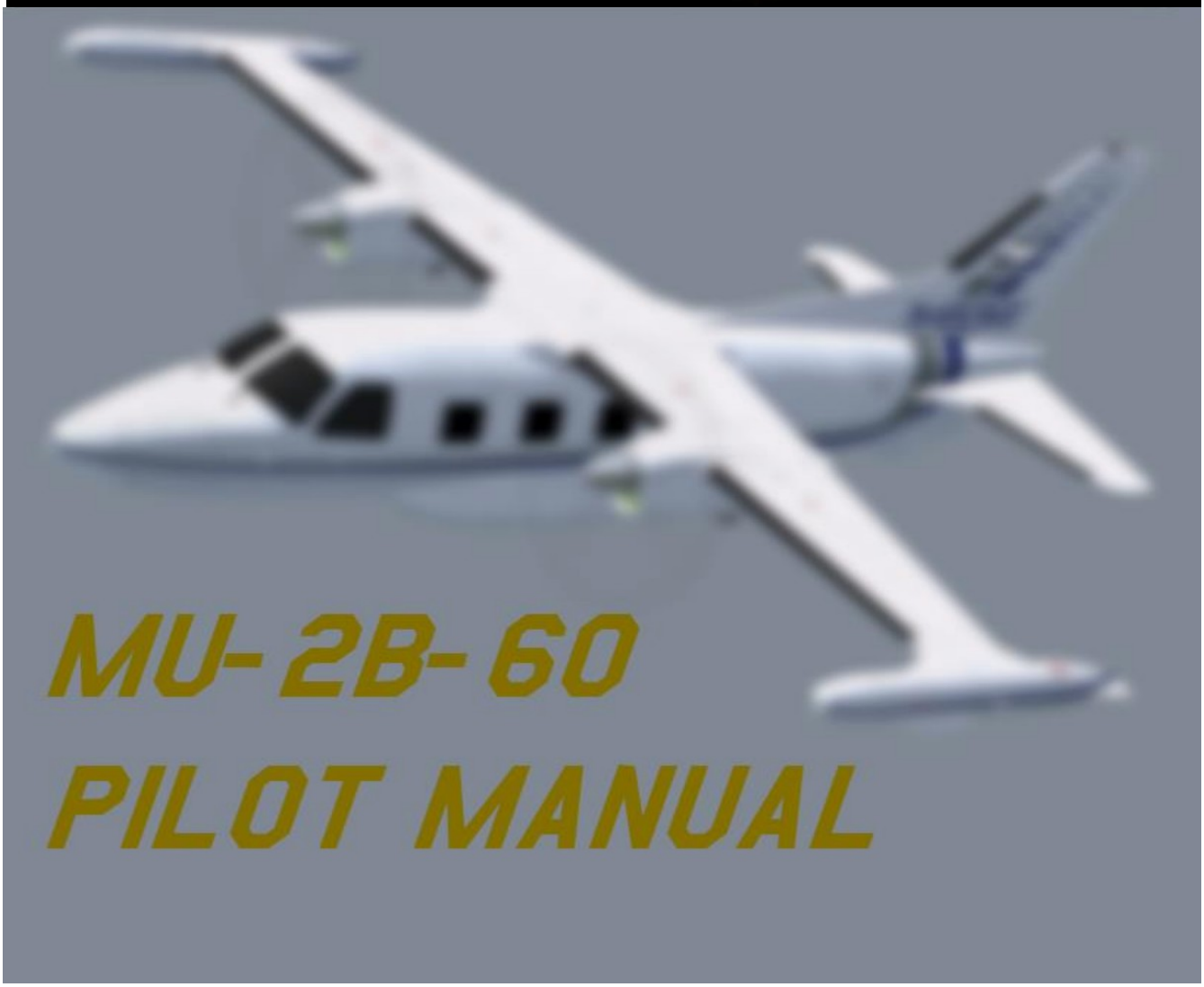
flysimware

SIMULATION SOFTWARE



MU-2B-60

PILOT MANUAL

MU-2B-60 PILOT MANUAL

For detailed instructions on how to fly similar aircraft, see the Aircraft Information articles in the Learning Center. For standard procedures, see the Checklists tab. For suggested speeds, see the Reference page of the Knee-board. More functions can be performed using the control panel and aircraft options panel. (Shift + 1) or (Shift + 2)

VISIT FLYSIMWARE.COM AND CHECK THE NEWS PAGE OR PRODUCT PAGE FOR THE LATEST UPDATES!

