

TOGAsim MU-2B-60 Procedures and Checklists

Preflight Check

1. COCKPIT

- a) Gear Handle.....DOWN
- b) Control Lock.....REMOVED and STOWED
- c) Parking Brake.....SET
- d) Battery Key Switch.....ON
- e) Battery Isolate Switches.....BOTH NORMAL
- f) Left Battery Isolate Switch.....ISOLATE
 - Both voltmeters must indicate 22 to 24 volts and no feeder out annunciator will be illuminated.
- g) Right Battery Isolate Switch.....ISOLATE
 - Both batteries will be isolated, voltmeters read zero.
- h) Left Battery Isolate Switch.....NORMAL
 - Both voltmeters must indicate 22 to 24 volts and no feeder out annunciator will be illuminated
- i) Right Battery Isolate Switch.....NORMAL



If either voltmeter reads zero with at least one battery set to normal, the 200 amp bus tie circuit breaker is open and the corresponding feeder out annunciator will be illuminated. Malfunction must be corrected prior to flight.

- j) Inverter Switch.....MAIN
- k) Pitch Trim.....ZERO
- l) Flaps.....5°
- m) Inverter Switch.....OFF
- n) Battery Key Switch.....OFF

2. LEFT WING TRAILING EDGE

- a) General Condition.....CHECK
- b) Flap, Spoiler and Trim Aileron.....CHECK
- c) Tailpipe, EGT Probes, and Turbine.....CHECK
- d) Static Discharger.....CHECK

3. LEFT WING TIP TANK, LEADING EDGE, AND NACELLE

- a) General Condition.....CHECK
- b) Tip Tank Filler Cap.....CHECK

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- c) Wing Tip & Taxi Lights.....CHECK
- d) Wing Tie Downs.....REMOVED
- e) Ice Inspection Light.....CHECK
- f) Fuel Leakage.....CHECK
- g) Main/Outer Fuel Tank Filler Caps.....CHECK FOR SECURITY
- h) Main/Outer Fuel Tank Vent Ports.....CHECK FOR OBSTRUCTIONS
- i) Engine Air Intake.....CHECK FOR DAMAGE/FOREIGN OBJECTS
- j) Nacelle Doors/Latches.....CHECK FOR SECURITY
- k) Oil Level.....CHECK, SECURE CAP

Before Starting Engines

- 1. Battery Isolation Switches.....BOTH NORMAL
- 2. Battery Key Switch.....ON
- 3. Inverter Switch.....MAIN
 - a) INVERTER FAIL Annunciator.....EXTINGUISHED
- 4. Radio Master Switches.....OFF
- 5. Warning and Indicator Lights.....CHECK
- 6. Master Caution System.....CHECK
- 7. Stall Warning System.....CHECK
- 8. Fuel Quantity Test Switch.....TEST
 - a) Check that Main, Outer and Tip indicator needles move smoothly towards the "0" position.
 - b) FUEL LOW LEVEL Annunciator.....ILLUMINATES at MAIN ~ 200 lbs
- 9. Outer Pump Test Switch.....TEST
 - a) OUTER FUEL EMP Annunciators:.....ILLUMINATE
- 10. Condition Levers.....FREE MOVEMENT, SET AT TAXI
- 11. Power Levers.....FREE MOVEMENT, SET BETWEEN GROUND/FLIGHT IDLE
- 12. Flight Controls.....FREE MOVEMENT
- 13. Trim Controls.....CHECK AND SET FOR TAKEOFF
- 14. Rotating Beacon.....ON

NOTE

If the first flight of the day, or when performing intentional in-air shutdown of an engine, perform the feather valve and NTS (negative torque sensor) engine start checklist in the next section (3.4), in lieu of the steps below.

Starting Engines (without NTS check)

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- 1. Main Fuel Valve Switches.....OPEN
- 2. SRL Switches.....ON
- 3. Cabin Air Selector.....OFF
- 4. Propellers.....ON THE LOCKS

NOTE

If the propeller is feathered, place the power lever in REVERSE and hold the unfeather switch until the blades reach the lock position.

