

Lockheed L-049A Constellation

By FSDzigns



FSDzigns L-049A Panel

The enjoyment received flying this airplane can only be achieved if you read and understand all of the documentation included with this package.

The panel that is included with this aircraft is adapted from the VNCON20 panel designed by Hansjoerg Naegele. The design team at FSDzigns, which includes Hansjoerg Naegele, created this panel to be as realistic as possible given the limitations in FS9. As an FS9 pilot, you need to understand that the L-049A was operated by a 3 person crew. Flying this airplane in FS9 is a challenge for a single pilot but it is very satisfying.



Main Panel Icons



This icon will Open and Close the Radio Sub-Panel.



This icon will Open and Close the Magnetic Compass.



This icon will Open and Close the Checklist.



This icon will change the Propeller RPM. Clicking on the upper half of this icon will increase the RPM and clicking on the lower half will decrease the RPM. Please note that this method changes the RPM's on all engines.



This icon will Open and Close the communications window.



Clicking this icon will set the mixtures of all engines to the optimum mixture given the current power settings and altitude.



Clicking this icon will Open the FS Map window.



This icon will Show and Hide the control yoke.



This icon will Open and Close the FS9 GPS window.



This icon will Open the Flight Engineer's Panel.

Main Panel Controls



All of the yellow boxes in the above picture contain mouse Hot Spots.

Note:

1. The pilot can press “B” on the keyboard to automatically set the Altimeter to the nearest reporting station.
2. The pilot can press “D” on the keyboard to automatically reset the Directional Gyro to the Magnetic Compass. Directional Gyro Drift occurs because of Precession during flight. This must be corrected periodically during all flights to ensure accurate navigation.

Main Panel Information



Radio Panel Controls



All On/Off Switches are functional. If any of the avionics switches is off, the corresponding radio will not function. Keep in mind that the Auto-Pilot is connected to the NAV1 Radio.

The TRM button determines which radio is selected for communications. When the BTH button is On, you will receive communications from both frequencies, but will only transmit on the radio with the TRM button On. The STK button will Close the Radio Panel.

Although not used in the real world airplane, we have included the ability to couple the Auto-Pilot with the GPS system in FS9. When the GPS button is On, the Auto-Pilot will navigate using the flight plan loaded in the GPS unit. When the GPS button is Off, the Auto-Pilot will navigate using the NAV1 radio and the OBS heading selected.

The IDT button will turn on the audible Morse Code station identifier.

The TST button on the ATC Radio (also known as the Transponder) momentarily runs the Test Mode. The VFR button will reset the Squawk Code to 1200.

The Lights switches are coupled to the corresponding switches on the Main Panel. The No Smoking and Seat Belt switches activate the appropriate cabin information signs and audible sounds.

Flight Engineer's Panel Icons



Closes FE Panel



Opens/Closes Fuel Sub-Panel



Opens/Closes Checklist



Initiates Engine Auto-Start



Adds 25% more fuel to each fuel tank



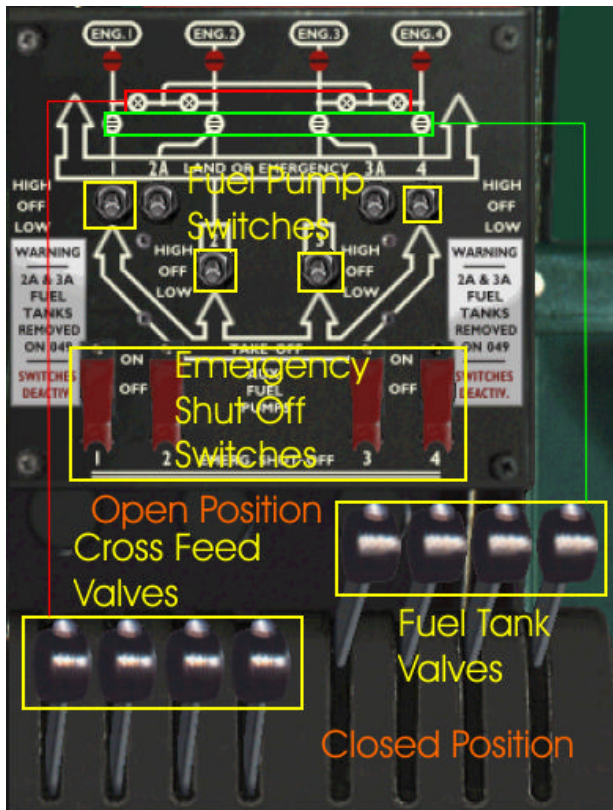
Clicking this icon will set the mixtures of all engines to the optimum mixture given the current power settings and altitude.