DXT10 PREVIEW ON:
INTERIOR MODEL CAST SHADOWS
DXT10 PREVIEW OFF:
INTERIOR MODEL DOES NOT CAST SHADOWS

WEIGHT DISTRUBUTION:

Do not over load aircraft. Passengers and luggage are set to “FULL LOAD” as default. Under aircraft fuel and payload you can change loads and save your flight. For example "MU-2B Fully Loaded".

FUEL AND PAYLOAD:

- **Center Main Fuel Tank = 1032 LBS**
- **Left Outer Fuel Tank = 235 LBS**
- **Right Outer Fuel Tank = 235 LBS**
- **Left Tip Fuel Tank = 603 LBS**
- **Right Tip Fuel Tank = 603 LBS**

- **Pilot = 170 LBS**
- **Co-Pilot = 170 LBS**
- **Pass1 Row 1 = 170 LBS**
- **Pass2 Row1 = 170 LBS**
- **Pass3 Row 2 = 170 LBS**
- **Pass4 Row 2 = 170 LBS**
- **Pass5 Row 3 = 170 LBS**
- **Pass6 Row 3 = 170 LBS**
- **Pass7 Row 4 = 170 LBS**
- **Luggage 600 LBS MAX = 100 LBS**

MU-2B-60 PILOT MANUAL

NOT TO BE USED FOR ANY REAL WORLD MU-2B SERIES AIRCRAFT
DOES NOT, AND IS NOT INTENDED TO COMPLY WITH SFAR 108

A BRIEF SUMMARY OF THE MU-2

The Mitsubishi MU-2 is one of the most misunderstood aircraft in the history of aviation. When it came to the US market in 1965, it quickly became known for its stellar performance throughout the entirety of the flight envelope. The MU-2 was capable of carrying a large payload at nearly 300 knots true airspeed for over 1,000 nautical miles, while still operating from unimproved runways under 2,500 feet long. Simply put, there was virtually no competition.

Mitsubishi was able to achieve such performance through the implementation of numerous unique and revolutionary design features. Each and every other aircraft in the corporate turboprop category has been a design improvement on a piston powered air frame. The King Air was developed from the piston powered Queen Air, the Turbo Commander from the earlier piston powered Commanders, the Piper Cheyenne from the earlier Navajo series, etcetera. The MU-2 was the first corporate turboprop aircraft that was actually designed to be a turboprop aircraft.

The wing is optimized for high speed cruise. It is a short wing, with a very high wing loading. In fact, the wing isn't much larger than that of a Cessna 172, but has the wing loading of a 30 series Learjet. This is, by far, the most crucial design feature in terms of high speed cruise. This, however, generates two dilemmas. The first is the lack of room for wing fuel tanks of any substantial size, and the second is the lack of low speed handling and performance. To address these issues, Mitsubishi elected to use two 90 gallon tip tanks in addition to the large main tank and smaller outer wing tanks. To optimize low speed handling and performance, full span, double slotted fowler flaps were installed. When fully extended, they increase the wing area of the MU-2 by nearly 25%. The result? Fantastic high speed and low speed performance. The MU-2 can slip into a traffic pattern saturated with smaller aircraft with ease, and fly approach speeds as low as 102 knots indicated airspeed. These large flaps left no room for conventional ailerons. Mitsubishi elected to use spoilers for roll control, which eliminate adverse yaw and are extremely effective. Unlike ailerons, spoilers remain equally effective throughout all flight regimes, even throughout a stall progression where ailerons would normally lose all useful effectiveness.

