iniBuilds | PREMIER

T-33 Jet Trainer
MANUAL

Microsoft Flight Simulator 2024

Preface

FOR SIMULATION USE ONLY - DESIGNED FOR SINGLE-PILOT OPERATIONS

This guide is designed to help provide a straightforward set of instructions to aid in operating the T-33 Jet Trainer aircraft in FS24.

PHOTOSENSITIVE SEIZURE WARNING

A very small percentage of people may experience a seizure when exposed to certain visual images, including flashing lights or patterns that may appear in video games. Even people who have no history of seizures or epilepsy may have an undiagnosed condition that can cause these "photosensitive epileptic seizures" while playing video games.

Immediately stop playing and consult a doctor if you experience any symptoms.

These seizures may have a variety of symptoms, including light-headedness, altered vision, eye or face twitching, jerking, or shaking of arms or legs, disorientation, confusion, or momentary loss of awareness. Seizures may also cause loss of consciousness or convulsions that can lead to injury from falling down or striking nearby objects.

Parents should watch for or ask their children about the above symptoms. Children and teenagers are more likely than adults to experience these seizures.

You may reduce risk of photosensitive epileptic seizures by taking the following precautions:

- Play in a well-lit room.
- Do not play if you are drowsy or fatigued.

If you or any of your relatives have a history of seizures or epilepsy, consult a doctor before playing video games.

Copyright

Version 1.0.3 – November 28th, 2024

About the T-33 Jet Trainer

The T-33 is a single-engine, two-seat, low-wing military jet trainer.

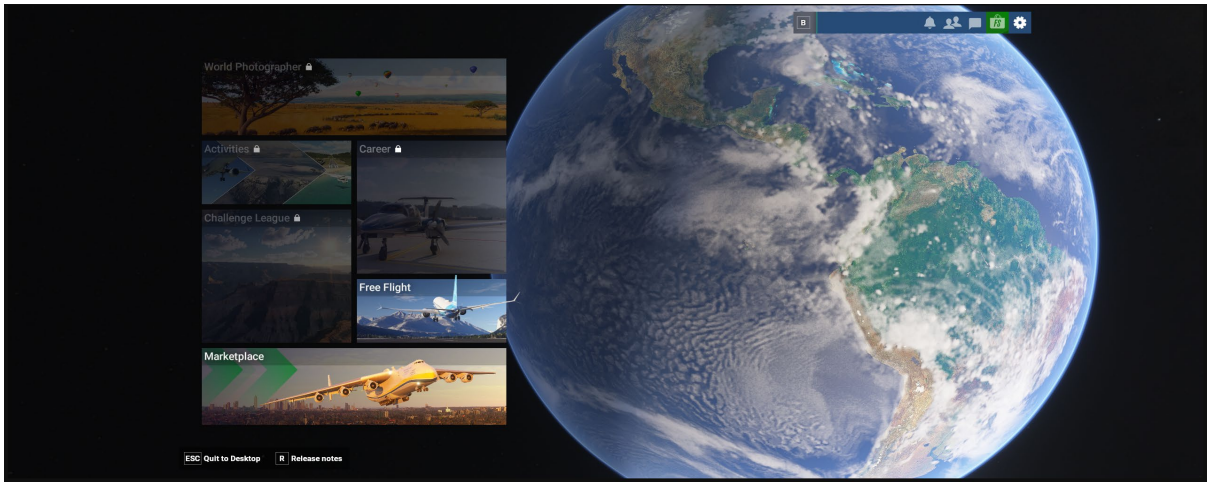
The T-33 features a tandem 2-seat cockpit, a traditional empennage, retractable tricycle landing gear, and an elongated trapezoidal main wing with tip tanks.

The jet measures 37 feet, 9 inches in length, stands 11 feet, 8 inches high, and has a wingspan of 38 feet, 11 inches.
It is powered by a turbojet engine that generates up to 4,600 pounds of thrust.

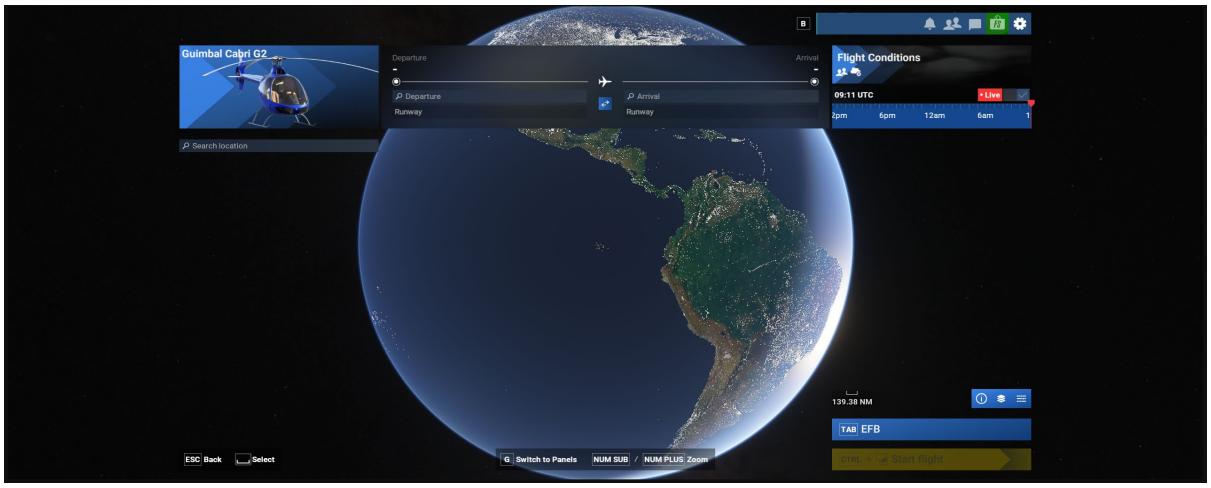
The T-33 has a range of 1,275 miles, a service ceiling of 48,000 feet above sea level, and a climb rate of 4,870 feet per minute. It cruises at 455 miles per hour and has a top speed of 600 mph.

