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P-40F WarHawk
MANUAL

Microsoft **Flight Simulator**

Preface

This guide is designed to help provide a straightforward set of instructions to aid in operating the P-40F Warhawk. It has been produced using multiple real-world P-40F Operator manuals from various dates, with modifications to various procedures to make them more manageable in-game.

PHOTOSENTIVE 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.

Aircraft Selection and Liveries

To fly the Curtiss P-40F Warhawk, you need to select it from the Aircraft Selection menu. Click on World Map from the Main Menu and click the Aircraft selection icon in the top left.

Scroll until you see the Curtiss P-40F or type in the search bar "P-40F" and the aircraft will show.
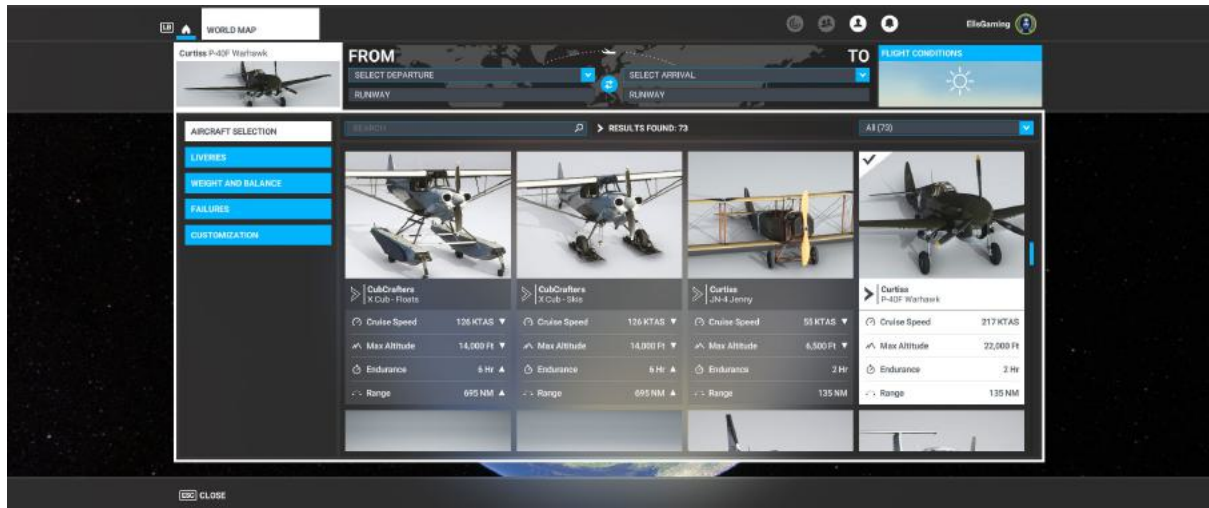
Click on Liveries to select the different paint schemes available.
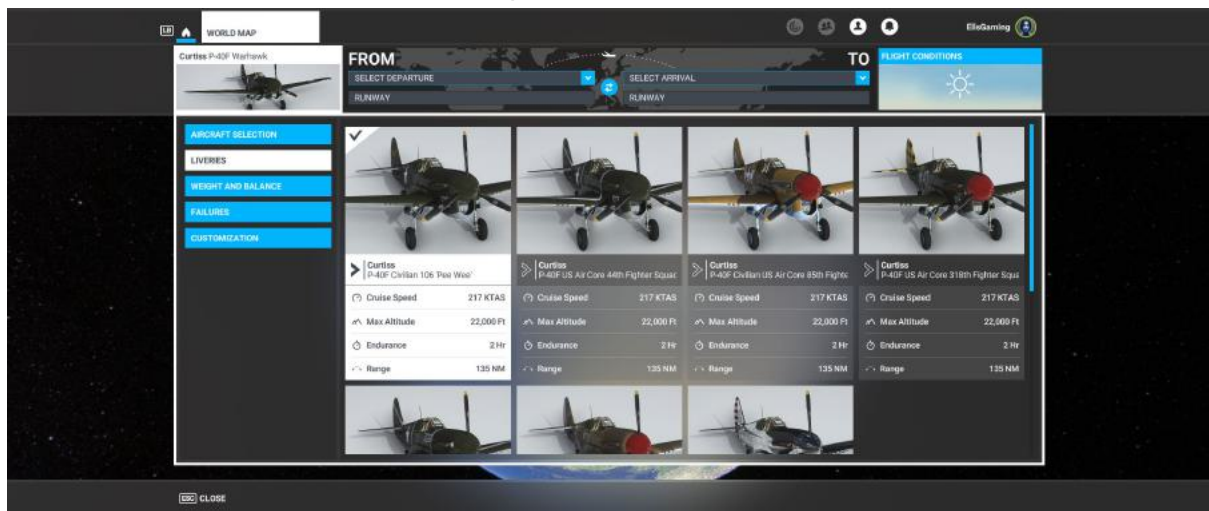
Cockpit Interaction

