NIST
National Institute of
Standards and Technology
U.S. Department of Commerce

OPEN TEST LANE | Basic Maneuvering Trials (MAN 1-5)

Perform 5 different flight paths around the omni bucket stands. Each flight path includes as sequence of alignments with one or more buckets. Capture a SINGLE IMAGE of the inscribed ring inside each bucket and land accurately.

- Score ALIGNMENT POINTS during or after the trial from images with UNBROKEN RINGS (5 pts) or BROKEN RINGS (1 pt).

- Land CENTERED (5 pts) with the aircraft center inside the designated 60 cm (24 inch) diameter circle, or OFFSET (1 pt) with at least one propeller motor inside the circle.

- Faults for extreme deviations from the intended flight path or contact with any object in the environment ends the trial to ensure safety.

- Timer starts at launch and ends after the last task is completed. Trial time limits are typically set to 5 minutes each (25 minutes to complete all 5 tests) although organizations may set their own trial time limits and passing scores.

POSITION
MAN 1
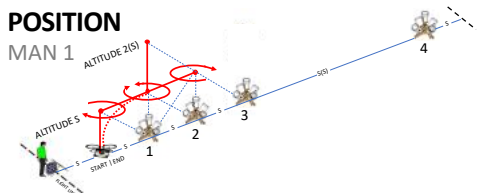
- Demonstrate basic flight maneuvers between designated hover positions, orientations, and altitudes along the lane centerline at altitudes S and 2(S).

- Climb, descend, yaw, pitch, and roll to simultaneously align with downward buckets to check position then forward buckets to check altitude.

- **Complete 10 positions along the lane centerline with 18 alignments and 1 accurate landing (counts double) to score up to 100 points.**

TRAVERSE
MAN 2
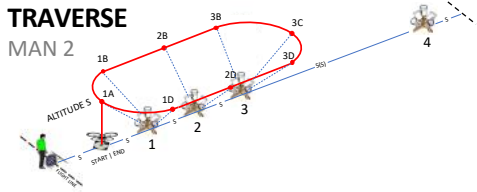
- Fly sideways parallel to objects while looking forward to identify features as if along a road, truck, bus, building, fence, tree line, etc.

- Maintain altitude S flying leftward and rightward around the first three bucket stands to align with all the designated buckets.

- **Complete 1 lap leftward then 1 lap rightward with 18 alignments and 2 accurate landings to score up to 100 points.**

ORBIT
MAN 3
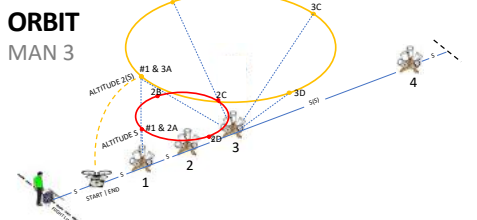
- Fly circular orbits around designated bucket stands while looking inward to identify features on all four sides. Fly altitude 2(S) leftward and rightward around stand #3 (white), then altitude S leftward and rightward around stand #2 (black).

- Each orbit has 5 bucket alignments starting with 1 downward radius check then 4 altitude checks around the orbit looking inward at the angled buckets.

- **Complete 4 orbits with 20 alignments to score up to 100 points.**
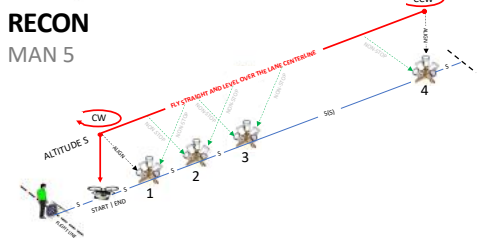
INSPECT
MAN 4
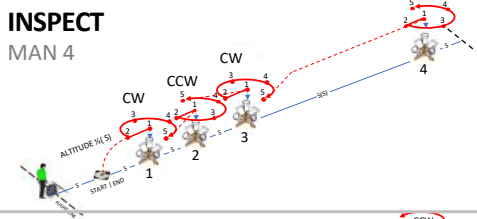
- Fly in closer proximity around objects to inspect detailed features on top and all four sides of the bucket stands.

- Maintain altitude 1/2(S) starting on top of each bucket stand with alternating leftward and rightward rotations to inspect all four sides of each bucket stand.

- **Complete all 4 stands with 20 alignments to score up to 100 points.**

RECON
MAN 5

- Fly straight and level over the centerline to establish a stable hover over an object down range to perform reconnaissance tasks.

- Maintain altitude S to align with buckets and the landing at each end of the lane. Reconnaissance tasks are performed every 8(S) over a total distance of 80(S).

- **Complete 5 laps (or 10 lane lengths) with 20 alignments to score up to 100 points.**

[8] ¼-20 x 2in hanger bolts and wing nuts for the leg extensions to slide on and tighten
[15] 8in diameter weatherproof stickers
(see website to download the sticker files)
[4] Big numbers 1-1-1-1 inside the top bucket
[4] Big letters A-B-C-D around the top bucket
[5] Acuity targets A-B-C-D inside bottom of all
[2] Perch acuity targets inside and bottom of A

VERSION 2020K

CHECKRIDE SCORESHEET

1, 2, 3, 4

OPEN TEST LANE

Basic Maneuvering Trials

1A

...inside...to guide alignment and a visual acuity target with increasingly small Concentric Cs gaps to identify the correct (1 of 8) orientations.

TOP (T)
TOP LEFT (TL) — TOP RIGHT (TR)
LEFT (L) — (R) RIGHT
BOTTOM LEFT (BL) — BOTTOM RIGHT (BR)
BOTTOM (B)

Team #:

Lane #:

TIME LIMIT

| 5 MIN | 10 MIN | ___ MIN |

(CIRCLE ONE)

ALIGNM... ...ncomplete.

POSIT... **RECON (MAN 5)**

20 IMAGES...

- 1 PR...
- 19 ALIGNMENTS
(LANDING IS INCLUDED)

The bucket stands are adjusted to vertical using the slotted leg extensions so the angled buckets are at 45 degrees.

ALIGNMENT	
BUCKET SEQUENCE	IMAGE POINTS
1	5 1
3A	5 1
3B	5 1
3C	5 1
3D	5 1
1	5 1
3A	5 1
3D	5 1
3C	5 1
3B	5 1
1	5 1
2A	5 1
2B	5 1
2C	5 1
2D	5 1
1	5 1
2A	5 1
2D	5 1
2C	5 1
2B	5 1

ALIGNMENT	
BUCKET SEQUENCE	IMAGE POINTS
1	5 1
1A	5 1
1B	5 1
1C	5 1
1D	5 1
2	5 1
2A	5 1
2D	5 1
2C	5 1
2B	5 1
3	5 1
3A	5 1
3B	5 1
3C	5 1
3D	5 1
4	5 1
4A	5 1
4D	5 1
4C	5 1
4B	5 1

TOTAL /100

Elapsed Time ELAPSED TIME

PASS   FAIL

ALIGNMENT SCORE /500
MINIMUM SCORE /500 SET BY ORGANIZATION

PASS   FAIL
CIRCLE ONE

*If your training aircraft camera has a limited range of motion, align with as many buckets as possible. Pilot proficiency is only compared...