Aircraft Selection and Liveries

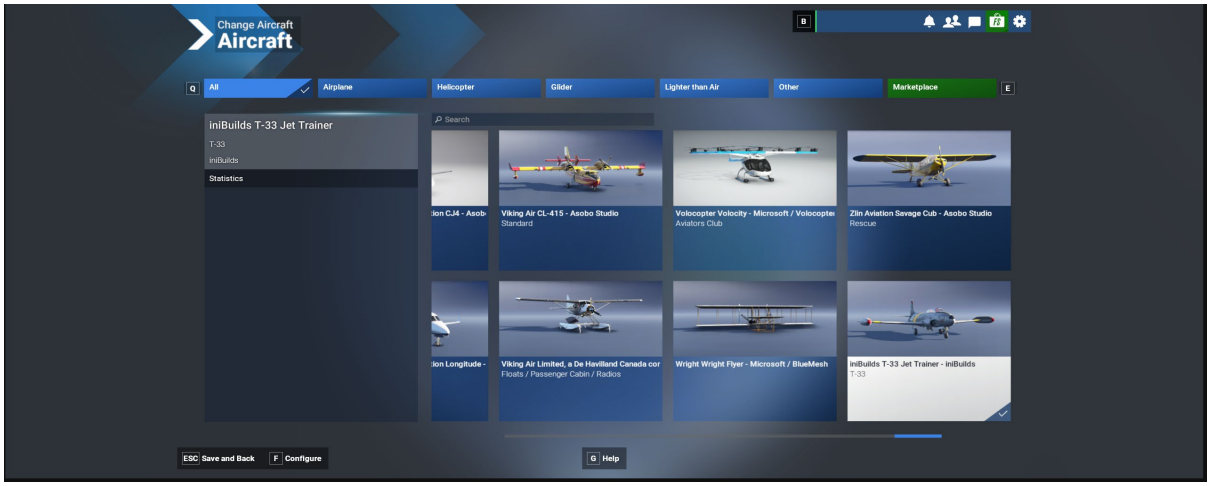
To fly the T-33 Jet Trainer, you will need to select it from the Aircraft Selection menu. Select Free Flight from the main menu.



Then click on the Aircraft selection icon in the top left.

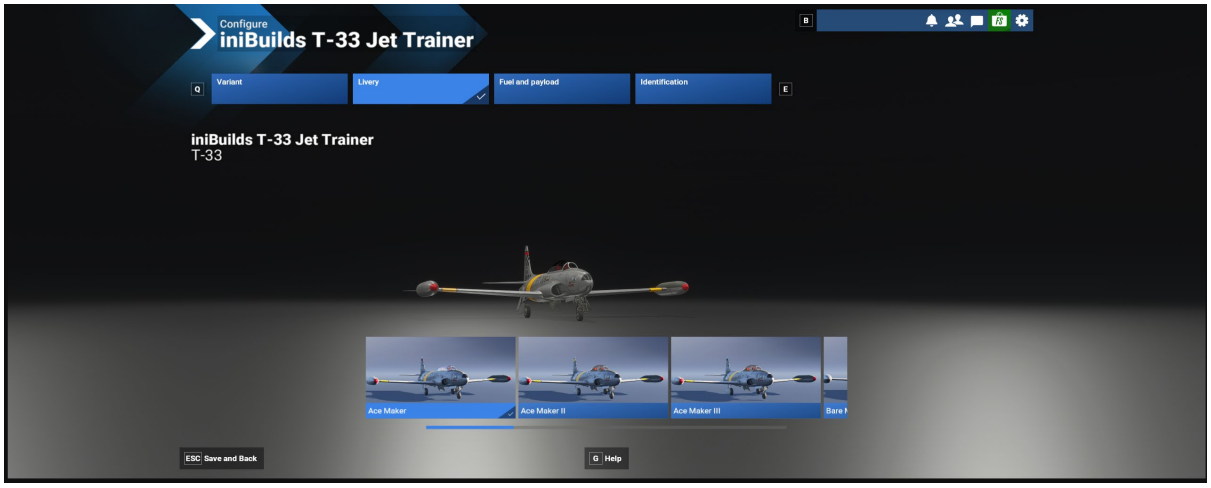


Scroll until you see the T-33 or type “T-33” in the search bar, and it will appear.