- 5. Both RUN-CRANK-STOP Switches.....RUN
- 6. Start Selector Switch.....LH or RH Ground Start

On Engine to be Started

- 7. Engine Start Switch.....PRESS and HOLD
- 8. On Ignition and EGT Rise.....RELEASE START SWITCH
- 9. OBSERVE
 - a) SRL FAIL Annunciator.....EXTINGUISH above 14%
 - b) Exhaust Gas Temperature.....MONITOR

CAUTION

If EGT rapidly approaches 770°C during start, position the condition lever to EMERGENCY STOP to shut down the engine. Normal peak EGT during engine start is 700°- 720°

- c) Prior to 50%.....INCREASING OIL PRESSURE
- d) 60% RPM.....START INDICATOR LIGHT EXTINGUISHED
- e) Engine RPM.....STABILIZE AT 76%-78%
- f) SRL Fail Annunciators.....EXTINGUISHED
- g) Engine Instruments.....CHECK
- h) Generator switch for running engine).....ON
- i) Repeat for opposite engine
- j) Start Selector Switch.....AIR START & SAFE

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Starting Engines (with Feather Valve and NTS check)

FEATHER VALVE CHECK

- 1. Left Unfeather Switch.....PRESS and HOLD
 - a) LH BETA RANGE Light Illuminates
- 2. Left Condition Lever.....Move to EMERGENCY STOP
 - a) LH BETA RANGE Light Extinguishes
- 3. Left Condition Lever.....TAXI
 - a) LH BETA RANGE Light Illuminates
- 4. Left Unfeather Switch.....RELEASE
- 5. Repeat for Right Engine



If the beta range light does not extinguish or does not illuminate as required during the above procedure, engine start should not be attempted until maintenance has been conducted on the aircraft to correct the discrepancy.

NTS CHECK

- 1. Main Fuel Valve Switches.....OPEN
- 2. SRL Switches.....ON
- 3. Propellers.....ON THE LOCKS



If the propeller is feathered, place the power lever in REVERSE and hold the unfeather switch until the blades reach the lock position.

- 4. Power Levers.....SLIGHTLY FORWARD OF FLIGHT IDLE
- 5. Both RUN-CRANK-STOP Switches.....RUN
- 6. Start Selector Switch.....LH or RH Ground Start

On Engine to be Started

- 7. Unfeather Button.....PRESS and HOLD
- 8. BETA RANGE Annunciator.....ILLUMINATES
- 9. Engine Start Switch.....PRESS AND HOLD, OBSERVE BETA RANGE ANNUNCIATOR
- 10. OBSERVE
 - a) BETA RANGE Annunciator.....EXTINGUISH as engine rotation begins
 - b) Unfeather Switch.....CONTINUE TO PRESS AND HOLD

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11. On Ignition and EGT Rise.....RELEASE ENGINE START SWITCH
12. SRL FAIL Annunciator.....EXTINGUISH above 14%
13. Exhaust Gas Temperature.....MONITOR
14. Illumination of BETA RANGE Annunciator.....RELEASE UNFEATHER BUTTON

NOTE

NTS System Check is satisfactory if BETA RANGE Annunciator extinguishes during engine rotation AND re-illuminates before 40%. The BETA RANGE annunciator should not re-illuminate before 10% RPM.

15. Power Levers.....SLIGHTLY ABOVE GROUND IDLE
16. Prior to 50%.....INCREASING OIL PRESSURE
17. 60% RPM.....START INDICATOR LIGHT EXTINGUISHED
18. Engine RPM.....STABILIZE AT 76%-78%
19. SRL Fail Annunciators.....EXTINGUISHED
20. Engine Instruments.....CHECK
21. Generator Switch (for running engine).....ON
22. Repeat for opposite engine.
23. Start Selector Switch.....AIR START & SAFE

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After Starting Engines

NOTE

Propellers MUST be on the locks to perform the Overspeed Governor Check. If they are not, shut down the engine with power levers at REVERSE to put them on the locks and restart the engine.

- 1. Overspeed Governor Check
 - a) Condition Lever.....TAKEOFF / LAND
 - b) Left Power Lever.....FLIGHT IDLE
 - c) Left Power Lever.....SLOWLY ADVANCE TOWARDS TAKEOFF
 - d) Engine Speed.....OVERSPEED GOVERNOR MAINTAIN 103% - 106%

CAUTION

If engine RPM exceeds 106%, shutdown engine immediately and adjust overspeed governor before proceeding with flight.

- e) Repeat for other engine.
- f) Both Power Levers.....GROUND IDLE
- 2. SRL CHECK
 - a) Left SRL Switch.....OFF
 - Left SRL Annunciator.....ILLUMINATED
 - Left Engine EGT.....SLIGHT RISE IN EGT
 - b) Right SRL Switch.....OFF
 - Right SRL Annunciator.....ILLUMINATED
 - Right Engine EGT.....SLIGHT RISE IN EGT
 - c) Both SRL Switches.....ON
 - d) Both SRL Annunciators.....EXTINGUISHED
 - e) Left and Right EGT.....SLIGHT REDUCTIONS IN EGT
- 3. Check Voltammeters.....27 - 29.5 VDC
- 4. Pressurization System.....ON
- 5. Fuel Transfer Switches.....AUTO
- 6. Oil Temperature.....CHECK
- 7. Annunciator Panel.....CHECK