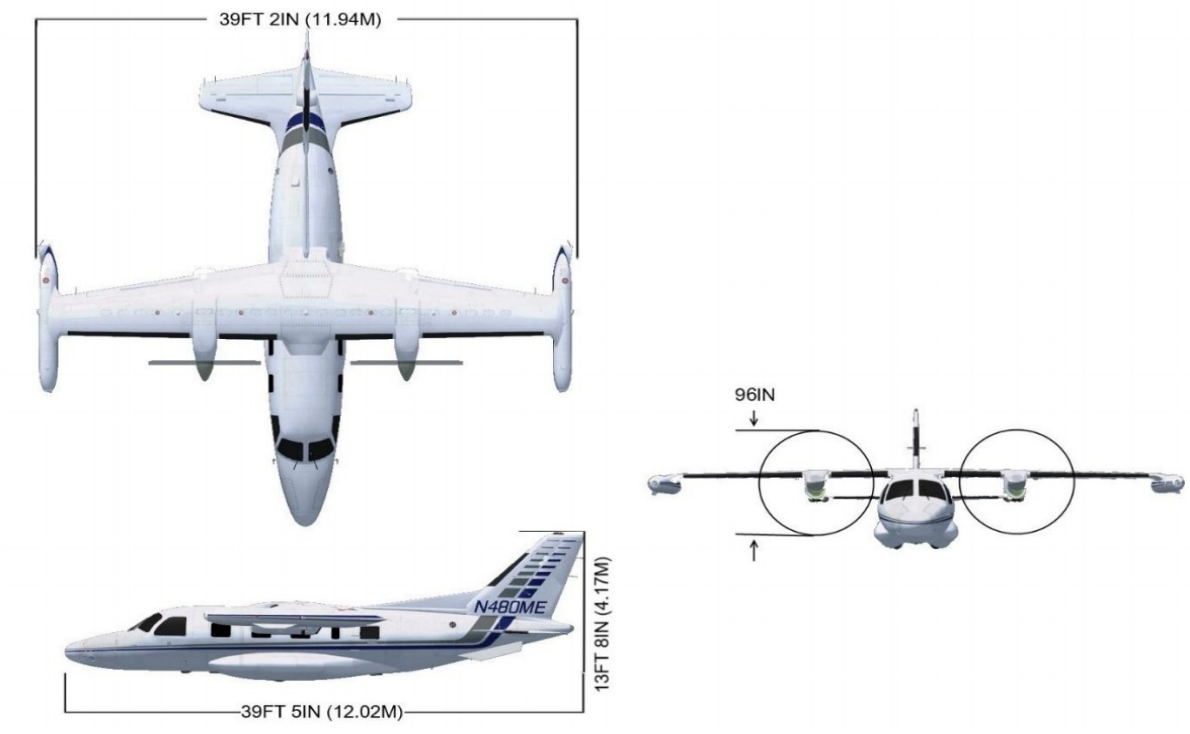
The quality of craftsmanship seen in MU-2 construction is second to none. To date, it has only one air frame related airworthiness directive. Additionally, it is still fully supported by Mitsubishi despite being out of production for over 25 years.

The MU-2 is by no means difficult to fly. Anyone with experience in the aircraft can attest to its predictable and stable flying qualities. Despite this, the MU-2's accident rate at one point was unusually high. This was attributed to a lack of effective pilot training in the type, and an SFAR (Special Federal Aviation Regulation) was implemented to require that MU-2 pilots complete annual recurrent training in the aircraft. Since this implementation, the MU-2 has earned the reputation of being the safest corporate turboprop on the market with a phenomenal safety record.

In the hands of a well-trained pilot, it is a fantastic aircraft with an undeserved reputation. Its efficiency simply cannot be beat by any other aircraft of its kind. We think that you will very much enjoy taking to the skies in Flysimware's rendition of this marvelous aircraft.