Flight Engineer's Panel



Note: The Hot Spot between the #2 and #3 Cowl Flap Switches will adjust ALL Cowl Flaps together.

Fuel Sub-Panel



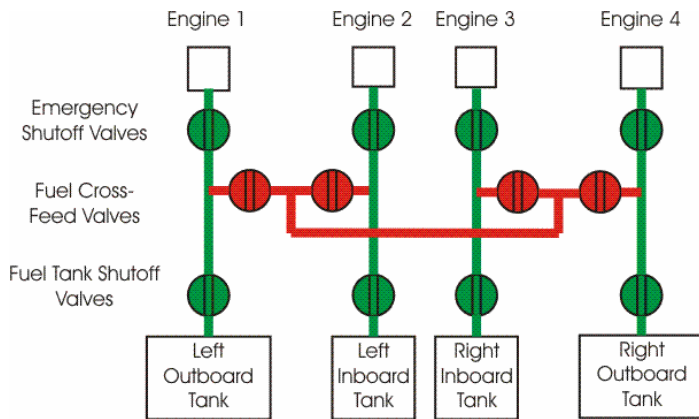
L-049A Fuel System

The Fuel System on all the Lockheed Constellations was complex and therefore the operating procedure was complex as well. We have worked hard to simulate the real world fuel system in FS9.

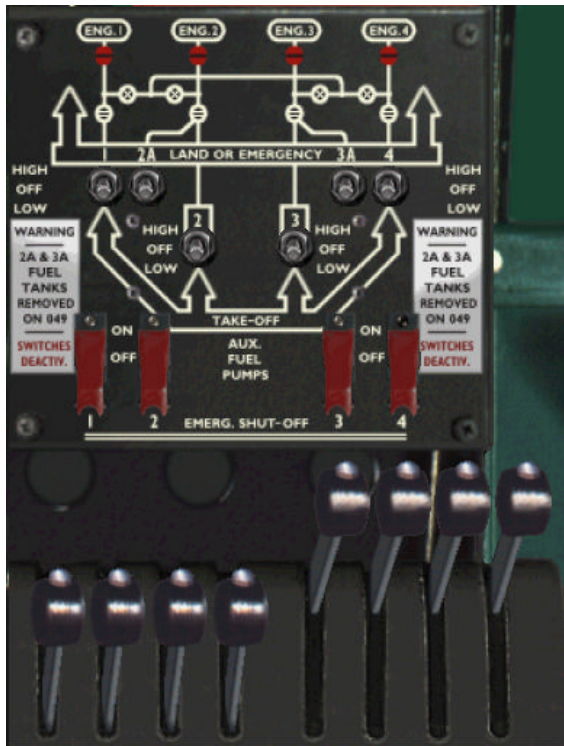
First you need to keep in mind that the Outboard Fuel Tanks on the L-049's had a 1555 Gallon capacity and the Inboard Fuel Tanks had a 790 Gallon capacity. As you can see in the following diagram, each engine was fed directly by it's corresponding fuel tank. Because the Outboard tanks were significantly larger than the Inboard tanks, it was necessary to be able to use the Outboard tanks to operate both engines from that tank. This was accomplished with a set of 4 cross feed valves.