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

On the PC, left click the knob and push the mouse for "push" interaction and pull the mouse for "pull" interaction whilst holding the mouse button down. Some functions also may have middle-mouse button "scroll" or right-mouse click "set" functions.

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 interaction.

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 from the top-of-screen drop down menu and selecting the Checklist option.

Clicking the blue eye icon to the right of the checklist item will switch your view to the correct panel where the button/switch/dial/gauge is located. You can use the AUTO COMPLETE option to tick off the item from the checklist as handy reference.

Important Notes and Substitutions

The aircraft uses the new Computational Fluid Dynamics (CFD) flight model along with new fuel system and propellor physics. Care should be taken whilst flying the aircraft to not over-stress the airframe beyond limitations.

Curtiss P-40F Warhawk Specifications

Cruise Speed: 249 MPH
Max Altitude: 22000 Ft
Max Weight: 9,350 Lb
Range: 500 Miles
Fuel Capacity: 148 Gal
Length: 31 Ft
Wingspan: 37 Ft

Electronic Flight Bag (EFB)

Within the cockpit is an EFB which allows for some key functions of the aircraft to be accessed.
There is a moving VFR Map, which will show your route if set within the World Map.
In addition, on the Map page there is a pop-up Autopilot control panel, please see below for functionality.
The maintenance page is linked to our Persistence Lite system which monitors wear and tear of the aircraft over time. Key items will require regular maintenance and can be "topped up" within this page. If maintenance is required a warning will show on the Home Page.
The page also allows for various access panels of the aircraft to be removed or opened for maintenance such as the cowlings, gun bay doors and hiding of the guns or bags.
The Weather page allows you to search up the METAR of a given airfield and shows standard or simplified information, see important note below for use.
There is a Timers page allowing for map and stopwatch flying.
The Settings page allows you to switch between civilian and military versions (military not available on Marketplace).
The Radio panel has been removed and physical units for radio and transponder have been added, please see below for functionality.

Future functionality will be added over time.

The EFB can be turned off by the power button and dimmed or made brighter by the side buttons or on-screen slider.
It can also be hidden by using the selector switch under the Amps gauge which will hide the EFB and show the gunsight (military option) or the mounting bracket (civilian version).

Important Note: when using the METAR search, please use the on-screen EFB keyboard as using regular keyboard will interact with aircraft systems.

Drop Tank Functionality

A fuel drop tank is accessible on the aircraft which will increase the range by approximately 500 miles.

