Aeronautics

PGCS
ORBITER CHECK LIST

MARCH 2007

LIST OF EFFECTIVE PAGES

Insert latest changed pages, dispose supersedes pages.

Dates of issue for original and changed pages are:

Original ..... 0 .....March 2007

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DEPLOYMENT & PRE-FLIGHT CHECK

DEPLOYMENT

a. Station Logbook

1. Clearances/Malfunctions.....Check

2. Applicable details.....Enter and sign in

b. PGCS Visual Inspection

1. Datalink antennas.....Properly deployed

2. RF Cables.....Connected and intact

3. Batteries.....Connectors intact, no leakage

c. Launcher Deployment

1. Launcher.....Leveled, head wind and on the stake

2. Launcher & six rubber bands.....Check for proper condition

3. Launcher trolley.....Check smooth travel and return to launch position

4. Trolley safety pin.....Insert

d. PGCS Assembling

1. Fuse.....Open (out)
2. TX switch .....OFF
3. PCU to Electronic unit (J20).....Connect
4. UPL ANT to Electronic unit (J5)...Connect
5. DNL ANT to Electronic unit (J4)..Connect
6. Battery to Electronic unit (J2).....Connect
7. Backup battery.....Place inside the right pocket

e. MUAV Assembly Procedure

Other operator shall double check**:**

1. Parachute cartridge.....Properly stored in Landing compartment
2. Parachute cable.....Connect
3. MUAV.....Upload on launcher

NOTE

Launcher should not be starched yet in this stage.

N-3/N-4 Blank

4. Left Wing & DNL Ant.....Attach
5. Right Wing & UPL Ant .....Attach
6. Left Winglet & DNL Ant.....Attach
7. Right Winglet & UPL Ant .....Attach
8. Payload .....Attach to UMAS

f. PGCS Power Up

1. PCU Power switch .....ON
2. Electronic unit - Tx.....OFF, LOW
3. Fuse.....Closed (in)
4. Electronic unit - Tx.....ON

PRE-FLIGHT CHECKS

a. MUAV Power-up

1. Engine switch/pin.....OFF/Inserted
2. MUAV battery.....Connect (power on)
3. Datalink .....Verify

b. Application Preparation

1. Map scale.....Select
2. Drawing layers .....Load
3. Master caution window.....Reset. All Green
4. MUAV transmitter .....LOW
5. MUAV coordinates.....Check
6. Voltages.....Within limitations
7. Mode.....Verify WFL (Hold)
8. Payload .....ON
9. DVR.....ON
10. PGCS location .....Mark
11. Mission .....Open
12. Recording .....Start
13. Barometric pressure.....Set

14. Debugger window:
    - Recorder ..... Run
    - Voltages..... Within limits
15. Sensors.....Check
16. Payload .....Check

NORMAL PROCEDURES

BEFORE LAUNCH & LAUNCH

a. Before Launch

1. Warning indicators.....Green

2. HOTAS check:

- ENGINE switch..... ON
- EMERGENCY switch..... OFF
- RECOVERY switch..... OFF
- RH switch..... OFF

3. Launch window.....Confirm green

4. Flight mode window report.....WFL (Desired flight mode)

5. Take-Off clearance.....Obtain (as required)

7. Field clear for take-off.....Check

8. MUAV.....Download from the launcher

9. Launcher rubber-bands.....Stretch

10. MUAV.....Upload on launcher

11. MUAV pitch angle.....Within limitations

12. MUAV propeller.....Set to folded position

b. Launch

1. Engine safety switch.....ON/Remove
2. Launcher safety pin .....Remove
3. Crew.....Stand-by and clear launch path for Launch
4. Crewmembers.....Announce "LAUNCH"
5. LRH. .....Push

N-9/N-10 Blank

AFTER LAUNCH

1. Desired flight mode.....Set 20 sec after launch
2. Flight path.....Establish heading to mission area

FLIGHT ROUTINE

FLIGHT INDICATORS MONITORING

a. Flight Data

Monitor data per indicators scanning method:

1. HDG.....Match

2. IAS.....Match

3. ALT .....Match

b. Warning

1. Warning Indicators.....Green

c. Datalink

1. Transmitters (station and MUAV).HIGH/LOW
(as required)

2. Upl/Dnl indicators .....Green

d. Payload

1. Image .....Clear & stable

e. Power

1. Power warning lights.....Green

2. Airborne voltages (debugger) .....Check

3. Bingo parameters.....Calculate and record

NOTE

Consider battery power remaining, weather report and ATC clearance.

f. Weather

1. Wind, clouds and turbulence.....Check

CONTROL HANDOVER

a. Preliminary Checks

1. Display.....Orbiter
2. Datalink indicators .....All green
3. Flight mode.....Hold
4. Payload .....Cage

b. Data and Switches Status Comparison

NOTE

Data readout shall be performed by station obtaining Control over MUAV.