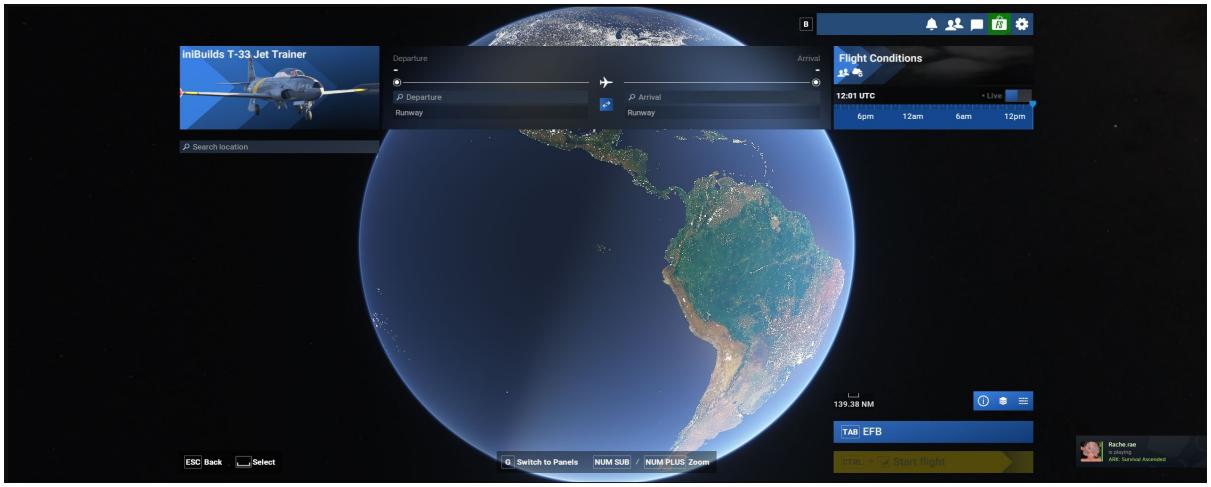
Select the aircraft and press Save and Back, or press escape.

To change the livery, Press F to Configure, then select Liveries tab at the top.



Scroll along and click to select your required livery and press Save and Back, or press escape.

Enter your required airport or scroll around the globe to select it, then hit Fly or Ctrl+Enter.



Cockpit Interaction

Some knobs within the cockpit have interaction where you can push, pull, or scroll them for their functionality.

This functionality will vary depending on your simulator's specific settings under GENERAL OPTIONS > ACCESSIBILITY.

If a control is set to "Lock," left click (and hold the left mouse button) the knob and push the mouse for "push" interaction and pull the mouse for "pull" interaction. Some functions also may have middle-mouse button "scroll" or "push" and right-mouse click "set" functions.

If it set to "Legacy," you will see an icon appear to the left, right, above, or below, which you use the middle-mouse wheel to scroll as if a circular arrow, and left click to "set" as if an up or down arrow icon.

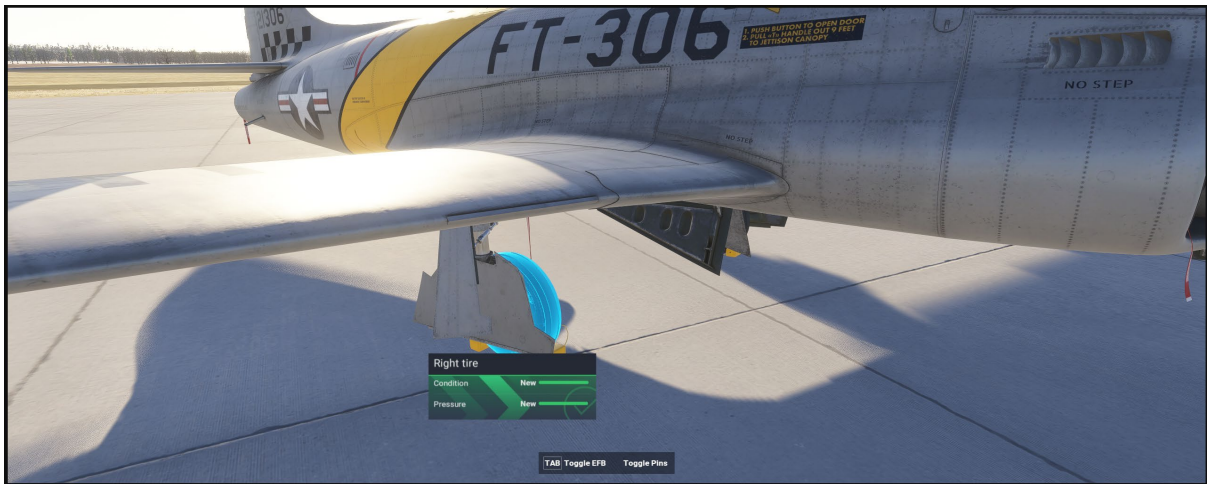
On the Xbox, press **A** to interact with the knob and use **A** to "push," **X** to "pull," Right Stick to "scroll," and **B** to finish the control input.

Pre-Flight Walk Around

Microsoft Flight Simulator 2024 comes with a pre-flight walk around feature where you can interact with and check the status of your aircraft.

Around the aircraft are various Pins, which can be toggled On or Off.

Click on the desired interaction point to interact with the flight surface, which can be dragged to check movement or click on the tyre to check the wear and tear status of it.



Covers, pins and chocks should also be removed before flight.
If the engine covers are not removed, the engine will not start.
If chocks are not removed, the aircraft will not move forward.
The pitot cover needs to be removed to have true airspeed indicated in the cockpit.
The landing gear pins need to be removed or the gear will stay down in a locked position.

To enter the cockpit click on the hatch on the right-hand side of the aircraft.

Checklists

Whilst this guide offers comprehensive details along with the Quick Reference Card (QRC), there are handy procedure checklists built within the simulator which can be found by pressing Tab, or whichever key you have bound to bring up the EFB.

Select the aircraft icon.

Then select Checklists.