GENERAL INFORMATION

The Mitsubishi MU-2B-60 Marquise is a high wing, all metal, pressurized twin engine turboprop. It is powered by two Garrett TPE-331-10-511M engines, flat rated to 715 shaft horsepower per engine. The aircraft is available in multiple seating configurations of anywhere from 9 to 11 seats. It features a one piece wing with integrated (wet wing) main and outer wing fuel tanks, in addition to wingtip fuel tanks. The aircraft is almost perfectly dimensional, with the wingspan and fuselage length within just inches of each other.



3 View Render

MU-2B-60 PILOT MANUAL

GENERAL

The cockpit of the Flysimware MU-2B-60 is designed to represent a fairly typical layout found in a Marquise today

FEATURES:

- ✔ **-Sperry primary flight instruments**
- ✔ **-Sperry SPZ-500 AFCS with yaw damper**
- ✔ **-Garmin GNS 530**
- ✔ **-Flight1 GTN750 integration (for owners of the product)**
- ✔ **-Rex-Milviz Advantage Radar integration (for owners of the product)**
- ✔ **-Collins NAV2/COM2**
- ✔ **-Collins ADF**

MU-2B-60 PILOT MANUAL

FLYSIMWARE DESCRIPTION

Flysimware has designed the MU-2B-60 since Flysimware's chief pilot and beta captain is very familiar with this type of turboprop and this specific aircraft. Flysimware was given hundreds of photos and engine sound recordings from an owner who recently restored his MU-2B-60 aircraft. With hundreds of hours and over 4,000 lines of custom coding we have brought you the most realistic Garrett turboprop simulation aircraft on the market. Due to FSX limitations on the turboprop engines we have worked around the coding to produce a prop shaft linked directly to the prop and are the first company to simulate a real world Garrett turboprop system.

We have included many animated features throughout the cabin and virtual cockpit. With custom coding we have an accurate system down to the smallest details. We have included 2 models for users who use the payware **Flight1 GTN750** GPS unit or **Rex-Milviz Advantage Radar** weather radar unit. Another model uses the GNS 530 with working VNAV system and the payware weather radar. If you do not own the radar it will be a static model. If you do own the weather radar it will come to life. The second model uses the GTN 750 with the same weather radar option.

To learn more about our model please visit our product page for the latest manual and detailed tutorial videos on standard walk around to engine start up or shut down procedures.

MU-2B-60 PILOT MANUAL

flysimware SIMULATION SOFTWARE

TABLE OF CONTENTS:

➢ 0. KEY ASSIGNMENTS

Autopilot modes can be assigned to the keyboard / joystick by using the following“G1000_PFD_SOFTKEY” & “G1000_MFD_SOFTKEY” assignments.

Full list:
G1000_PFD_SOFTKEY1 = HDG
G1000_PFD_SOFTKEY2 = Not used
G1000_PFD_SOFTKEY3 = NAV
G1000_PFD_SOFTKEY4 = BC
G1000_PFD_SOFTKEY5 = VORAPR
G1000_PFD_SOFTKEY6 = STBY
G1000_PFD_SOFTKEY7 = Not used
G1000_PFD_SOFTKEY8 = Not used
G1000_PFD_SOFTKEY9 = IAS
G1000_PFD_SOFTKEY10 = VS
G1000_PFD_SOFTKEY11 = APR
G1000_PFD_SOFTKEY12 = ALTSEL
G1000_MFD_SOFTKEY1 = ALT

Default Z key to toggle the autopilot on or off.

➢ 1. INSTALLATION

Double Click the (Aircraft logo) installer.
Have your registration code copied into your mouse(clipboard). This will auto type your registration code for you. Type any name in the name box and click next.

This installer should auto find your FSX/P3D simulator no matter where it is! If it does not find your simulator, just change the destination field by clicking the tab on the right side.

Once you start FSX/P3D you will find our models located under Flysimware as the manufacturer in the FSX select aircraft page.