Fuel tank references

- Left Outboard Tank is Tank #1
- Left Inboard Tank is Tank #2
- Right Inboard Tank is Tank #3
- Right Outboard Tank is Tank #4



Following is a picture of the Fuel Sub-panel that corresponds to the fuel valve positions above.



Following are some excerpts from the Lockheed Operating Manual for the L-049's.

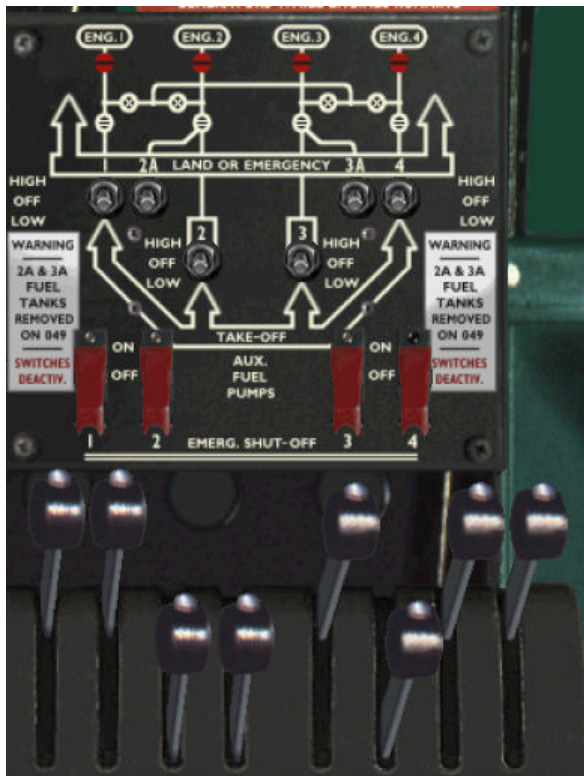
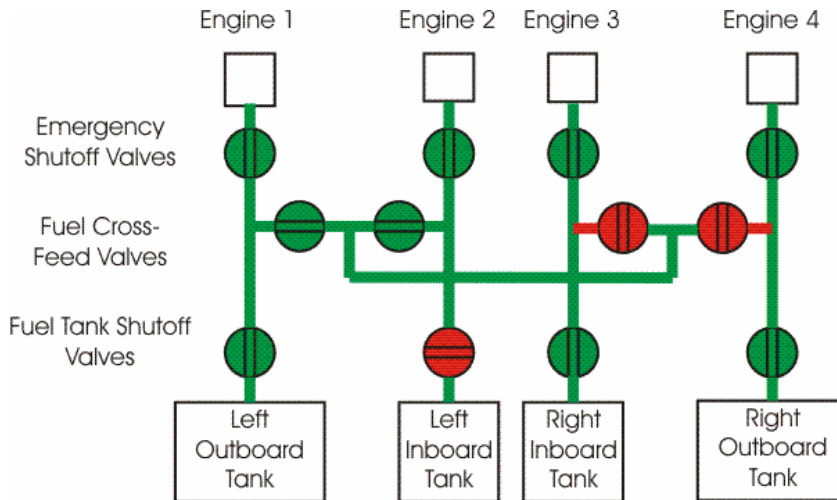
1. The maximum fuel differential (in gallons) between Tank 1 and Tank 4 is 300 gallons for takeoff and 835 gallons for cruise flight and landing. The maximum fuel differential between Tank 2 and Tank 3 is 590 gallons in all phases of flight.
2. Do not equalize fuel on the Left and Right side of the airplane at the same time.
3. It is possible to operate all 4 engines from a single fuel tank up to 8,000 Ft. without using the Auxiliary Fuel Pump and up to 15,000 Ft. with the Auxiliary Fuel Pump.

This system does not transfer fuel from one tank to another.

The operating manual recommends that the fuel load be equalized in all fuel tanks unless a flight was going to be conducted that required more than 3160 gallons.