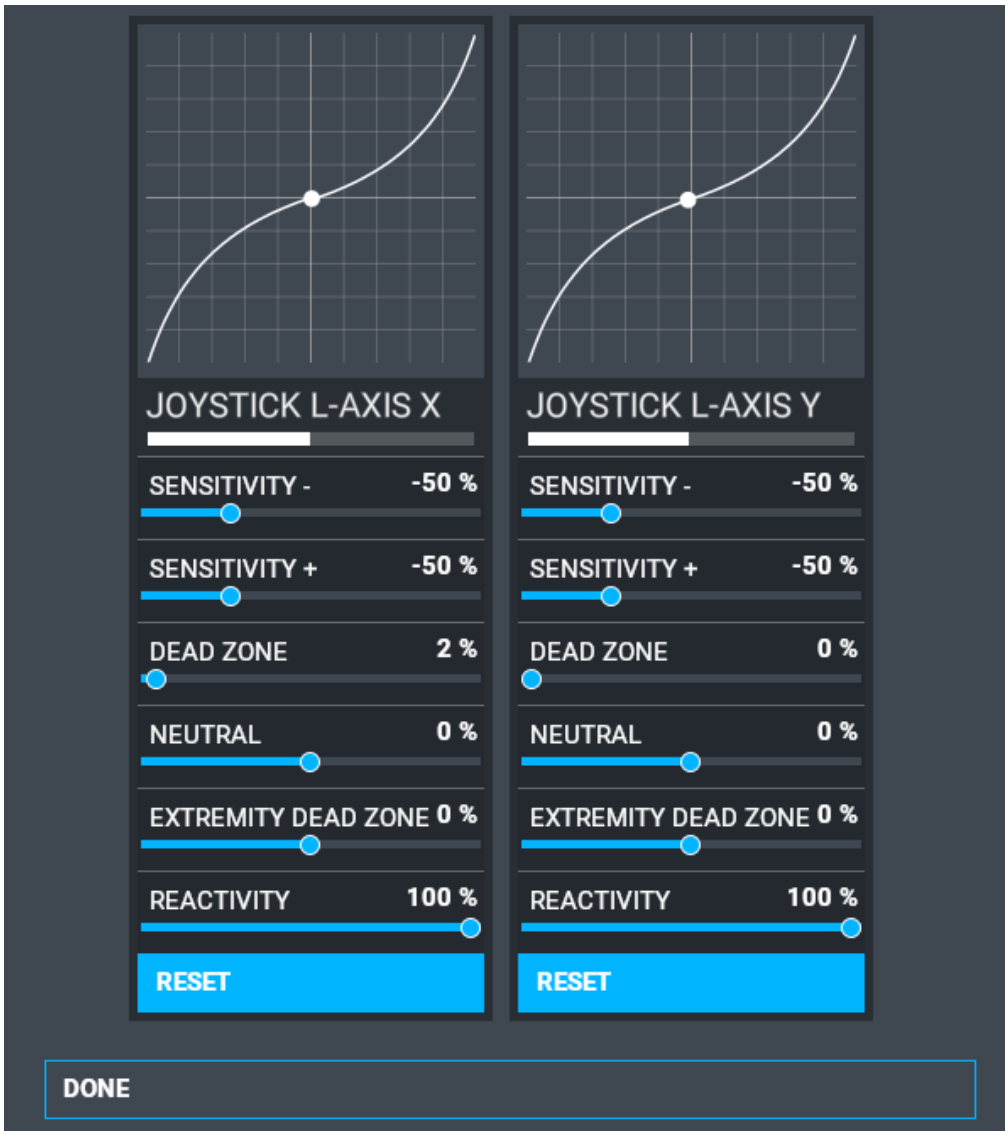
Important Notes and Substitutions

The aircraft use the new Computational Fluid Dynamics (CFD) flight model along with new fuel system and engine physics. Care should be taken while flying the aircraft not to stress the airframe and engines beyond their intended limitations as the aircraft, including all of its internal structural elements, reacts realistically in the system under these new simulation mechanisms.

Recommended Control Sensitivity Bindings

The aircraft has been designed as 1:1 ratio for your joystick inputs however, some joysticks will change the sensitivity curve settings.
The dynamics are correct for 1:1 curves however for users that find this too reactive we recommend reducing sensitivity to 50%.

We recommend setting the following curve settings to get the best flying experience with the jet.



Flap Indicators

Note: The G3X shows the flaps in degrees (o to 45 degrees), whereas the classic flap gauge shows total percentage of flaps deployed (0 to 100%).

The warning panel next to the flap indicator gauge will light up when the flaps are in either up or down motion with respective lights.

Fuel System

The T-33 encompasses a dynamic fuel system that replicates the real-world fuel system, which can quite often catch pilots out and needs to be managed carefully.
There is a central fuselage tank that is connected directly to the engines with Wing, L.E and Tip tanks feeding into that central tank.
Pilots need to be mindful of the contents of this tank and ensure it is kept topped up by switching on the fuel transfer switches on the left-hand side of the cockpit.

