rotations.

## 7. Standoff Distance

- a. Purpose: The Student pilot will gain confidence flying near buildings and maneuvering the drone sideways along the building structure.
- b. Maneuver: The Student Pilot will fly to the edge of the roof and hover at 6 feet above the edge. The Student Pilot will adjust the camera to a 45 degree angle and then back off the roof until the edge of the roof is in the center of the screen. The Student Pilot then will snap the camera perpendicular to the ground and descend until they can peek in the glass windows. The Student Pilot will then transition left and right observing what is inside the building by looking through the glass windows. The Student Pilot will more than likely have to adjust the exposure wheel to see beyond the reflection in the glass.

## 8. Reveal Climb

- a. Purpose: The Student Pilot will practice hand to eye coordination and applying multiple control inputs simultaneously.
- b. Maneuver: The Student Pilot will fly to “eye level hold” position on an object approximately 4 feet off the ground and 30 feet away. Pilot will perform a 6 foot per second climb for 60 feet (10 seconds) tilting camera down at 10 degrees per second. Camera tilt action should end at the same time the drone reaches its 60 foot climb.

## 9. Long Distance Orientation

- a. Purpose: Have the Student Pilot get comfortable with orientating the aircraft during long distant drone operations.
- b. Maneuver: With the Student Pilot turned around, the Instructor will fly above MOCA, 2,000+ feet away from departure point and orientate the aircraft away from a direct path returning to the departure point. The Student Pilot will then turn around, take the controller and orientate the aircraft so it is facing directly away from the departure point without using the First Person Screen, the Student Pilot will return the aircraft to the home point without using the DJI Return to Home command.