The tank is automatically added when you add fuel to it within the Weights and Balance screen within the simulator, simply move the slider to the right to add fuel and the tank will appear.
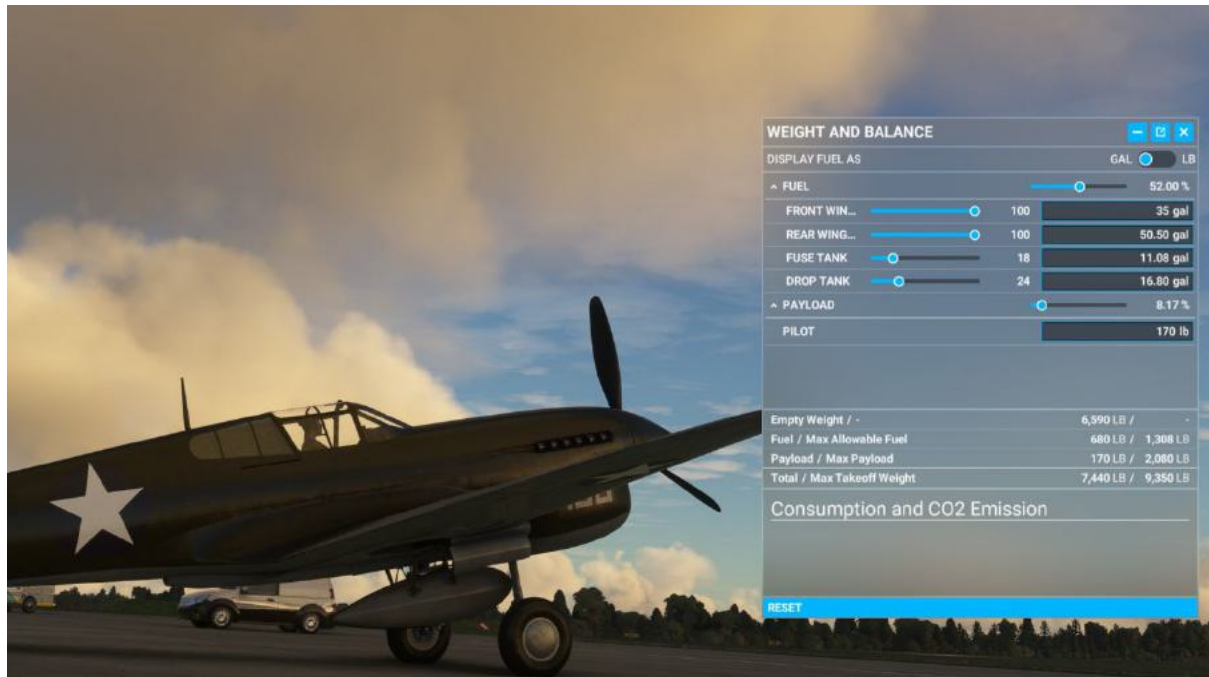
To use the fuel during flight, select "Belly" on the fuel selector (fully to the left).

The tank cannot be dropped during flight and must be removed by the ground crew.
To do this the aircraft must be on the ground, engine off and no fuel remaining in the tank.
Either fly using the Belly option on the fuel selector until the tank is empty or manually remove the fuel using the Weight and Balance page.
Go to the Maintenance page on the EFB and you will see an option to remove the drop tank.

Radio and Transponder Functionality

The radio and transponder units are located on the central panel behind the stick.

Power must be on within the aircraft and the Radio switch must be on for both units to work.

The KX 155 unit inside the aircraft has the ability to tune the COM1 frequency and switch them between standby and active.

The Off/Volume knob is used to turn on/off the radio unit and set the in-sim volume of the COM1 radio. Test mode is enacted when you pull the OFF/Volume button and puts the display in test mode.

To tune the standby frequency, use the MHZ and KHZ knobs on the left-hand side of the panel to set your desired frequency. Pulling the KHZ knob changes between 25 and 50 KHZ in the scroll up/down.

Once your desired frequency has been set push the white swap button to switch from standby (**STBY**) to active (**USE**).

NAV frequency tuning on the right-hand side of the panel is enabled for future functionality.