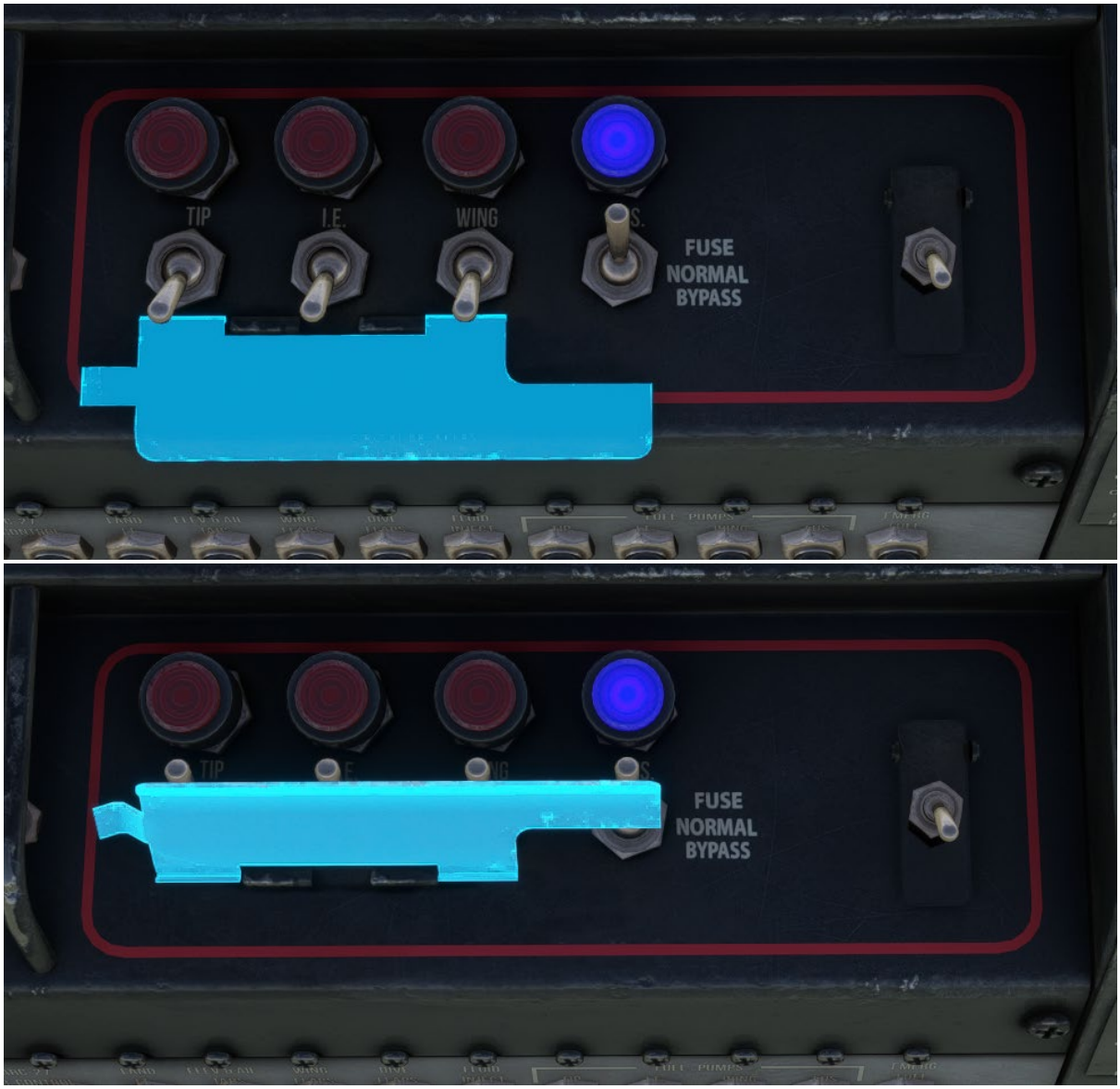
The fuselage tank switch should be set to Fuse for all phases of flight.

To ensure a stable pressure environment in the tip-tanks it is strongly advised to keep the TIP transfer switch on at all times once the engines are running.

The fuselage tank fuel level gauge is located on the front right-hand side main instrument panel. When this tank falls below 80% a warning indicator light will show up on the warning panel. At this point, fuel should be transferred from other tanks on the aircraft.

If all fuel is spent in the remaining tanks and this warning remains lit, redirect immediately to the nearest airfield/airport to land, reducing thrust to preserve fuel.

If you are in a situation where there is little to no fuel in the fuse tank, or you experience a flame out and are carrying out an air-start, and have fuel in remaining tanks, click the guard switch located just below the individual switches which will turn on all fuel transfer pumps to the fuselage tank.



However, be sure **not** to keep all switches on as any fuel that is pumped to the fuselage tank when it is full will be ejected out of the aircraft from the overflow pipe and you will run out of fuel.