➢ 2. MOUSE CONTROL & TOOL TIPS

TOOL TIPS

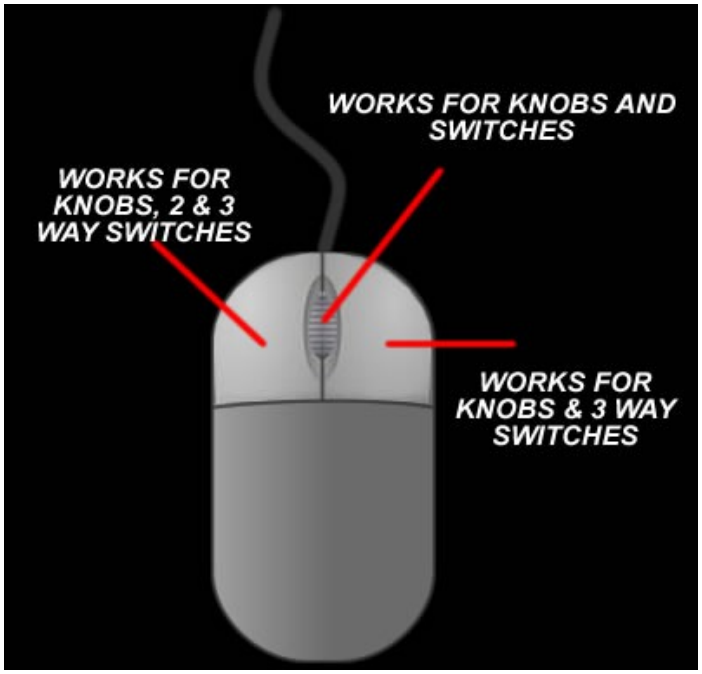
Almost all switches and levers are mouse controlled. Tool tips are added to a few switches, knobs and levers, for information that helps to tune or position with accuracy. Tool tips can be turned "ON" or "OFF" on the FSX aircraft settings page.

MOUSE CONTROL

If you hear a sound when clicking a switch that does not move try right clicking or using the mouse wheel. Here is a chart showing all functions.

Radio and GPS knobs can be tuned by rolling mouse wheel. Clicking is for pushing a knob.

The power knob for the GNS 530 GPS requires that you roll your mouse up to turn on and increase brightness controls.



➢ 3. 2D PANELS

➔ **SERVICE HANGER = (Shift + 1)**

➔ **AIRCRAFT OPTIONS = (Shift + 2)**

➔ **GPS PANEL = (Shift + 3)**

➔ **START LOCKS INSTRUCTIONS = (Shift + 4)**

➢ 4. AIRCRAFT MODES

Using the MU-2B-60 hanger control panel or aircraft options panel you can change aircraft modes, remove pilot or change pilot options and check that you are using the start locks and fuel system correctly. All modes are listed below.

AIRCRAFT OPTIONS:

LUGGAGE / WHEEL CHOCKS / ENGINE PLUGS & FLAGS / WINDSHIELD SHADES / OPEN MAIN EXIT / ADD AND REMOVE PILOTS / OPEN START LOCKS INSTRUCTIONS / HAND SPIN PROPS

MU-2B-60 HANGER:

CABIN-COCKPIT-WING-PANEL LIGHTS / ALL SYSTEM OFF OR READY TO START / REFUEL / MAP / ATC / 2D GPS / KNEE-BOARD / AIRCRAFT SPECS

When using “ALL SYSTEM OFF OR READY TO START” the props will be flat, ready to start engines. When loading or reloading the aircraft the props are flat. So in case you reload the props while the engines are running you will need to un-lock them to free up the throttles.

➢ 5. MITSUBISHI MU-2B-60 SYSTEMS

For videos and detailed instructions on how to fly this aircraft please visit the product page at Flysimware.com

For suggested speeds, see the reference page on the Knee-board. The knee-board has step by step checklist procedures.

Open your knee-board located in our service hanger control panel. **(Shift + 1)** Then look for the logo located near the bottom right. Or use the option to open knee-board window.

PRESSURIZATION SYSTEM:

MOST PILOTS USING THIS AIRCRAFT JUST LEAVE THE PRESSURIZATION KNOB AT SEA LEVEL SINCE THE SYSTEM HAS A MAX OF 6.5 PSI AND WILL AUTO PRESSURIZE. FEEL FREE TO SET YOUR CRUSING ALTITUDE AND ONCE YOU CLIMB THROUGH 14,000 THE CABIN WILL PRESSURIZE TO THE CORRECT PSI BASED OFF OF YOUR SETTING AND ALTITUDE.