Transponder Button Functions:

IDENT: Activates IDENT for 18 seconds then shuts off

VFR : Swap between VFR code and current code

ON : Set XPDR to On Mode

STBY : Set XPDR to Standby Mode

ALT : Set XPDR to ALT Mode

OFF : Set XPDR to Off

FUNC : Changes the function section page on the right of the code characters with the following available pages:

- Current flight time
- Altitude Monitor
- Outside Air Temperature (OAT) reading and DALT level
- Flight ID
- Count up timer (start/stop/clear)
- 3 minute count down timer (start/stop/clear)

START/STOP: Starts/Stops Altitude Monitor, Count Up, Count Down and Flight timers

CRSR : Initiates starting time entry for Count Down timer and cancels code entry

CLR : Resets/Cancels data entry

0-9 buttons: Starts XPDR code entry

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.
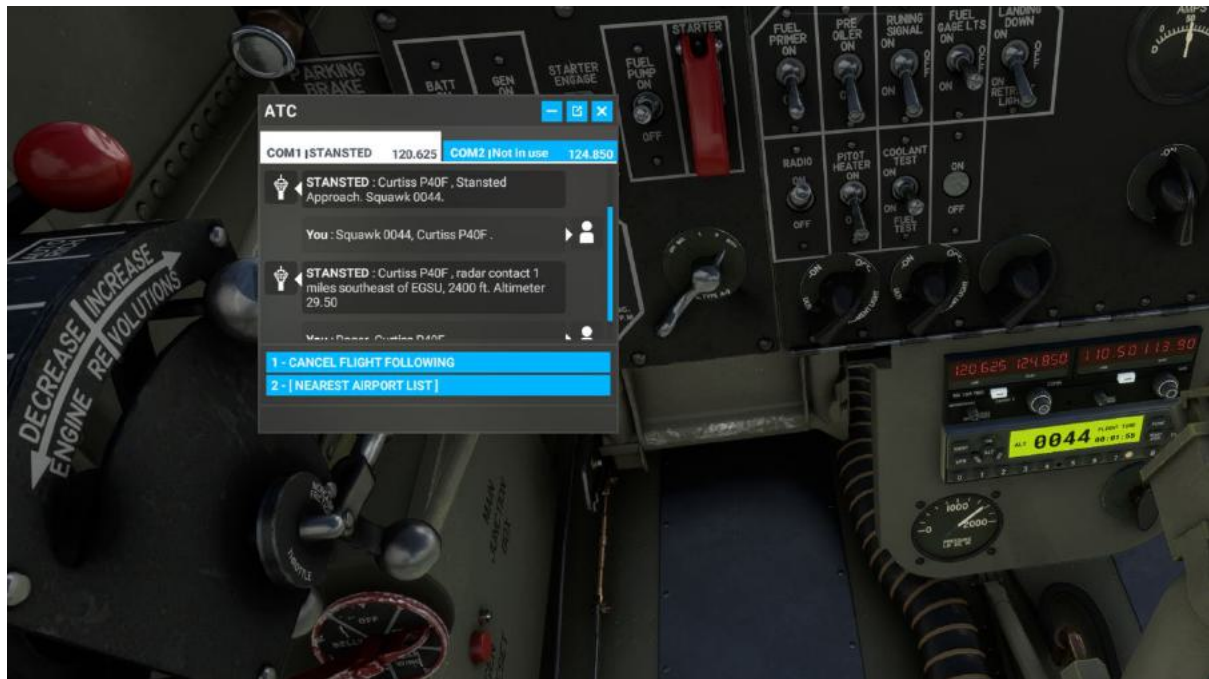
Autopilot Functionality

The P40 comes with autopilot functionality for managing hands-off vertical and horizontal flight control.

To enable the autopilot, go to the EFB Map page and click in the AP icon on the right- hand side. The AP control panel pop-up window will appear.

Form here you can select the various modes listed below, within aircraft states as listed.

HDG: Heading hold mode locks the current heading and that value is updated each time this mode is activated. You can manually turn the plane whilst in HDG mode and press the button again to set current heading.

NAV: The NAV mode activates GPS navigation and the aircraft will follow the flight plan created from the main menu or the direct route to an airport selected within the EFB map page.

AP: Engages / Disengages the master autopilot. Note the AP can only be activated with certain conditions like gear raised, flaps raised, speed above 207mph and altitude above 2000ft.

LVL: The Level mode positions the aircraft in a neutral pitch and roll mode (only with AP on).