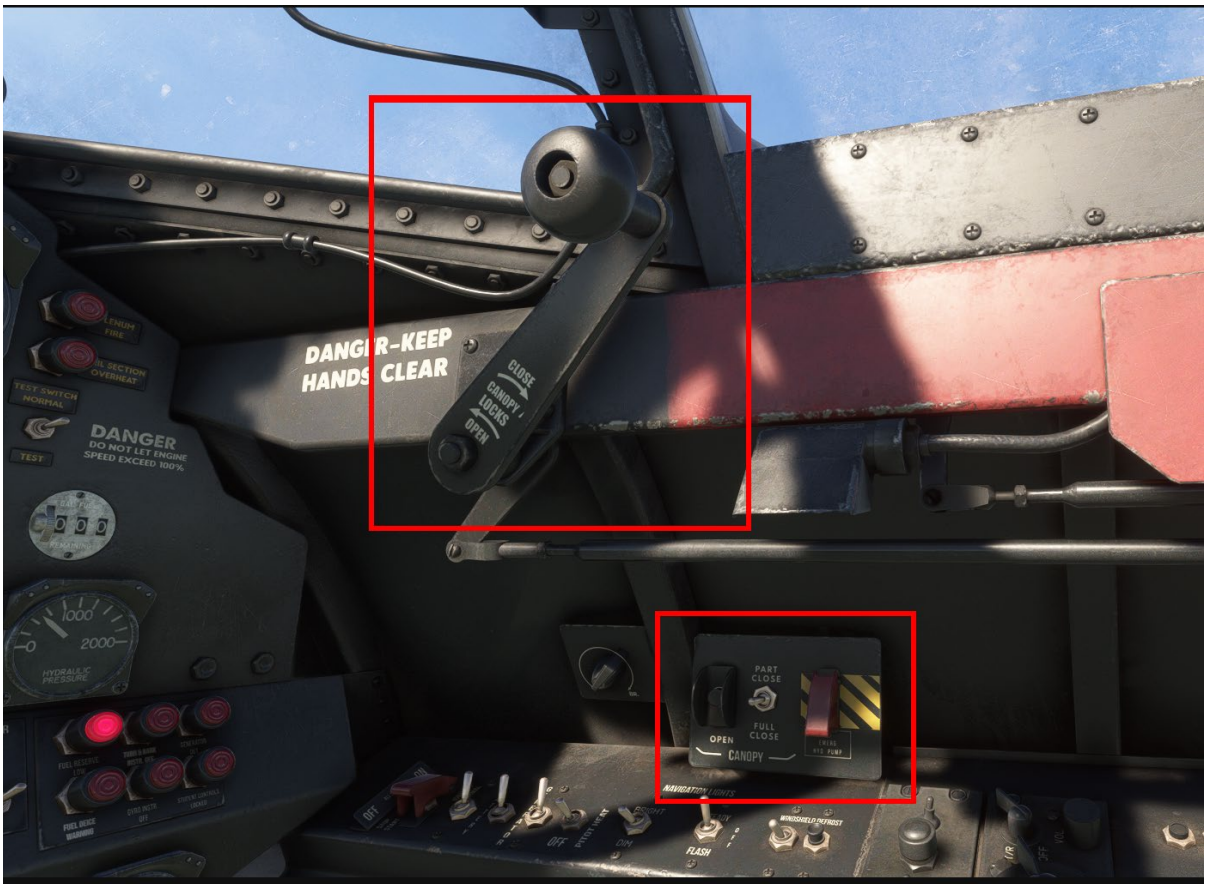
There is a fuel calculator you can set to your total fuel level which will count down to give you an overall counter of remaining fuel. Ensure you regularly check this to ensure you have enough fuel in the aircraft to reach your destination.

Throttle Management

The T-33 is a temperamental bird and throttle management is important, especially during run up.
Firewalling the throttle could have dire consequences to the engine.
Throttling up to 70% should be done in a slow, smooth process holding on the toe brakes and/or parking brake.
Past 70% you can use swift movements to control your airspeed during normal and aerobatic manoeuvres.

Canopy Opening

The canopy opening and closing mechanisms are located on the right-hand side of the cockpit.



To open the canopy, click the lock lever handle so It moves forward into the opening position.

Next push the canopy opening button located under the cockpit light.

To close the canopy it is a three-stage process.

Click the canopy close switch up to the Part Close position and the canopy will close until the latch catches.

Then click the same switch down to the Full Close position and the canopy will close.

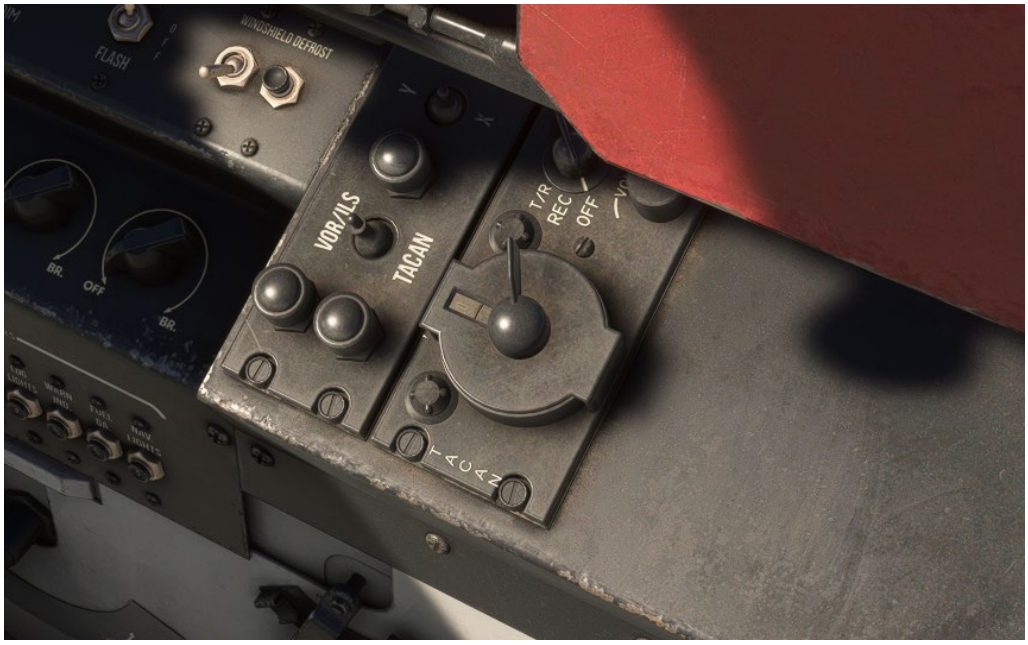
Next click the Canopy lock handle to fully lock the canopy into the closed position.

Dive Brakes

The aircraft is equipped with dive brakes to slow down during different phases of flight. The dive brakes are hydraulically controlled and they will not deploy or stow away without positive hydraulic pressure.

TACAN Functionality

The TACAN functionality is only available in the Classic cockpit as the Garmin units do not have this function.
The unit is located on the right-hand side rear panel of the front cockpit.
When the Modern cockpit is selected you will see an INOP label and the functions will not be available.
If you wish to use the TACAN functions, please ensure you have the Classic cockpit selected.