1. Rate changes the time it takes to increase or decrease pressure.
2. Cabin pressure and the small window below shows the cabin altitude setting.
3. Cabin altitude setting.
4. Cabin altitude and differential pressure gauge.
5. Cabin climb and decent rate.

MAIN PANEL:

1. Windicator indicator
2. Marker indicators
3. Clock / Timer
4. Turn & bank indicator
5. Garmin panel
6. Speed indicator
7. Collins RMI
8. Insight TAS1000 unit
9. Sperry distance measuring equipment
10. Sperry attitude indicator
11. Horizontal situation indicator
12. Altitude indicator

13. Ground proximity unit
14. Vertical speed indicator
15. Sperry altitude set

ENGINE GAUGES:

1. Torque indicators
2. Exhaust temperature indicators
3. Fuel flow indicators
4. RPM indicators
5. Oil temperature indicators
6. Oil pressure indicators
7. Fuel pressure indicators
8. Center main fuel quantity indicators
9. Left and Right outer fuel quantity indicators

10. Left and Right tip tank fuel quantity indicators

11. Fuel burn counter (Move lock lever then press and hold button for 2 seconds each time you want to reset the value back to zero.)

12. Ignition switches / Fuel and engine test switches

AUTOPILOT MODE SELECTOR AND CAUTION ALERTS:

1. Left engine fire bottle handle

2. Right engine fire bottle handle

3. Engine fire handle test switch

4. Master caution display and reset

5. Master caution test switch

6. Autopilot mode selector (Instructions below)

----------Autopilot Lateral----------

HDG: Tracks the HSI heading bug course.

NAV: Tracks the NAV radio or GPS radio course.

APR: Captures glideslope and localizer beam. (NAV MODE ONLY)

BC: Captures back course localizer beam. Must have APR mode on.

VORAPR: Captures localizer and VOR course beams.

----------Autopilot Pilot Vertical----------

ALT: Holds current altitude

ALTSEL: Captures and holds selected altitudes. The mode requires pressing VS or IAS to be active.

VS: Vertical Speed Hold: Use the autopilot pitch wheel to set the desired rate of climb or descent in feet per minute. Aircraft should be in trim at time of engagement. May be used with or without ALTSEL mode.

IAS: Indicated Airspeed Hold: Designed to hold the indicated airspeed at the time you engaged IAS mode. Pitch is automatically adjusted to maintain the airspeed. Best used for flight level change. Aircraft should be

in trim at the time of engagement. May be used with or without ALT/SEL mode.

SBY: Tests all bulbs and turns off all autopilot modes.

GTN 750 & GNS 530 Mode Selector Instructions:

GPS Radio:

1. GPS in GPS mode: When using a flight plan you must be within 2 NM of the GPS course for initial GPS course capture (and the autopilot should be in NAV mode). Thereafter, the GPS will retain course capture out to a distance of 12NM. Outside of 12NM capture will be lost (NAV will change to the armed mode) until the aircraft is back within the 12NM limit. The GPS must be in GPS mode (not VLOC).

NAV 1 Radio:

2. GPS in VLOC mode: When the GPS is in VLOC you can track a VOR radial or fly a VOR, localizer, Back Course or ILS approach depending on the autopilot mode selected. The appropriate navaid frequency must be in the active NAV1 frequency window in the GPS.

FUEL VALVES AND TANK SELECTORS:

1. Fuel valves

2. Left and Right tank selectors

Middle position burns fuel from the center tank only. Up or down burns first from the tip tanks then from the outer tanks followed by the center tank. In the real aircraft the fuel flows from tip to outer to center and the engines always burn from the center tank. Up and down position stops the flow and only burns from the center tank. Due to FSX limitations we burn from the outer to the inner to mimic fuel flowing to the center tank. In case of engine failure we have coded the system for a single engine to take fuel from the tanks equally so you do not get a fuel imbalance.