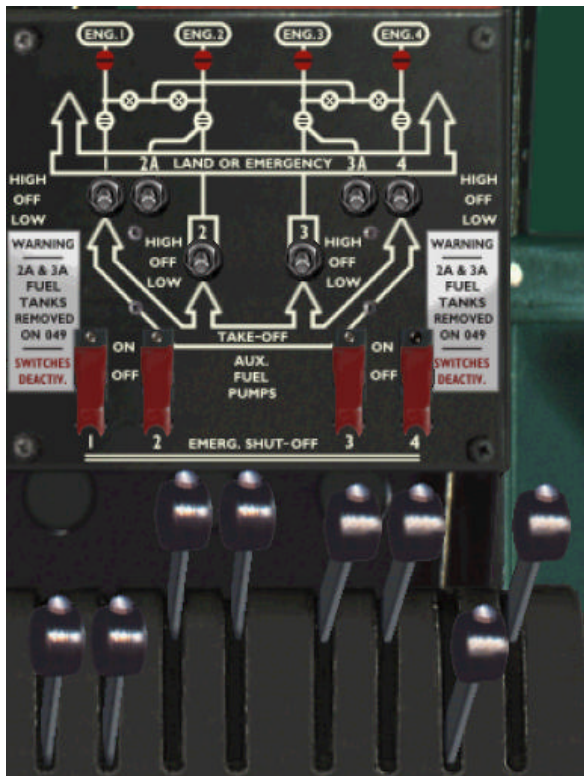
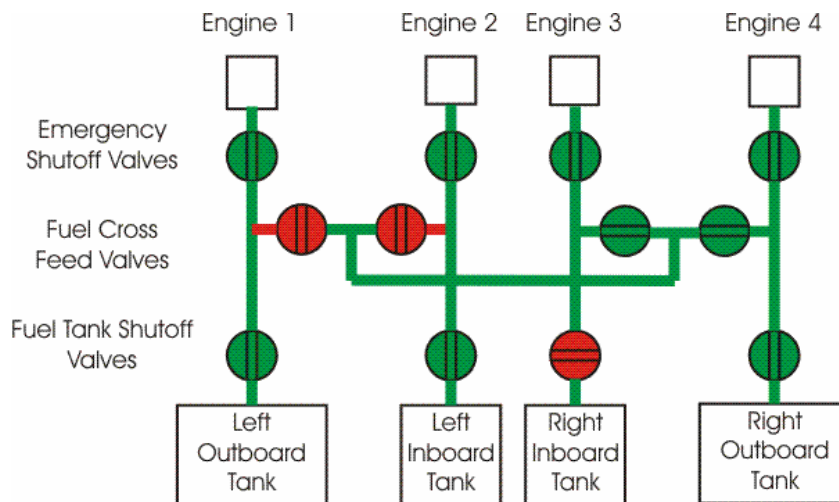
Fuel Cross-Feed to equalize Tanks 1 and 2

Following shows the valve positions and the Fuel Sub-panel lever positions to operate Engines 1 and 2 on Fuel Tank #1.