T-33 Jet Trainer Specifications

Max Speed: 505 KIAS
Cruise Speed: 380 KTAS
Max Altitude: 35,000 FT
Empty Weight: 8,450 Lb
Max Weight: 16,800 Lb
Fuel Capacity: 807 Gal
Length: 37.50 Ft
Wingspan: 37.60 Ft

Electronic Flight Bag (EFB)

On the left-hand side of the canopy is an EFB which allows for some key functions of the aircraft to be accessed.
The home page displays local airfield control tower frequencies or local NAV1 VOR frequencies which can be transferred to the NAVCOM units.
There is a moving VFR Map, which will show your route if set within the World Map.
The ground page has options for hiding ground service equipment around the aircraft. You can click the bottom option to remove all ground equipment in one click.
The options page allows to switch between classic and modern cockpits.

The EFB is shown and hidden by clicking the bolt to the left of the canopy frame.

Home Page (incorporating local ATC Frequencies. This feature will also automatically tune the COM1 radio when the frequency is selected)

Home Page (incorporating local NAV1 VOR Frequencies. This feature will also automatically tune the NAV1 radio when the frequency is selected)

Ground Page (ordinance only available on iniStore version)

Settings Page (to switch between classic and modern cockpits)


U.S. AIR FORCE
21306
FT-306

Cockpit Layout

To switch between classic and modern cockpit you can click the bolt on the main instrument panel or use the EFB option in the settings page.

Pilot's Main Instrument Panel – Classic Cockpit

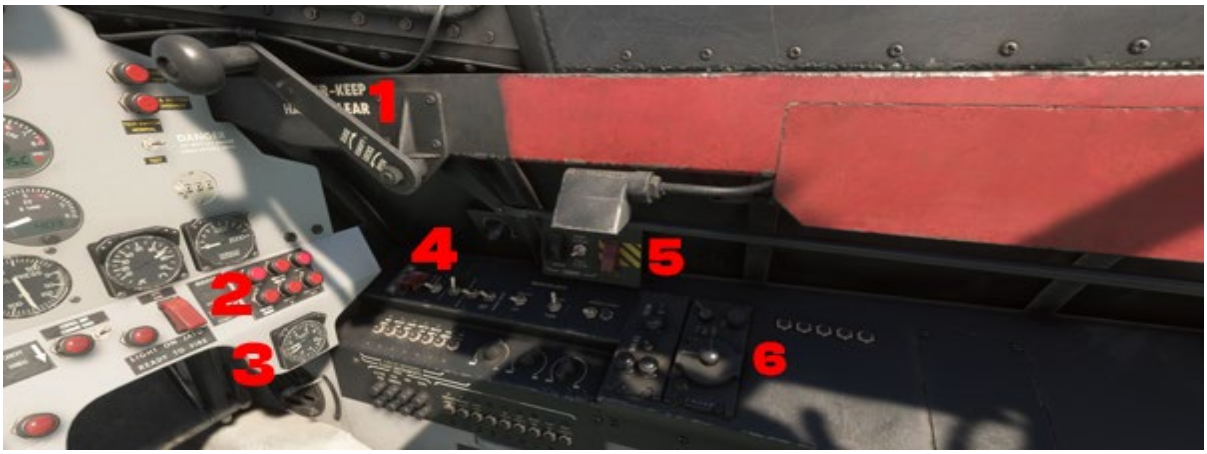
1. Landing Gear Indicators	13. Exhaust Gas Temperature (EGT)
2. Course Deviation Indicator (CDI)	14. Warning Light Panel
3. Radio Magnetic Indicator (RMI)	15. Flaps Indicator
4. Gyro Compass	16. Clock
5. Attitude Direction Indicator (ADI)	17. Electrical Load Indicator
6. RPM Gauge	18. Oil Pressure
7. Smoke Buttons	19. Fuel Pressure
8. Distance Measuring Equipment (DME)	20. Center Tank Fuel Quantity
9. Air Speed Indicator (ASI)	21. Fuel Calculator
10. Altimeter	22. Hydraulic Pressure
11. Turn and Slip	
12. Vertical Speed Indicator (VSI)	

Pilot's Main Instrument Panel – Modern Cockpit

1. Landing Gear Indicators	5. GNS 430 Navigation
2. PAC24 Audio Controller	6. GTX 330 Transponder
3. G3X Touch	7. GMC Autopilot Panel
4. RPM / EGT / Fuel Flow Gauges	

Left-Hand Panel

1. Fuel Switches	4. Taxi/Landing Lights
2. Air Start Switches	5. Throttle
3. Flaps Lever	6. Main Fuel Shutoff Switch



Right-Hand Panel

1. Canopy Lock Lever	4. Electrical Panel
2. Warning Lights Panel	5. Canopy Open/Close Panel
3. G-Meter	6. Tacan Panel

Center Panel

1. Oxygen Flow	COM1 Panel
2. Oxygen Cylinder Pressure	6. SIF Transponder Panel
3. Cabin Altitude Pressure	7. IFF Transponder Panel
4. Parking Brake	8. NAV1 Panel

Both the radio and transponder are fully tied into the in-sim ATC functionality.
Either manual tuning on the units themselves or auto-tuning from the ATC panel or in-sim AI Radio Communications (ATC) works.

The rear cockpit main instrument panel is of a similar layout to the front cockpit main instrument panel in both classic and modern configurations.