START PANEL:

1. Engine start buttons (Hold until EGT indicator rises)

2. Run Crank Stop switches: Right click spring loaded switch to stop engine. Middle click mouse to stop both engines at the same time which is the normal way to shut down. Crank position allows props to spool up but will not start. If engines are running crank position will allow engine to continue to run. To start engines the switch must be in the run position.

3. Un-feather switches: Un-feather must be on to re-lock start locks or to run a NTS (Negative torque Sensor) check.

4. Start fuel enrich: Helps pump more fuel for starting engines. This is a dummy switch due to FSX limitations.

5. SRL (Single Red Line) switches: These computer switches must be on to start engines.

6. Start switches: Left or Right click to start the specific engine. Must be in the correct position to start that engine.

ENGINE SHUTDOWN:

1. Run-Crank-Stop Switch ..... STOP

2. Power Lever (failed engine) ..... TAKEOFF

3. Trim ..... SET

4. Power (operating engine) ..... AS REQUIRED

5. DC Generator Switch (failed) ….....OFF

6. Voltmeter (Main bus tie check in flight) ..... CHECK

7. DC Generator Load (operating Condition Lever (failed engine) .... ..EMERGENCY STOP engine). ..... OFF

engine) ..... REDUCE

8. Operating Engine Power Lever ..... SET AS REQUIRED (if necessary)

9. Cabin Air ..... OPEN OR RAM

10. Ignition (failed engine) ..... OFF

PILOT CIRCUIT PANEL:

1. Avionics Switches

GO AROUND MODE:

GO AROUND MODE:

Pressing the GA button on the left throttle handle will engage the Go Around mode. This will enable autopilot flight director HDG guidance (relative to the HSI heading bug) and disable all autopilot modes and turn off the autopilot. Enabling the IAS mode or the VS mode will disable the GA mode.

With GA mode enabled the flight director will maintain a 9 degrees pitch up position. If you now turn on the autopilot the aircraft will pitch up to 9 degrees or maintain 9 degrees. Alternatively, you can select VS mode with the autopilot on to maintain a climb of 1000 ft/min. You can further adjust the vertical speed with the autopilot pitch wheel to maintain the desired rate of climb.

