PA-38 TOMAHAWK

ELECTRONIC FLIGHT BAG (EFB)

Just Flight

Electronic Flight Bag (EFB)

Please note that this manual is specifically for the Electronic Flight Bag (EFB) installed in the Just Flight PA-38 Tomahawk add-on for Microsoft Flight Simulator.

CONTENTS

EFB OVERVIEW

The aircraft is equipped with a tablet computer which is divided into two main areas:

1. An 'Electronic Flight Bag' (EFB) which can be used for viewing your SimBrief operational flight plan (OFP), monitoring your position on a moving map, viewing your Navigraph charts and making notes.

2. An Aircraft app for controlling various aircraft options and payload.

The tablet can be switched on/off by pressing and holding the physical 'Home' button on its right bezel. The 'Home' button can also be used to return to the EFB homepage from any of the other apps.

The EFB can be hidden by using the MUSIC HIGH/LOW switch on the right side of the instrument panel.

The Home screen of the EFB shows the icons of the various applications that are available to use. Pressing one of these icons will open the respective application.

The top bar of the EFB shows the current simulator time and date in the top left corner, as well as the current battery status of the tablet in the top right corner. The battery will drain over time if the aircraft's electrical power is switched off and will recharge once it is powered on again.

The background on the EFB can be changed to an image of your choice by replacing the 'wallpaper.jpg' file in the following file directory: …\Community\justflight-aircraft-pa38\html_ui\Pages\VCockpit\Instruments\Airliners\ JF_PA38\EFB\img.

OPERATIONAL FLIGHT PLAN (OFP)

The OFP screen allows you to view your latest SimBrief OFP and display its information conveniently within the simulator.

On selecting the OFP app, you will be prompted to enter your SimBrief pilot ID to access your data. Alternatively, you can choose to identify yourself via your SimBrief username by enabling the 'SimBrief Username Login' setting in the EFB settings.

Once you have entered your SimBrief identification and pressed the 'Continue' button, you are presented with a summary of your active OFP, including airport codes, times, route information, fuel weight etc.

Pressing the METAR button allows you to view the wind information for your origin, destination and alternate airports. This information is shown in both raw and simplified forms.

SESSION

SUMMARY

METAR

OUTPUT

REFRESH

ORIGIN (EGGP)

EGGP 142020Z 21011KT 9999 SCT031 BKN042 09/05 Q1014

PRESSURE	TEMPERATURE	VISIBILITY	WIND
29.94inHg / 1014.00mb	9.00°C / 48.20°F	10000m / 6mi	210deg, 11kts

DESTINATION (EGNJ)

EGNJ 142020Z 22009KT 9999 FEW047 10/03 Q1014

PRESSURE	TEMPERATURE	VISIBILITY	WIND
29.94inHg / 1014.00mb	10.00°C / 50.00°F	10000m / 6mi	220deg, 9kts

ALTERNATE (EGNM)

EGNM 142020Z 22009KT 9999 FEW025 08/03 Q1013

PRESSURE	TEMPERATURE	VISIBILITY	WIND
29.91inHg / 1013.00mb	8.00°C / 46.40°F	10000m / 6mi	220deg, 9kts

To view the full OFP, press the OUTPUT button. Your entire flight plan will then be shown in text form, which can be scrolled as desired by using the scrollbar to the right of the screen.

The OFP data can be refreshed at any time by pressing the REFRESH button in the left sidebar; this will update the data to your latest SimBrief flight plan.

Note: A SimBrief account is required for this functionality.

MAP

The Map app provides you with a moving map based on visual data from OpenTopoMap.org

By default, the map is set to track the aircraft's current position (as highlighted by the aircraft icon in the bottom right corner). It is also possible, however, to move the map manually by pressing the aircraft icon in the bottom right corner of the display and then simply clicking and dragging anywhere on the map. Pressing the location pointer icon will centre the view back to the aircraft's current position.