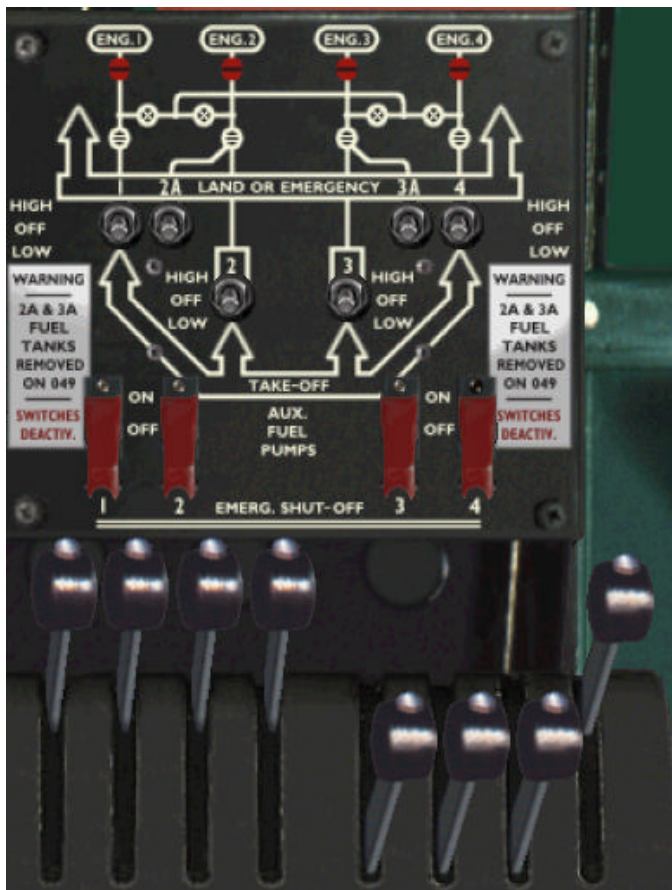
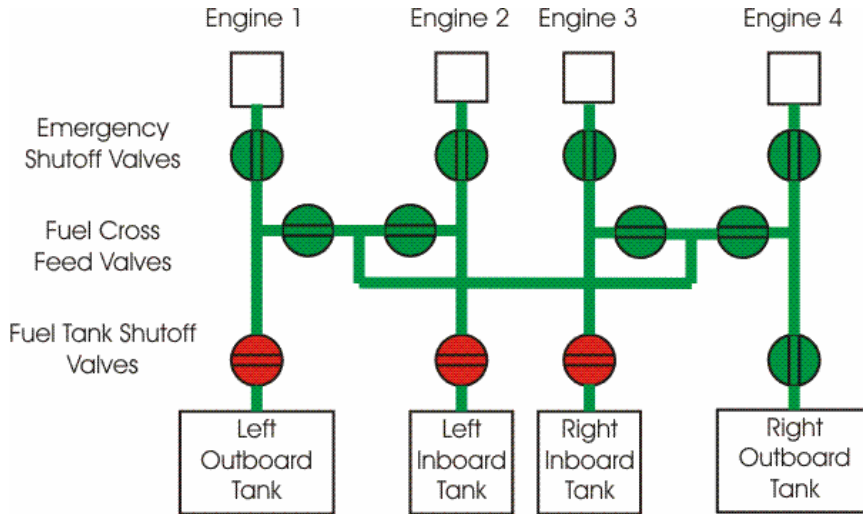
Fuel Cross-Feed to equalize Tanks 3 and 4

Following shows the valve positions and the Fuel Sub-panel lever positions to operate Engines 3 and 4 on Fuel Tank #4.