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Before Taxi Checklist

- 1. Radio Master Switches.....ON
- 2. Transponder.....STBY
- 3. Flaps.....SET FOR TAKEOFF, 20 degrees
- 4. Propellers.....TAKE OFF THE LOCKS
 - a) Condition Levers.....TAKEOFF/LAND
 - b) Power Levers.....REVERSE
 - c) Power Levers.....GROUND IDLE
 - d) Condition Levers.....TAXI
- 5. Landing / Taxi Lights.....AS REQUIRED
- 6. Toe Brakes.....PRESS and HOLD
- 7. Parking Brake.....RELEASE

Before Takeoff Checklist

- 1. Engine Instruments.....CHECK
- 2. Flight Instruments.....CHECK
- 3. NAV / COMM / Transponder.....CHECK and SET AS REQUIRED
- 4. Annunciator Panel.....CHECK
- 5. Pitot & Static ANTI-ICE.....ON
- 6. Anti-ice.....AS REQUIRED
- 7. Trim.....CHECK / SET
- 8. Flaps.....CHECK / SET
- 9. Cabin Air Selector.....OFF
- 10. Condition Levers.....TAKEOFF / LAND
- 11. Strobe Lights.....AS REQUIRED

Takeoff and Climb Checklist

- 1. Toe Brakes.....PRESS AND HOLD
- 2. Condition Levers.....TAKEOFF / LAND
- 3. Continuous Ignition.....AS REQUIRED
- 4. Power Levers.....ADVANCE SLOWLY
 - a) STOP at 100% torque OR EGT=650°C, whichever comes first
- 5. Brakes.....RELEASE
- 6. Accelerate to 105 KIAS.....ROTATE
- 7. Pitch Attitude.....13 DEGREES NOSE UP MAX
- 8. Landing Gear.....UP
- 9. Airspeed.....120 KIAS
- 10. Flaps.....RETRACT TO 5 DEGREES
- 11. Airspeed.....140 KIAS MIN

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- 12. Flaps.....RETRACT FULLY
- 13. Airspeed.....155 KIAS (NORMAL CLIMB)
- 14. Landing Lights.....OFF BEFORE 165 KIAS
- 15. Cabin Air Selector Switch.....BOTH
- 16. Wing Deice.....AS REQUIRED
- 17. Continuous Ignition.....AS REQUIRED
- 18. Cabin Pressurization.....MONITOR
- 19. Engine RPM.....96% - 98% (CRUISE CLIMB)
- 20. EGT 650c.....MAXIMUM
- 21. Torque.....100% MAXIMUM

Descent and Approach Checklist

- 1. Cabin Altitude Select.....1000 FT ABOVE AIRPORT LOCATION
- 2. Fuel Transfer Switches.....TIP MANUAL or OFF
- 3. Pitot Heat.....ON
- 4. Continuous Ignition.....AS REQUIRED
- 5. Anti-Ice Systems.....AS REQUIRED
- 6. Cabin Altitude Differential Pressure.....CHECK FOR ZERO
- 7. Flaps.....5 DEG (BELOW 175 KTS)
- 8. Condition Levers.....TAKEOFF / LAND on FINAL APPROACH
- 9. Landing Gear.....DOWN (BELOW 175 KTS)
- 10. Airspeed.....140 KIAS MINIMUM
- 11. Landing Lights.....AS REQUIRED
- 12. Flaps.....20 DEG (BELOW 155 KIAS)
- 13. Flaps.....40 DEG (BELOW 120 KIAS) IF NECESSARY
- 14. Landing Gear.....CHECK DOWN AND LOCKED
- 15. Condition Levers.....RECHECK TAKEOFF / LAND
- 16. Power Lever.....RETARD AS NECESSARY

Landing Checklist

AT TOUCHDOWN

- 1. Power Levers.....GROUND IDLE
- 2. Beta Range Annunciators.....BOTH ILLUMINATED
- 3. Power Levers.....REVERSE AS REQUIRED
- 4. Power Levers.....GROUND IDLE AFTER REVERSE

AFTER ROLLOUT

- 5. Condition Levers.....TAXI
- 6. Anti-Ice Systems.....OFF
- 7. Flap.....UP
- 8. Landing / Taxi Lights.....AS REQUIRED

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- 9. Strobe Lights.....OFF
- 10. Continuous Ignition.....OFF

Shutdown Checklist

- 1. Parking Brake.....SET
- 2. Cabin Air Selector.....OFF
- 3. Radio Master Switches.....OFF
- 4. Power Levers.....GROUND IDLE
- 5. Run-Crank-Stop switches.....HOLD AT STOP FOR 3 SECONDS
- 6. Power Levers.....MOVE TO REVERSE AT 60% RPM
- 7. Generator Switches.....OFF
- 8. Inverter Switch.....OFF
- 9. Start Selector Switch.....AIR START & SAFE