Stratoware/Miltech Simulations Bo105

Instrument Panel



1. **GTN750**: Modern glass avionics unit developed by PMS50. For more information, please visit https://pms50.com/msfs/
2. **Airspeed Indicator**: Displays airspeed from 0 to 150 knots in 5-knot increments above 10 knots. The yellow arc covers the 10-45 kt caution range; the green arc covers 45-145 kt normal operating range.
3. **↔ Engine 1 Fire Warning Test Switch**: Tests the Engine 1 fire detection system; the adjacent warning light flashes on activation to confirm circuit integrity.
4. **Engine 1 Fire Warning Light**: Illuminates bright red with the letter "F" when heat-sensitive detectors in the No. 1 engine compartment register a fire condition.
5. **Engine 2 Fire Warning Light**: Illuminates bright red with the letter "F" when heat-sensitive detectors in the No. 2 engine compartment register a fire condition.
6. **↔ Engine 2 Fire Warning Test Switch**: Tests the Engine 2 fire detection system; the adjacent warning light flashes on activation to confirm circuit integrity.
7. **Pitot Heating Indicator**: White circular sectors are visible only when pitot heating is turned off, indicating the heating element is inactive. As per flight manual limitations, pitot heating must be on when ambient temperature is below +4 °C and visible moisture is present.
8. **Warning Lights Panel**: Monitors helicopter system parameters that do not require constant pilot attention. Warning lights illuminate when preset limits are exceeded or a malfunction is detected.
9. BAT 60: Battery temperature exceeds 60 °C. Switch battery off; land as soon as practicable.
10. BAT 70: Battery temperature exceeds 70 °C. Switch battery off; land as soon as possible.
11. FILT 1 (INOP): Engine 1 fuel filter is clogged and bypass has begun.

12. FILT 2 (INOP): Engine 2 fuel filter is clogged and bypass has begun.
13. GEN 1: Generator 1 is offline or has failed. One generator alone can sustain normal electrical services.
14. GEN 2: Generator 2 is offline or has failed. One generator alone can sustain normal electrical services.
15. HY BLOCK (INOP): A servo valve has jammed in hydraulic System 1 and automatic crossover to System 2 has occurred.
16. HYD 1: System 1 hydraulic pressure is low; automatic crossover to System 2 has occurred.
17. HYD 2: System 2 hydraulic pressure is low. System 1 remains active. Avoid abrupt manoeuvres.
18. LOW FUEL: Supply tank usable quantity is below 60 kg, or both main tank pumps have failed.
19. MAG PLUG 1 (INOP): Metal particles detected in Engine 1 oil.
20. MAG PLUG 2 (INOP): Metal particles detected in Engine 2 oil.
21. OIL COOL: Oil cooler fan has failed. Monitor oil temperatures closely; land as soon as possible if temperatures approach limits.
22. RPM: N_{Ro} is below 95% or above 103%, or N_1 differential between engines is 12% or greater. Audible alarm paired with illuminated light.
23. T OIL: Transmission oil pressure is below 0.5 kp/cm² (land immediately) or oil temperature exceeds 105 °C (land as soon as possible).
24. ▣ **Warning Lights Test Button**: When pressed, tests all warning and caution lamp segments simultaneously, except the two Engine Fire warning lights and the Mast Moment LIMIT light, which are tested separately.
25. ◉ **Instrument Light Brightness Knob**: Potentiometer (rheostat) controlling the brightness of all panel instrument lighting.
26. **Altimeter**: Measures barometric pressure changes to determine altitude. The long pointer indicates hundreds of feet; the short pointer indicates thousands of feet. Barometric pressure is set via the knob on the lower left of the instrument case.
27. **Attitude Indicator**: Displays pitch attitude and bank angle relative to the horizon. An optional slip indicator is toggleable via the EFB "Bo 105 Options" app.
28. ↔ **Cage Switch**: Cages and locks the attitude indicator gyroscope for erection during startup.
29. **Horizontal Situation Indicator (HSI)**: Displays the helicopter's magnetic heading combined with lateral navigation deviation, providing a plan-view reference for orientation and course guidance.
30. **Vertical Speed Indicator**: Displays rate of climb or descent from 0 to 6,000 feet per minute.
31. **Clock**: Mechanical timepiece displaying current time.
32. **Mast Moment Indicator**: Measures and displays the lateral bending moment acting on the main rotor mast via a strain gauge bridge. The pointer must remain within the green arc during all operations; the yellow arc is a caution range; the red radial must never be exceeded in flight or on the ground.
33. ↔ **Mast Moment Indicator Test Switch**: Pressing the test button causes the needle to deflect to the extreme limit of the scale and then return to the white calibration line, and activates the LIMIT warning light. Releasing the button cancels the test.
34. **Mast Moment LIMIT Light**: Illuminates red when the mast moment pointer reaches the upper end of the yellow arc or exceeds the white calibration radial.