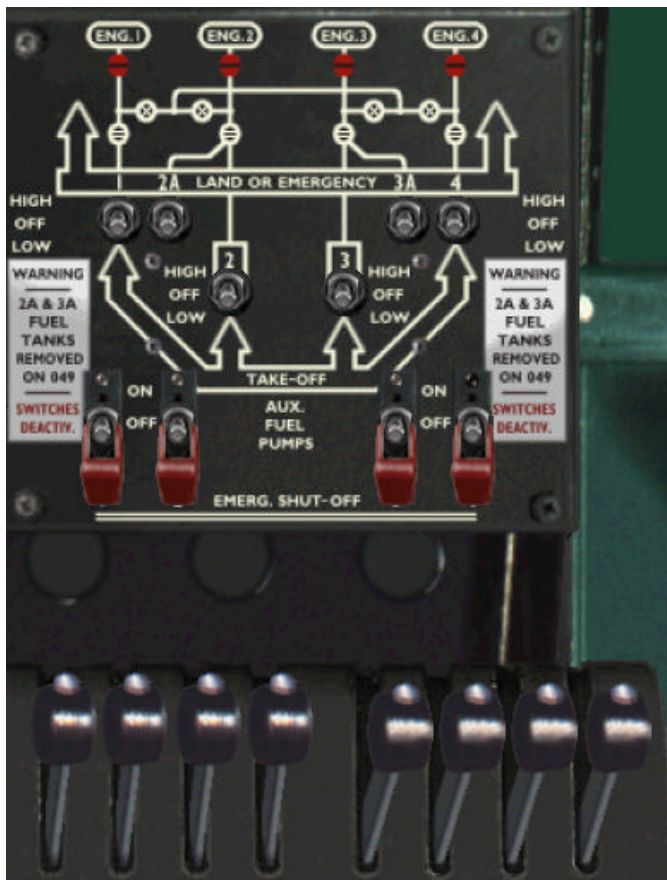
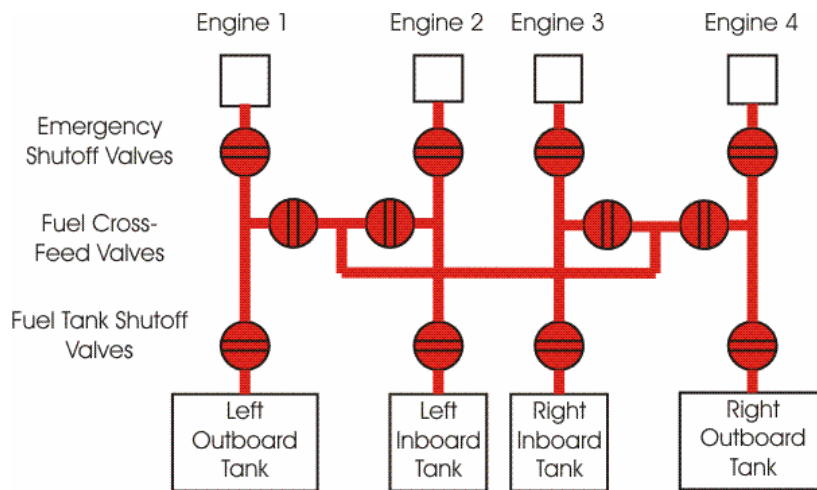


Fuel Cross-Feed to operate all engines on Tank #4

Following shows the valve positions and the Fuel Sub-panel lever positions to operate All Engines on Fuel Tank #4.



Fuel Panel Showing All Valves Closed



Operating Procedures

Preflight

1. Adjust fuel load for flight. Remember the Maximum Landing Weight for the L-049A is 77,800 lbs. With an empty weight of 55,860 lbs., the maximum fuel on board for landing is 21,940 lbs., or 3,656 gallons.
2. Vr is 100 KIAS at Max. Gross Weight.
3. Minimum Runway length for Takeoff is 4,200 ft. at Sea Level, increasing to 5,100 ft., at 6,000 ft. altitude.
4. Minimum Runway length for Landing at 77,800 lbs., is 3,700 ft., at Sea Level increasing to 4,300 ft., at 6,000 ft., altitude.

Engine Start

1. Open FE panel.
2. Battery Switch – ON
3. Return to Main panel.
4. Lights on as required.
5. Open FE panel.
6. Open Fuel panel.
7. Emergency Fuel Shutoff Valves – OPEN
8. Fuel Tank Valves – OPEN
9. Fuel Cross Feed Valves – CLOSED
10. Fuel Pump Switches – LOW
11. Close Fuel panel.
12. Mixtures to Auto-Rich
13. Props – Maximum RPM (Full forward)
14. Throttles – 6% to 8% OPEN
15. Cowl Flaps – OPEN
16. Carburetor Air Controls – COLD
17. Engine Selector Switch - #3
18. Magnetos - BOTH
19. Prime – Toggle ON
20. Starter – ON
21. Generator Switch - #3 ON
22. Repeat steps 17 to 21 for Engine 4, 2, 1
23. Inverter Switch – ON
24. Open Fuel panel
25. Fuel Pump Switches – OFF
26. Close Fuel panel
27. Return to Main Panel