YD: Activates the Yaw Damper feature. Note the yaw damper can only be activated once an altitude of 2,500ft above zero altitude has been reached.

VS: Enables Vertical Speed Hold Mode and can be adjusted using the + / - buttons. Note the V/S mode can only be enabled within +/- 250fpm climb or descent.

Pitch + / – : When VS is activated the pilot can increase or decrease the vertical speed using the + or - buttons. Note that the vertical speed cannot exceed certain values depending on the airspeed and angle of attack.

ALT: Altitude mode holds the current altitude and its value is updated each time this mode is activated. You can manually climb or descend the aircraft whilst in ALT mode and press the button again to set current altitude (with v/s at less than 250fpm).

If the conditions for AP functions are not met, I.e. gear down, flaps down, speed, altitude, vertical climb/descent, Etc. a warning box will pop-up on the EFB telling you why that function cannot be engaged.

When an AP function is enabled the button in the control panel will highlight blue and the AP status bar on the bottom of the map page will also indicate which mode is "ON".
In this example we have **AP**, Heading (**HDG**) and Altitude (**ALT**) hold on.

He we are in **HDG** and **VS** mode with a climb rate set to 500 fpm as indicated on the right-hand side of the AP control panel (500f/m).

As noted above the Yaw Damper can only be activated once an altitude of 2,500ft above zero altitude has been reached.
Here we can see we have **AP**, **HDG**, **ALT** and now **YD** activated.

For the aircraft to follow the navigation course set in World Map, click the GPS button.
This will then turn the aircraft to the direction of your next waypoint.

Here we can see we have **AP**, **ALT, YD** and now **GPS** activated.

Alternatively, you can manually select an airport to go Direct To by clicking the Direct To button on the right side of the Map page.
Enter the ICAO code of the airport you wish to travel towards and click the search icon.

This will bring up the search results indicating the bearing and distance.
Please make note of how much fuel you have left in the aircraft and if you can make the distance.

Click Activate to override your current flight plan and a direct line is drawn from your current position to the airport.

Now click the GPS button and the aircraft will turn to the direction of the direct line and settle onto the direct course to the airport.
Here we can see we have **AP**, **ALT, YD** and now **GPS** activated.

At any time, the Autopilot will disconnect when there is excessive deviation of flight parameters. This can be pilot induced by taking control of the flight stick or by high winds as an example.

The Autopilot control panel pop-up window can be closed at any time by clicking the AP icon on the right-hand side of the map page. The AP status bar will always remain on the map.