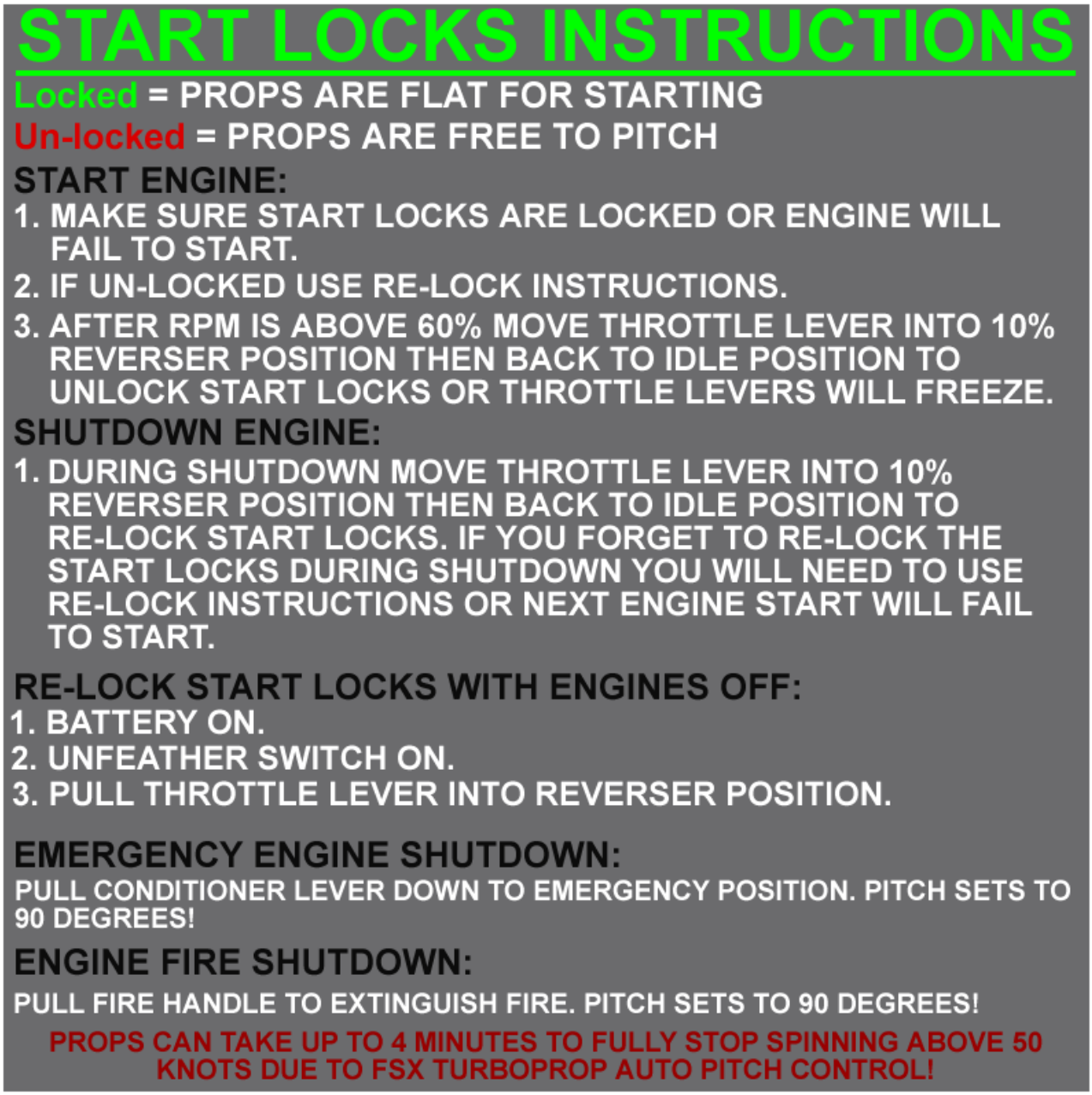
AIRSTART:

MU-2B-60 Marquise Emergency Procedures

AIRSTART

1. Airspeed ..... 100 KCAS TO 180 KCAS
2. Altitude ..... BELOW 20,000 FT
3. SRL System ..... ON
4. EGT ..... BELOW 200°C (if feasible)
5. Condition Lever ..... MINIMUM CRUISE
6. Power Lever ..... HALF INCH FORWARD OF FLIGHT IDLE
7. Start Selector Switch ..... AIRSTART & SAFE
8. Ignition ..... OFF
9. Run-Crank-Stop Switch ..... RUN
10. Un-feather Switch ..... ON
11. Condition Lever ..... AS REQUIRED
12. Power Lever ..... AS REQUIRED
13. Voltmeter (Main Bus Tie Check In Flight) ..... CHECK
14. DC Generator Switch ..... ON / RESET IF NECESSARY
15. Voltmeter ..... 27 TO 29.5VDC
16. Ignition Switch ..... AS REQUIRED
17. Cabin Air Selector Switch ..... BOTH

➢ 6. PROPELLER START LOCKS



These instructions can be loaded from the aircraft option panel so you can get help when needed. The aircraft option panel also displays the props current lock position for confirming you are using the start locks system correctly.

➢ 7. UN-INSTALL PRODUCT

Go to start, all programs and look for the folder called "Flysimware". Inside is your uninstall exe called "Flysimware's MITSUBISHI MU-2B-60". Or go to the add and remove programs from windows control panel.

Installing and removing this product has "NO EFFECT" on your game!

➢ 8. TESTING

Tested on Microsoft Flight Simulator FSX Acceleration
and requires SP2 Update or Acceleration update to work properly with all the newest features included for Microsoft Flight Simulator X.

Installs for FSX / FSX:SE / Prepar3D all versions!

Developer: Flysimware.com