Takeoff

1. Cowl Flaps – 40%
2. Trim - +15
3. Fuel Pumps – HIGH
4. Flaps – TAKEOFF
5. Lights – AS REQUIRED
6. Props – Maximum RPM (Full forward)
7. Mixture – AUTO-RICH
8. Full Throttle
9. Vr – 100 KIAS
10. Establish Climb
11. Landing Gear – UP
12. Climb rate – 500 FPM
13. Accelerate to 142 KIAS
14. Flaps – UP
15. Power – 42” MAP – 2300 RPM

Climb Stage 1

1. Climb 1,000 ft. AGL
2. Power – 35” MAP – 2300 RPM

Climb Stage 2 – Up to 9,000 Ft.

1. Cowl Flaps – 30%
2. Pitch for 152 KIAS

Climb Stage 3 – Above 9,000 Ft.

1. Cowl Flaps – 30%
2. Power – 33” MAP – 2300 RPM
3. Pitch for 152 KIAS up to 21,000 Ft.
4. Pitch for 142 KIAS above 21,000 Ft.

Maximum Cruise

1. Cowl Flaps – AS REQUIRED
2. Power – 31” MAP – 2300 RPM

Fast Cruise

1. Cowl Flaps – CLOSED
2. Power – 28” MAP – 1800 RPM

Economy Cruise

1. Cowl Flaps – CLOSED
2. Power – 25” MAP – 1800 RPM

Maximum Range Cruise

1. Cowl Flaps – CLOSED
2. Power – 22” MAP – 1600 RPM

Descent

1. Above 20,000 ft., do not exceed 210 KIAS
2. Below 20,000 ft., do not exceed 236 KIAS
3. Mixture – AUTO-RICH
4. Cowl Flaps – 10%
5. RPM- Maintain Cruise Setting or Maximum 2,000 RPM
6. Power – Reduce MAP in stages not to exceed 3” every 2 minutes down to MAP = RPM/100

Approach and Landing

1. Maximum Landing Weight not to exceed 77,800 lbs.
2. Cowl Flaps 30%
3. RPM – 2300
4. MAP – AS REQUIRED

Approaching Final Approach point

1. Airspeed - ≤ 152 KIAS
2. Flaps – STAGE 1

Approaching Glide Slope

1. Airspeed - ≤ 125 KIAS
2. Flaps – STAGE 2

Glide Slope Intercept

1. Landing Gear – DOWN

300 to 500 Ft. AGL

1. Flaps – STAGE 3

Cross Airport Boundary

1. Airspeed – 95 KIAS
2. Flare and Land
3. Close Throttles
4. Cowl Flaps – 100%
5. Flaps – UP
6. Propeller – Maximum RPM (Full Forward)

Shutdown

1. Flaps – STAGE 1 (for next leg) or STAGE 3 (last flight of the day)
2. Throttles – IDLE
3. Parking Brake – ON
4. Auto Pilot Master Switch – OFF
5. Lights – OFF
6. Open FE Panel
7. Cowl Flaps – 0%
8. Mixture – CUT OFF
9. Inverter Switch – OFF
10. Generators – ALL OFF
11. Battery Switch – OFF
12. Close FE Panel

Limitations

AEROBATICS are PROHIBITED

OIL PRESSURE => 45 PSI

OIL TEMP < 104C

CHT < 260C

NEVER EXCEED 261 KIAS

ROUGH AIR - MAX 236 KIAS

ABOVE FL200 - MAX 216 KIAS

FLAP 1 - MAX 174 KIAS

GEAR DOWN - MAX 152 KIAS

FLAP 2 or 3 - MAX 127 KIAS

CLEAN STALL 88 KIAS (MLW)

STALL with FULL FLAP 70 KIAS (MLW)

$V_{mca} = 81$ KIAS (MTOW & FLAP 1)