Cockpit Layout

1. EFB
2. Warning Lights
3. Gear and Flaps Indicators
4. Altitude, Speed, Clock
5. Turn and Slip, VSI, Compass

6. Manifold Pressure and RPM
7. Engine Gauges
8. Main Switch Panel
9. Attitude Direction Indicator (ADI)

Left Side Panel
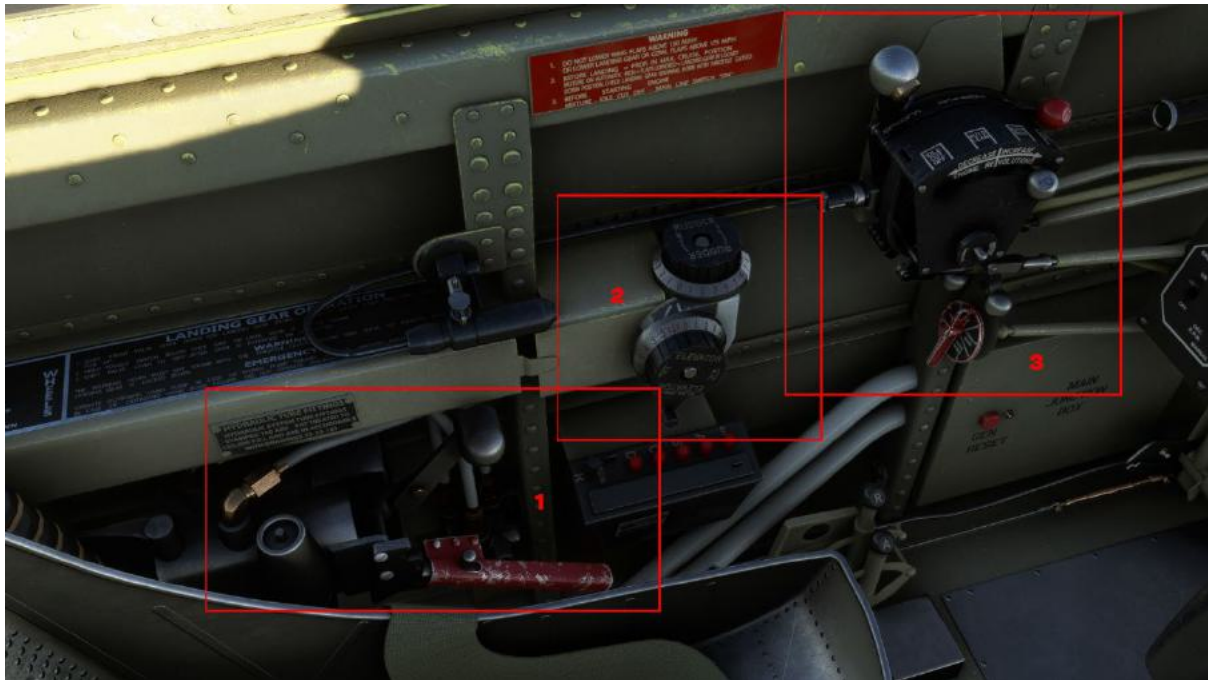
1. Flaps and Gear Levers
2. Trim Wheels
3. Throttle, Mixture, Prop Levers, Fuel Tank Selector

Right Side Panel
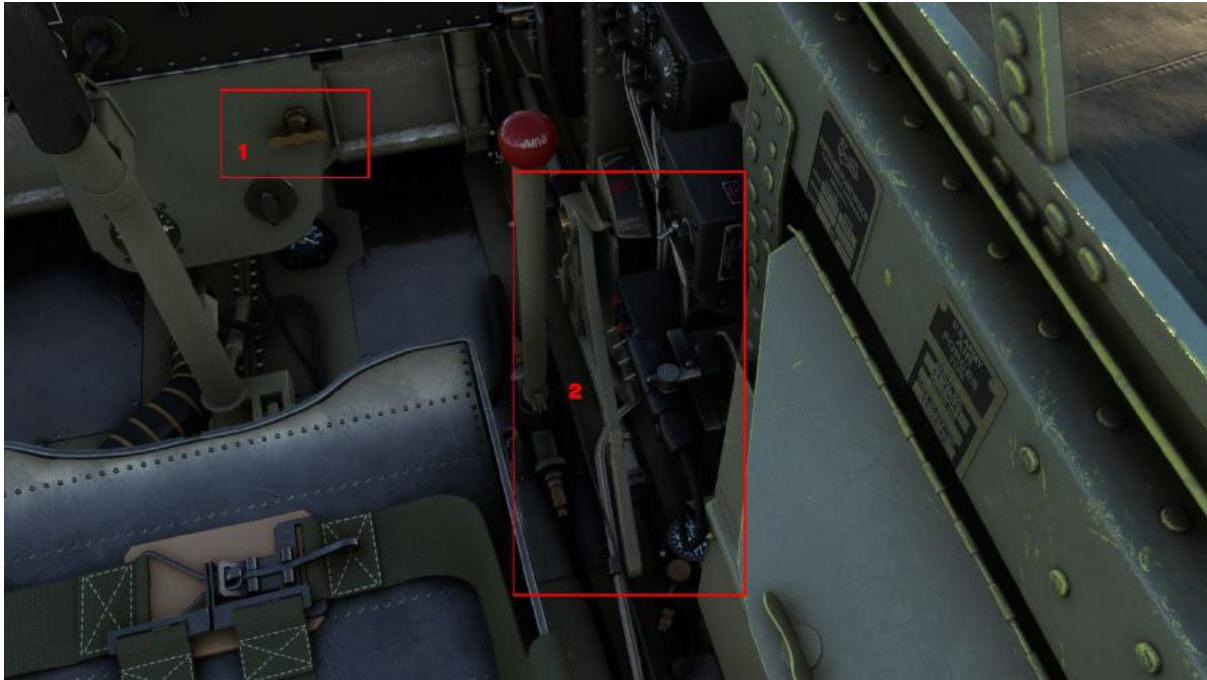
1. Carb Heat Lever
2. Cowling Flaps Lever

