Stratoware/Miltech Simulations Bo105

Standard Procedures

In-depth and generalised operating procedures, inspired by the real-world manual.

Caution
SIMULATION USE ONLY - DO NOT USE THIS DOCUMENTATION ON A REAL AIRCRAFT

Sim Operation Remarks

1. Make sure your controls are correctly configured for flight. Please check the Hardware Configuration page for more information.
2. Make sure your hardware has all the necessary keybinds configured. Please check the Keybinds Guide page for more information.
3. The **Rotor Brake** keybind must be correctly configured, as it may interfere with background functions. Find ROTOR BRAKE in your controls options, * Configure keybind for Press+Hold (input repetition must be enabled) activation. * Alternatively, you may use TOGGLE ROTOR BRAKE to lock it into position (ON/OFF without requiring input repetition).
4. Please **DO NOT USE** HELICOPTER THROTTLE AXIS , and unassign this from your hardware.

General

This section contains instructions and recommended procedures that are peculiar to the operation of this helicopter.

Flight Restrictions

The minimum, normal, maximum and cautionary operation ranges for the helicopter and its subsystems are indicated by instrument markings, placards and decals.

Flight Planning

Refer to Performance Data (FOR EDUCATIONAL PURPOSES ONLY) to determine required fuel, airspeeds and power settings for takeoff, climb, cruise, and hovering and landing data necessary to accomplish the mission.

Note
Please note that failures are not simulated in this addon, and the flight model is limited by the capabilities of the simulator itself. Therefore, performance charts may not translate accurately into the simulated environment.

Mass and Balance

The takeoff and anticipated landing gross mass and balance should be obtained before takeoff and checked against mass and load limits, and center of gravity limitations.

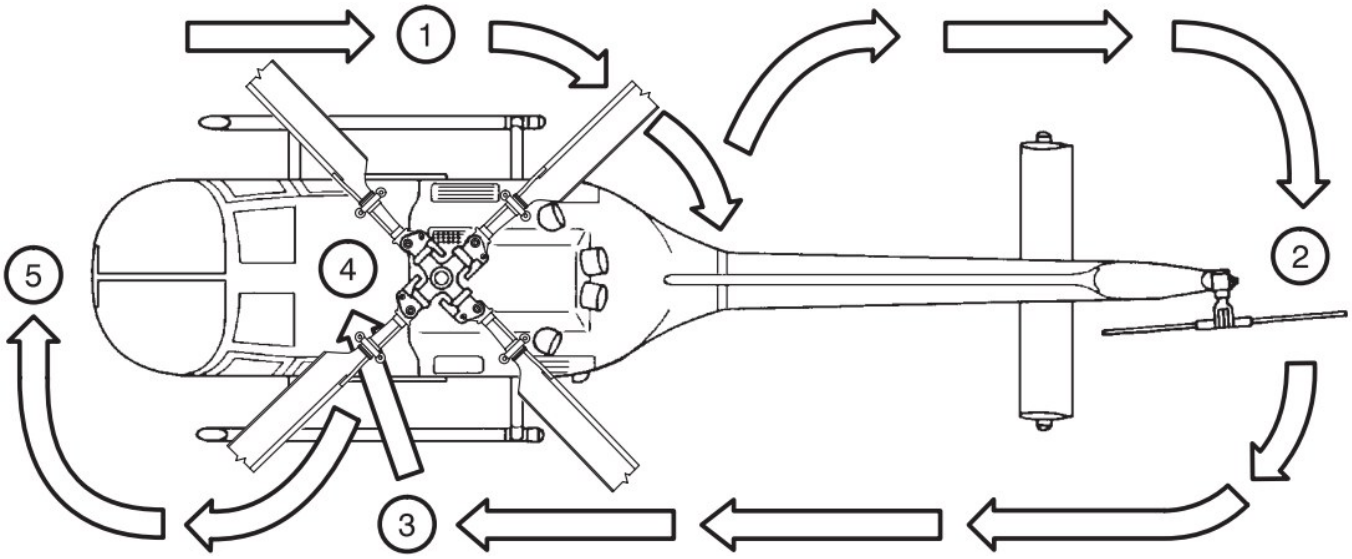
Note
See EFB > Aircraft > Flight Performance > Mass and balance

Preflight Check

The preflight check is not a detailed mechanical inspection, but essentially a visual check \ of the helicopter for correct condition. When unusual local conditions dictate, the extent and/or frequency of this check shall be increased as necessary to promote safe operation.