35. **Torque Indicator**: Dual-needle gauge displaying torque output of both engines simultaneously as a percentage of maximum. Normal operating range is 0-86%; the red radial at 86% marks the maximum continuous and takeoff power limit for AEO operation.
36. **N_2 and N_{Ro} Indicator**: Combined triple tachometer displaying both engines' power turbine speed (N_2) on the outer scale and main rotor speed (N_{Ro}) on the inner scale, all as a percentage of rated RPM. Normal power-on operating range is 98-102% for both N_2 and N_{Ro}.
37. **Automatic Direction Finder (ADF)**: Receives signals from Non-Directional Beacons (NDBs) and displays the relative bearing to the selected ground station.
38. **Emergency Location Transmitter (ELT)**: Transmits a distress signal on emergency frequencies to assist search and rescue operations (cosmetic-only).
39. **Compass Master Controller**: Controls the operating mode of the heading reference system, allowing selection between slaved and free gyro modes for the HSI (14).
40. **Engine 2 TOT Indicator (Turbine Outlet Temperature)**: Displays exhaust gas temperature downstream of the Engine 2 power turbine, measured by four thermocouple probes.
41. **Engine 1 TOT Indicator**: Displays exhaust gas temperature downstream of the Engine 1 power turbine. Markings and limits are identical to the Engine 2 TOT indicator.
42. **Triple Oil Temperature Indicator**: Simultaneously displays oil temperature for three systems on a single gauge: Engine 1 (left scale), Engine 2 (right scale), and main transmission (upper scale marked "R"). Normal engine range is 30-107 °C; normal transmission range is 30-105 °C.
43. **Triple Oil Pressure Indicator**: Simultaneously displays oil pressure for three systems: Engine 1 (left scale), Engine 2 (right scale), and main transmission (upper scale marked "R"). Normal engine range is 6.3-9.1 kp/cm²; normal transmission range is 0.8-2.0 kp/cm².
44. **Engine 1 N_1 Indicator**: Displays gas generator (compressor turbine) speed for Engine 1 as a percentage of rated RPM. Normal operating range is 59-105%; the red radial at 105% marks the maximum limit.
45. **Engine 2 N_1 Indicator**: Displays gas generator (compressor turbine) speed for Engine 2 as a percentage of rated RPM. Markings and limits are identical to the Engine 1 N_1 indicator.
46. **Fuel Pressure Indicator**: Dual gauge simultaneously displaying fuel supply pressure for both engines. Normal operating range is 0.6-1.7 kp/cm²; the yellow arc covers 0-0.6 kp/cm² and the red radial marks the 1.7 kp/cm² maximum.
47. **Fuel Quantity Indicator**: Dual gauge simultaneously displaying usable fuel quantity in both the supply tank (S) and the main tank (M). Usable fuel is exhausted when a pointer reads zero. The LOW FUEL warning activates when supply tank usable quantity drops below 60 kg.
48. **EFB Stand:** Click to hide EFB.
49. **Electronic Flight Bag (EFB)**: Tablet-style device providing access to aircraft configuration options, checklists, and operational tools