Fuel Gauges
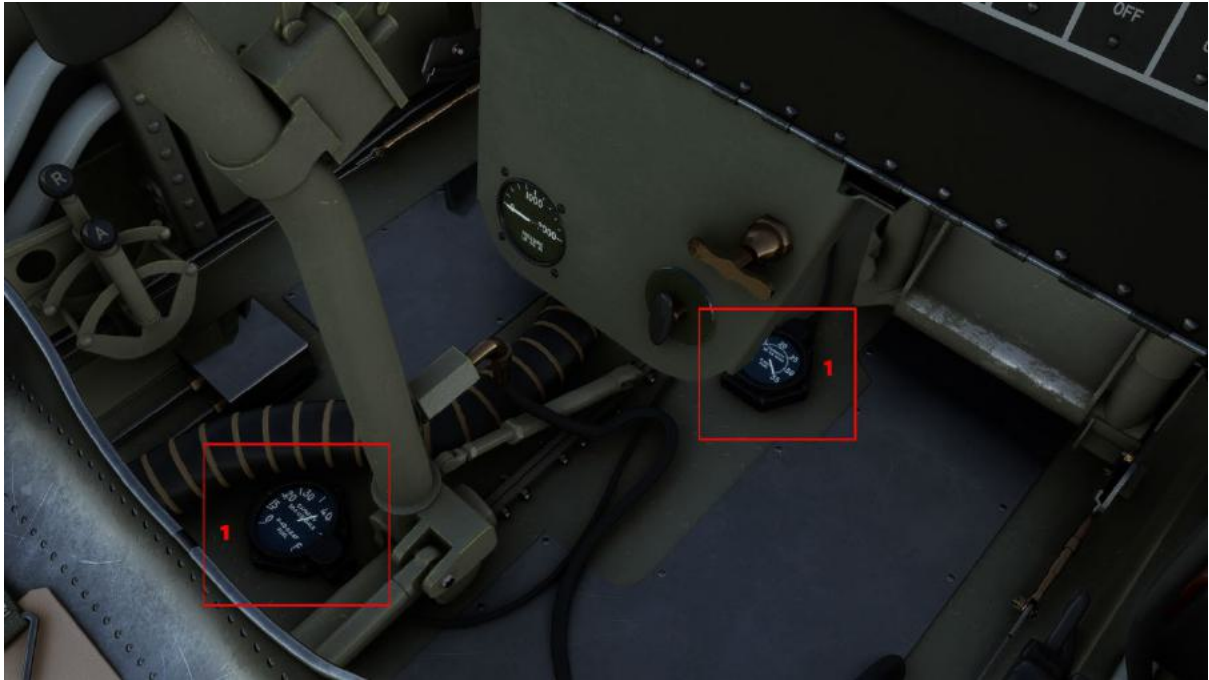
1. Rear Tank and Front Tank Gauges

Canopy Open/Close

1. Canopy Open/Close Handle

Pre-Flight Inspection

Landing Gear .... DOWN
Flaps .... UP
Fuel Selector.. OFF
Throttle ....CLOSED
Mixture... Idle Cut Off
Prop RPM Lever.. Full Backward
Parking Brake ....SET
Battery.. OFF
Generator.. OFF
Fuel Pump Switch.. OFF
Magnetos .... OFF
Starter Switch Cover .... Check CLOSED
Carb Heat ....Full Cold
Attitude Indicator (ADI)..Caged, Flag Showing
Cowl Flaps .... OPEN