Exterior Check

The exterior check is laid out as a walk-around check, starting forward right at the pilot’s door, proceeding clockwise to the tail boom, to the left hand side (including the upper and lower areas of the helicopter) and being completed at the helicopter nose area.



(1. FUSELAGE - RIGHT SIDE, 2. TAIL BOOM, 3. FUSELAGE - LEFT SIDE, 4. CABIN TOP, 5. NOSE)

Note:

- The helicopter should be headed into the wind before starting engines.
- The area around the helicopter should be clear of all foreign objects.
- To avoid excessive drain on the helicopter battery, particularly during cold weather, all ground operations should be conducted using an external power unit (EPU).
- When the battery is used, the operation of electrical equipment should be kept \ to a minimum.

Checklist:

1. Helicopter Documents - CHECK
2. Fuselage underside - NO FUEL LEAKS
3. Covers and Tie-downs:
4. Static Port Cover - REMOVE
5. Ground Handling Wheels - REMOVE
6. Blade Socks - REMOVE
7. Engine Covers - REMOVE
8. Ground Handling Wheels - REMOVE
9. Cockpit Switches - ALL OFF

10. Power Levers - OFF
11. Rotor Brake Lever - FULL DOWN
12. Circuit Breakers - AS REQUIRED
13. Battery Switch - ON
14. Voltmeter Indication - 24V
15. If EPU used instead: Battery Switch - OFF
16. Pitot Heating - FUNCTION
17. Lighting:

1. Position Lights - FUNCTION
2. Anti-collision Lights - FUNCTION
3. Landing Lights - FUNCTION

18. For Night Flights:

1. Dome and Instrument Lights - FUNCTION
2. Flashlight - ON BOARD, FUNCTION

19. Battery Switch - OFF
20. Hand Fire Extinguisher - ON BOARD, CHECK PRESSURE
21. Cockpit Overhead Window - CONDITION
22. OAT Indicator Probe - CONDITION
23. Cockpit Door - CONDITION, FUNCTION
24. Pilot Seat, Safety Belts - CONDITION
25. Static Port - CLEAN, UNOBSTRUCTED
26. Pitot Tube - CONDITION, CLEAN, UNOBSTRUCTED
27. Landing Gear and Step - CONDITION
28. Cabin Door - CONDITION, FUNCTION
29. Baggage, Cargo, Loose Items - STOWED, SECURED
30. Passenger Seats, Belts - CONDITION
31. Engine Air Intake - CONDITION, NO DIRT, NO FOREIGN OBJECTS, FREE OF ICE/SNOW
32. Transmission Access Door - CLOSED, SECURED
33. Engine Ventilation Air Intake - CLEAR
34. Engine Access Door - CLOSED, SECURED
35. Drain and Vent Ports - CLEAR
36. Battery - CONDITION, NO ELECTROLYTE SPILLAGE

1. Battery Connectors - CONNECTED
2. Battery Vents - CLEAR
3. Battery Compartment Door - CLOSED, SECURED

37. Engine Cowling - SECURED
38. Engine Exhaust Pipe - CONDITION
39. Fuselage Exterior - CONDITION
40. Clam Shell Doors and Latches - CONDITION, CLOSED, SECURED
41. Tail Boom (RHS) - CONDITION
42. Horizontal and Vertical Stabiliser (RHS) - CONDITION
43. Position Light (Green) - CONDITION
44. Vertical Fin - CONDITION
45. Position Light (White) - CONDITION
46. Anti-collision Light - CONDITION
47. Tail Rotor - CONDITION
48. Tail Skid - CONDITION
49. Horizontal and Vertical Stabiliser (LHS) - CONDITION
50. Tail Boom (LHS) - CONDITION
51. Fuel Filler Cap - CLOSED, SECURED
52. Drain and Vent Ports - CLEAR
53. Fuselage Exterior - CONDITION
54. Enging Exhaust Pipe - CONDITION
55. Engine Cowling - SECURED
56. Engine Compartment - NO FOREIGN OBJECTS, NO FUEL/OIL LEAKAGE
57. Engine Ventilation Air Intake - CLEAR
58. Engine Access Door - CLOSED, SECURED
59. Engine Air Intake - CONDITION, NO DIRT, NO FOREIGN OBJECTS, FREE OF ICE/SNOW
60. Main Rotor - CHECK FOR SMOOTH ROTATION
61. Rotor Blades - CONDITION
62. Rotor Blade Attachment Bolts - SECURED
63. Rotating Control Rods - CONDITION
64. Swashplate - CONDITION
65. Pendulum Absorbers - CONDITION
66. Air Intake - CONDITION, NO FOREIGN OBJECTS, FREE OF ICE/SNOW
67. Engine Inlet Deflector Shield (Military Variants) - CONDITION, NO FOREIGN OBJECTS
68. Cockpit Overhead Window - CONDITION
69. Cabin Door - CONDITION, FUNCTION
70. Landing Gear and Step - CONDITION
71. Static Port - CLEAN, UNOBSTRUCTED