1. Station transmitters.....OFF
2. DNL .....All green
3. HP .....Match
4. Recording .....ON
5. Voltages.....Within limits
6. MUAV transmitter .....Match
7. DISPLAY .....ORBITER
8. MC window.....All green
9. ALT, IAS and HDG.....Callout
10. IAS CMD .....Loiter

11. Flight mode CMD .....Hold

12. Payload control CMD .....Cage

13. HOTAS:

- ENG..... ON
- All others ..... OFF

c. Data Sharing

1. Report data to station obtaining control over MUAV:

- Weather ..... Clouds, wind and temperature
- Failures/Unusual events .... Update

NOTE

Standby to takeover back the control should the handover fail due to a malfunction.

2. Display.....AEROSTAR

3. Station obtaining MUAV.....Declare ready

4. Countdown for control handover..."3, 2, 1…"

5. Transmitters.....OFF

6. UPL datalink.....Red for 3 sec

7. UPL datalink.....Blue (verify obtaining station number)

8. Check with station obtaining control over MUAV:

- Datalink ..... Green
- MUAV..... Positive control
- Payload..... Positive control

9. "I have control over MUAV".....Obtain positive acknowledge from obtaining station

OBTAINING CONTROL OVER MUAV FROM OTHER STATION

a. Preliminary Checks

1. Display.....ORBITER
2. Tx.....OFF
3. DNL.....Green
4. Mission.....Open
   - HP..... Match to PGCS
5. Recordings.....All green

b. Data and Switches Status Comparison

NOTE

Data readout shall be performed by station obtaining control over MUAV.

1. Station transmitter.....OFF
2. DNL.....All green
3. HP.....Match
4. Recording.....ON
5. Voltages.....Within limitations
6. MUAV transmitter.....Match

7. MC window.....All green

8. ALT, IAS, and HDG.....Report

9. IAS CMD .....Loiter

10. Flight mode CMD .....Hold

11. Payload control CMD .....Cage

12. HOTAS:

- ENG..... ON
- All others ..... OFF

c. Data Sharing

1. Report data to station obtaining control:

- Weather ..... Clouds, wind and temperature
- Failures/Unusual events .... Update

d. Control Handover

NOTE

Standby to takeover back the control should the handover fail due to a malfunction.

1. Display.....ORBITER

2. Transmitter shutdown.....Authorize other station

N-19/N-20 Blank

3. After transmitter shutdown:

- UPL datalink..... Red
- Countdown call..... "3, 2, 1…"
- Transmitter ..... ON

4. After shutting transmitter down:

- G&A system
- Monitor buttons ..... RESET
- Datalink ..... Stable
- MUAV..... Positive control
- Payload..... Positive control
- "I have control"..... Report to other station
- RH ROUTS ..... Download

RECOVERY

1. Payload .....Stow
2. RECOVERY button.....Press

CAUTION

If range from PGCS is more than 2 km, the MUAV executes Recovery above the commanded point, at the commanded altitude.

3. Crewmembers.....Announce "RECOVERY"
4. Flight mode window report.....Recovery
5. Wait for MUAV touchdown
6. HOTAS Engine switch .....OFF
7. Other operator:
   - HOTAS Engine switch..... OFF
   - Battery ..... Disconnect
   - Parachute ..... Disconnect

AFTER MUAV TOUCHDOWN

1. Debugger recording.....STOP
2. Wait for other operator to disconnect battery
3. Tx.....OFF

TEARDOWN

a. Power Consuming Devices Shutdown

1. Recording .....STOP
2. Station transmitter .....LOW
3. FUSE .....OUT
4. General menu .....Select EXIT
5. Computers.....Shut down
6. PGCS logbook.....Enter applicable data
7. MUAV logbook .....Enter applicable data
8. Debriefing.....Debrief crew

RETURN-HOME (RH) RESET

a. RH Position Reset during flight

NOTE

Changing the waypoint will affect the pre-planned route.

1. Navigation Menu.....Open
2. RH position.....Select
3. Desired RH position.....Place cursor on it
4. Mouse .....Right-click
5. SET AS HOME.....Select
6. RH altitude.....300 ft AGL
7. RH position.....Update
8. SL altitude.....Check
9. OK.....Select
10. "Home Programmed" Window....Select OK