Simplified Procedures

Preliminary Cockpit Preparation	
Landing Gear Lever	DOWN
Parking Brake	SET
Fuel Selector Switches	OFF
Emergency Fuel Pump Switch	OFF
Air Start Ignition Switch	OFF
Ignition Booster Switch	OFF
Cabin Pressurization Control	OFF
Clock and Altimeter	SET
Fuel Counter	CHECK
Battery Switch	OFF
Pitot Heat Switch	OFF
Communications Equipment	OFF

Engine Start	
Battery	ON
Generator	ON
Throttle	IDLE
Ignition Booster Switch	OFF
Fuselage Fuel Tank	FUSE
Other Fuel Tanks	OFF
Starter Switch Cover	OPEN
Starter Switch	START
At 9% RPM, Ignition Switch	NORMAL
At 17% RPM Release Starter Switch	CHECK
At 45% RPM Check Pressures and Temperatures	CHECK

After Engine Start	
Hydraulic System	CHECK
Anti-Ice	CHECK
Throttle Idle	COMPRESSOR RPM CHECK
Throttle	FULLY OPEN

Pre-Take-Off	
Pitot Heat	ON
Wing Flaps	60%
Trim	NEUTRAL
Taxi Light	ON
Taxi	CARRY OUT
Landing Light	ON
Navigation Lights	ON
Line-Up	PERFORM
Canopy	CLOSE
Brakes	HOLD
Engine Check	CARRY OUT
Throttle	100%
Instrument Pressure	CHECK
Hydraulic Pressure	CHECK
Ammeter	CHECK
Oil Pressure	CHECK

Takeoff	
Oil Pressure	CHECK
Brakes	RELEASE
Rudder for Steering	AS REQUIRED
Rotate	BETWEEN 110-120 KIAS
Landing Gear	UP

Climb	
Throttle	100%
Landing Light	OFF

Approach	
Descent Briefing	PERFORM
Dive Flaps	AS REQUIRED
Throttle	50%

Landing	
Landing Light	ON
Collective	INCREASE
Air Speed	175 KIAS
Landing Gear	DOWN
Wing Flaps	50%
Air Speed	130 KIAS
Wing Flaps	100%

Engine Shutdown	
Parking Brakes	ON
Throttle	IDLE
Fuselage Fuel Tank	NORMAL
Other Fuel Tanks	OFF
Inverter Switch	OFF
Main Fuel Shutoff Switch	OPEN
Pressure & Temperatures	CHECK FOR ENGINE SHUT DOWN

Parking	
Communication Equipment	OFF
Ignition Booster Switch	OFF
Generator	OFF
Canopy	OPEN
Battery	OFF

Preliminary Cockpit Preparation

Landing Gear Lever ..... DOWN
Parking Brake ..... SET
Fuel Selector Switches ..... OFF
Emergency Fuel Pump Switch ..... OFF
Air Start Ignition Switch ..... OFF
Main Fuel Shutoff Switch ..... OFF
Ignition Booster Switch ..... OFF
Cabin Pressurization Control ..... OFF
Clock and Altimeter ..... SET
Fuel Counter ..... CHECK
Battery Switch ..... OFF
Pitot Heat Switch ..... OFF
Communications Equipment ..... OFF

Engine Start

Battery ..... ON
Generator ..... ON
Throttle ..... IDLE
Ignition Booster Switch ..... OFF
Fuselage Fuel Tank ..... FUSE
Other Fuel Tanks ..... OFF
Starter Switch Cover ..... OPEN
Starter Switch ..... START
At 9% RPM, Ignition Switch ..... NORMAL
At 17% RPM Release Starter Switch ..... CHECK
At 45% RPM Check Pressures and Temperatures ..... CHECK

After Engine Start

Communications Equipment ..... ON
Throttle ..... 68% RPM
Throttle Idle Rapidly ..... IDLE
Pressures and Temperatures ..... CHECK
Dive Flaps ..... CHECK
Wing Flaps ..... CHECK
Inverter Switch ..... MAIN

Pre-Take-Off

Pitot Heat ..... ON
Wing Flaps 60%
Trim ..... NEUTRAL
Taxi Light ..... ON
Taxi ..... AS REQD
Taxi Light ..... OFF
Landing Light ..... ON
Navigation Lights ..... ON
Line-Up ..... PERFORM
Canopy ..... CLOSE
Brakes ..... HOLD
Engine Check ..... CARRY OUT
Throttle 100%
Instrument Pressure ..... CHECK
Hydraulic Pressure ..... CHECK
Ammeter ..... CHECK
Oil Pressure ..... CHECK

Take Off

Oil Pressure ..... CHECK
Brakes ..... RELEASE
Rudder for Steering ..... USE
Rotate ..... BETWEEN 110-120 KIAS
Landing Gear ..... UP

Climb

Throttle 100%
Landing Light ..... OFF

Approach

Descent Briefing ..... PERFORM
Dive Flaps ..... AS REQD
Throttle 50%

Landing

Landing Light ..... ON
Air Speed ..... 175 KIAS
Landing Gear ..... DOWN
Wing Flaps 50%
Air Speed ..... 130 KIAS
Wing Flaps 100%

Taxi In

Landing Light ..... OFF
Taxi Light ..... ON
Navigation Lights ..... DIM
Pitot Heat ..... OFF
Wing & Dive Flaps ..... UP
Taxis ..... PERFORM

Engine Shut Down

Parking Brakes ..... SET
Throttle ..... IDLE
Fuselage Fuel Tank ..... NORMAL
Other Fuel Tanks ..... OFF
Inverter Switch ..... OFF
Main Fuel Shutoff Switch ..... OPEN
Pressure & Temperatures ..... CHECK FOR ENGINE SHUT DOWN

Parking

Communication Equipment ..... OFF
Ignition Booster Switch ..... OFF
Generator ..... OFF
Canopy ..... OPEN
Battery ..... OFF