72. Cockpit Door - CONDITION, FUNCTION
73. Windshields - CONDITION
74. Lower Cockpit Windows - CONDITION
75. Fuselage Bottom - CONDITION
76. Landing Light - CONDITION
77. Anti-collision Light - CONDITION

Interior Check

1. Seat and Pedals - ADJUST
2. Safety Belts - FASTEN, ADJUST
3. Instrument Panel
4. All Instruments - CHECK AND SET
5. Switch Panel:

1. EMERG FUEL VALVE Switches - GUARDED
2. Circuit Breakers - AS REQURIED
3. All Switches - OFF
4. COMM/NAV Equipment - OFF

6. Overhead Panel:

1. Power Levers - OFF
2. All Switches - OFF
3. Circuit Breakers - AS REQUIRED

7. Collective Lever Panel

1. All Switches - OFF

Pre-start Check

1. Battery Switch - ON
2. For EPU Starts:
3. Battery Switch - OFF
4. EPU - Connected
5. EPU ON Light - ON
6. Voltmeter:
7. Battery - MINIMUM 24V
8. EPU - BETWEEN 24-28V
9. Warning Lights - TEST
10. Both Engine Fire Warning Lights - TEST
11. Mast Moment Indicator - TEST

12. Low Fuel Test Push Button - PRESS, LOW FUEL WARNING LIGHT COMES ON
13. Fuel Quantity Indicator - CHECK READINGS
14. Fuel Pumps (4) - CHECK FUNCTION
15. Flight Controls - FREEDOM OF MOVEMENT
16. Cyclic Trim System - CHECK FUNCTION
17. Cyclic Stick - TRIM NEUTRAL

Starting Engines

Note

- Either engine may be started first.
- If, for any reason, a starting attempt is discontinued the entire starting sequence \ must be repeated from the beginning.
- When a starting attempt is aborted but TOT limits were not exceeded, wait 15 \ seconds after N_1 has returned to zero before attempting restart to permit excess \ fuel to drain from combustion chamber.
- Before starting engines, the operational hydraulic system shall always be preselected to system 2 (collective lever lock engaged).

Starting First Engine

Note
Operate only the controls of the corresponding engine.

Caution

IMMEDIATELY ABORT START FOR ANY OF THE FOLLOWING:

- MAIN ROTOR IS NOT ROTATING AT 25% N_1. (A SECOND AND THIRD START ATTEMPT MAY BE MADE. IF POWER TURBINE STILL F AILS TO ROTATE, DISCONTINUE ATTEMPT)
- STAGNATED START (FUEL STARVATION).
- TOT RISES ABNORMALLY AND RAPIDLY APPROACHES START LIMIT (927 °C).
- TOT EXCEEDS 10-SECOND LIMIT WITHIN TEMPERATURE RANGE (811-927 °C).
- NO POSITIVE ENGINE OR TRANSMISSION OIL PRESSURE INDICATIONS UPON REACHING IDLE SPEED (N_1 59-65%).
- IDLE SPEED IS NOT REACHED WITHIN 60 SECONDS UNLESS N_1 AND N_2 ARE ACCELERATING AND TOT IS WITHIN LIMITS.
- HYD 2 WARNING LIGHT REMAINS ON UPON REACHING GROUND IDLE SPEED (60% NRo).

\ **ABORT START PROCEDURE:**

1. Power Lever - OFF
2. Fuel Pumps - OFF
3. Starter Switch - ON, AS NECESSARY TO LOWER TOT
4. Starter Switch - OFF

Engine Start:

1. TOT - LESS THAN 150 °C, OTHERWISE VENT
2. Fuel Pumps (4) - ON
3. Starter Switch - ON, START STOPWATCH
4. N_1 - CHECK INCREASING THROUGH 12-15%

> Caution
> POWER LEVER MUST NOT BE MOVED FROM OFF POSITION UNTIL REQUIRED N_1 HAS BEEN REACHED. STARTING AT N_1 SPEEDS LESS THAN 12% INCREASES THE POSSIBILITY OF EXCEEDING ENGINE TOT LIMITS.