Starting Engine

Fuel Selector... Rear Wing
Throttle ....Set 1 Inch OPEN
Mixture... Full Forward
Prop RPM Lever.. Full Forward
Battery... ON
Generator... ON
Fuel Pump Switch... ON
Fuel Pressure..Check Fuel Pressure > 14PSI
Fuel Primer Switch .... ON as Required
Magnetos .... BOTH
Propeller Area .... CLEAR
Starter Switch Cover .... OPEN
Starter Switch.. ON
Starter Switch Cover ....CLOSED
Oil Pressure .... Check < 75PSI within 30 seconds

Oil Pressure .... Check < 75PSI within 30 seconds
Oil Temperature... Check Temp above 50 degrees C
Coolant Temperature........................ Check Temp does not exceed 120 degrees C
Flaps ....UP
Cowl Flaps ....As Required
Lights ....As Required
ADI.. Uncage, Check Flag Goes Out

Normal Taxi, Take Off & Climb

Flight Controls ....Free and Correct Movement
Coolant WARNING ....Check OFF
Parking Brake .... OFF
Throttle..Advance
Taxi .... Slowly
Steering ....With Rudder
Stick ....Hold Slightly Back
Position Into Wind...Carry Out
Parking Brake ....SET

Run-Up Checks

Parking Brake ....SET
Throttle UP .... Maintain 1800 RPM
Rotate Magnetos switch to 'R' ....Check RPM drop < 100
Rotate Magnetos switch to BOTH.................................... Wait for RMP to stabilise
Rotate Magnetos switch to 'L'...Check RPM drop < 100
Rotate Magnetos switch to BOTH.................................... Wait for RMP to stabilise
Throttle.. Idle

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Take Off & Climb

Flaps ....As required
Take Off Trim...As required
Rudder Trim ....As required
Parking Brake .... OFF
Runway Line UP ....Centreline
Prop RPM Lever... Full Forward
Throttle .... Slowly increase to 50 inches
Steering .... With Rudder
Stick...A little back pressure
Rotate...100 MPH
Landing Gear ....UP at positive climb
Flaps .... UP
Throttle ....Maintain 40 inches during climb
Mixture...Auto Rich
Trims .... Set for stable climb
Coolant Temperature....................................Check within limits 95-120 Degrees C
Fuel Pressure.. Check within limits 14-15 PSI
Oil Temperature..Check within limits 60-80 Degrees C
Oil Pressure .... Check within limits 75-95 PSI
Fuel Selector... Switch tanks to maintain balanced aircraft

Cruise

RPM.. 2600 RPM
Throttle ....Maintain 40 Inches
Mixture...Auto Rich
Trims .... Set for stable climb
Coolant Temperature....................................Check within limits 95-120 Degrees C
Fuel Pressure.. Check within limits 14-15 PSI
Oil Temperature..Check within limits 60-80 Degrees C
Oil Pressure .... Check within limits 75-95 PSI
Fuel Selector... Switch tanks to maintain balanced aircraft

Normal Landing & Roll Out

Enter the traffic pattern ....140 MPH
Fuel Selector... Switch tanks to most remaining fuel
Mixture..Auto Rich
Prop RPM Lever... Full Forward
Carb Heat ....Full Cold
Cowl Flaps .... As Required
Landing Gear .... Down below 175 MPH
Flaps ....Set to Half below 140 MPH
Airspeed .... Reduce to 115 MPH on final approach
Flaps ....Full down
Canopy .... OPEN

After Landing & Shutdown

Brakes... Slowly begin braking
Stick .... Steady back pressure
Flaps ....UP
Taxi ....Slowly
Cowl Flaps .... OPEN
Parking Brake ....SET
Fuel Pump Switch... OFF
Mixture...Idle Cut Off
Prop RPM Lever... Full Back
Throttle.........CLOSED
Fuel Selector... OFF
Magnetos .... OFF
Lights .... OFF
Attitude Indicator (ADI).. Caged, Flag Showing
Generator.. OFF
Battery... OFF

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Curtiss P-40F Warhawk Quick Reference Card