5. TOT and N_1 - MONITOR CLOSELY, OBSERVE TOT PEAK
6. Power Levers - MOVE AND LOCK IN IDLE IMMEDIATELY UPON REACHING DESIRED N_1
7. N_2/N_{Ro} - CHECK INCREASING
8. Engine Oil Pressure Indicators - CHECK POSITIVE
9. At 58% N_1, Starter Switch - OFF
10. When N_2/N_{Ro} are above 40%, Generator Switch - ON; MONITOR N_1
11. If N_1 decreases below 59%:

1. Generator - OFF
2. Power Lever - ADVANCE, N_1 max 70%
3. Generator - ON

Starting Second Engine

1. CURRENT IND Switch - SELECT OPERATING GENERATOR
2. Ammeter - CHECK BELOW 100 AMPERES
3. Second Engine - FOLLOW PROCEDURE FOR FIRST ENGINE
4. After EPU Starts:
5. Battery Switch - ON
6. EPU - CHECK DISCONNECTED

System Checks

Hydraulic Checks

> Caution
> BOTH HYDR SYSTEMS SHALL BE OPERATIONAL. TAKEOFF WITH A KNOWN OR SUSPECTED HYDR SYSTEM FAILURE IS PROHIBITED.
>
> TAKEOFF WITH SYSTEM 2 SELECTED AS THE OPERATING SYSTEM IS PROHIBITED (THERE IS NO AUTOMATIC CROSS-OVER FROM SYSTEM 2 TO SYSTEM 1).
>
> DO NOT OPERATE THE HYDRAULIC TEST SWITCH DURING FLIGHT.

- HYD 2 Warning Light - OFF

Electrical and Avionic Checks

1. CURRENT IND Switch - SELECT EACH GEN POSITION AND CHECK THAT THE LOADS ARE APPROXIMATELY EQUAL, THEN LEAVE SWITCH IN BUS BAR POSITION
2. COMM/NAV Equipment - ON AND CHECK
3. All Other Instruments and Equipment - CHECK AND SET

Miscellaneous Checks

1. ENG Anti-Icing System - CHECK AS REQUIRED
2. ENG 1/ENG 2 Switches - ON
3. Anti-icing 1/Anti-icing 2 Caution Lights - ON
4. ENG 1/ENG 2 Switches - OFF
5. Anti-icing 1/Anti-icing 2 Caution Lights - OFF

Pre-takeoff Check

On Ground

1. Crew and Passengers - BRIEFED
2. Passenger Safety Belts - FASTENED
3. Doors - CLOSED, LOCKED
4. Warning Lights - OFF

> Note
> OIL COOL warning light may remain on until after placing power levers full forward.

5. Power Levers - FLIGHT
6. OIL COOL Warning Light - CHECK OFF
7. N_2 - TRIM TO 98%
8. Torque - SYNCHRONIZE
9. Engine and Transmission Instruments - CHECK IN GREEN RANGE
10. Fuel Quantity Indicator - CHECK READINGS

At Hover

1. Torque - SYNCHRONIZE
2. Hover Power - CHECK
3. N_2/N_{Ro} - ADJUST TO 98-102%

> Note
> 100% rotor RPM recommended for steady flight condition.

4. Engine and Transmission Instruments - CHECK IN GREEN RANGE
5. All Warning Lights - OFF

Cruise Check

> Note
> Recommended maximum values for use under normal cruise conditions are 82% Torque and 738 °C TOT

Pre-landing Check

Normal

1. N_2/N_{Ro} - ADJUST TO 98-102%

> Note
> 100% rotor RPM recommended during landing.

2. All Instruments - CHECK
3. All Warning Lights - CHECK

Engine Shutdown

Normal

1. Power Levers - IDLE; STOP STOPWATCH
2. Cyclic Stick - TRIM NEUTRAL
3. All Electrical Consumers - OFF EXCEPT ANTI-COLLISION LIGHTS AND FUEL PUMPS
4. After 2-min IDLE,
5. Power Levers - OFF
6. TOT and N_1 - MONITOR DECREASING
7. Fuel Pumps (4) - OFF
8. Generator Switches - OFF
9. OIL COOL Warning Light - CHECK ON BELOW 20% N_{Ro}
10. Circuit Breakers - AS REQUIRED
11. All Switches - OFF

Flight Characteristics

Flight Controls

> Caution
> AVOID EXTREME CYCLIC STICK DISPLACEMENTS WHEN ON THE GROUND WITH ROTOR TURNING.

During ground operations with rotor turning, the cyclic stick must remain in the neutral position and the c ollective pitch lever in the full down position; however, for functional test purposes, minimum control movements are allowed.

Avoid extreme pedal movements during ground operations.