The map's zoom level can be adjusted via the '+' and '-' buttons.
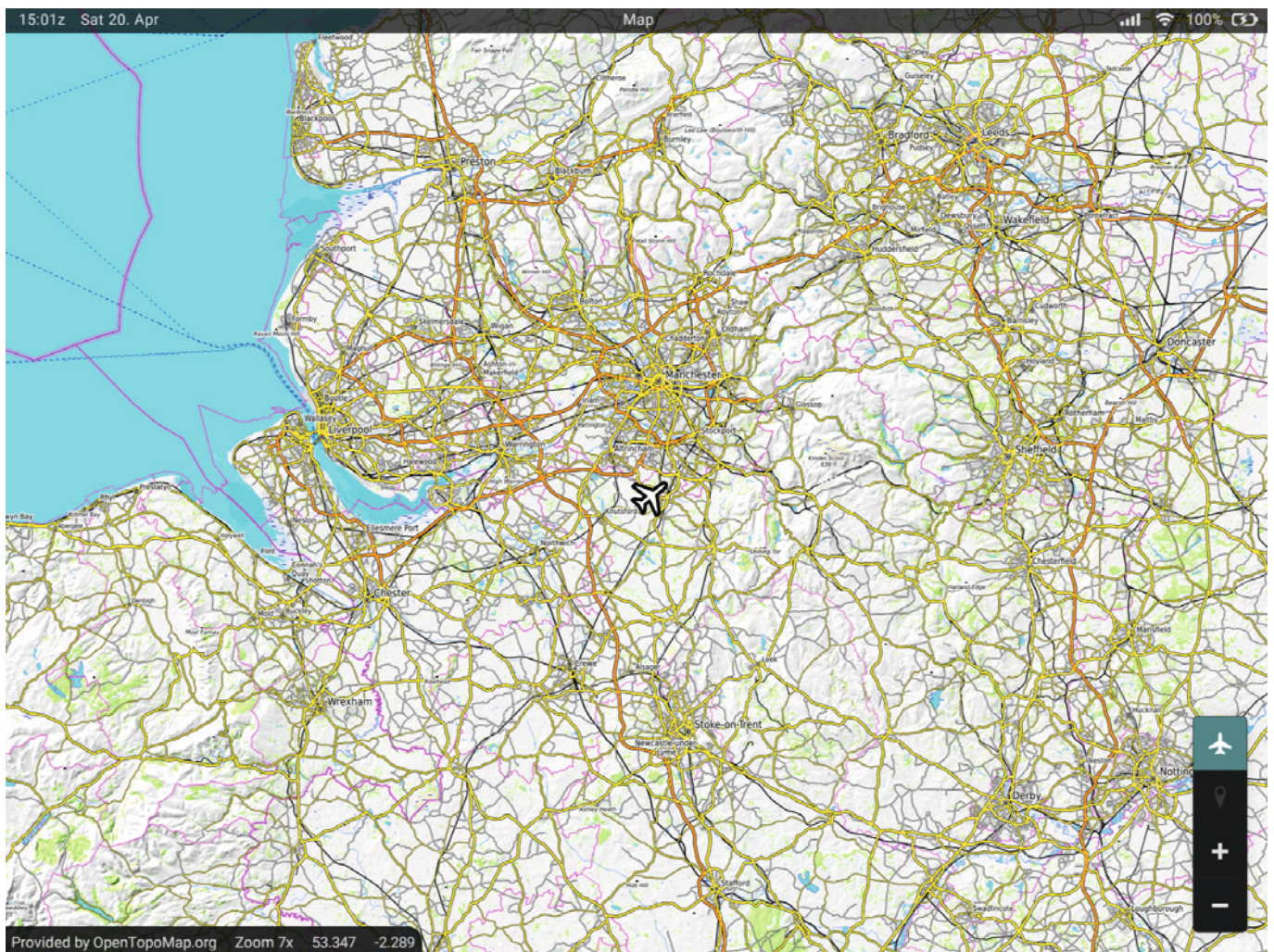
CHARTS

The Charts app allows you to browse aviation charts provided by Navigraph as part of an active Navigraph subscription. A login (via external link or QR code) is required to link the EFB to your Navigraph account. Follow the instructions on the EFB and your external internet browser to complete the linking process.

With your Navigraph account linked, you can then enter an airport's ICAO code in the ICAO Code search field to view the various associated STAR/APP/TAXI/SID/REF charts for that airport.

If you have a SimBrief OFP loaded on the OFP page, you can quickly access the charts for the departure and arrival airports simply by pressing the respective DEPARTURE and ARRIVAL tabs. This will list all relevant charts for that airport under the STAR/APP/TAXI/SID/REF headings.

To view a chart, press the relevant tab and the chart will appear on the right side of the page. The active chart can be moved/resized/fitted as needed by using the controls at the right of the document window. Charts that provide georeferenced data may additionally display the aircraft's current position as an overlay icon if applicable.

Charts can be saved for quick reference by pressing the star icon to the left of the chart's name. You can quickly access all of your saved charts by pressing the SAVED button at the top of the page.

To unlink your Navigraph account from the EFB, press the LOG OUT button at the top of the page.
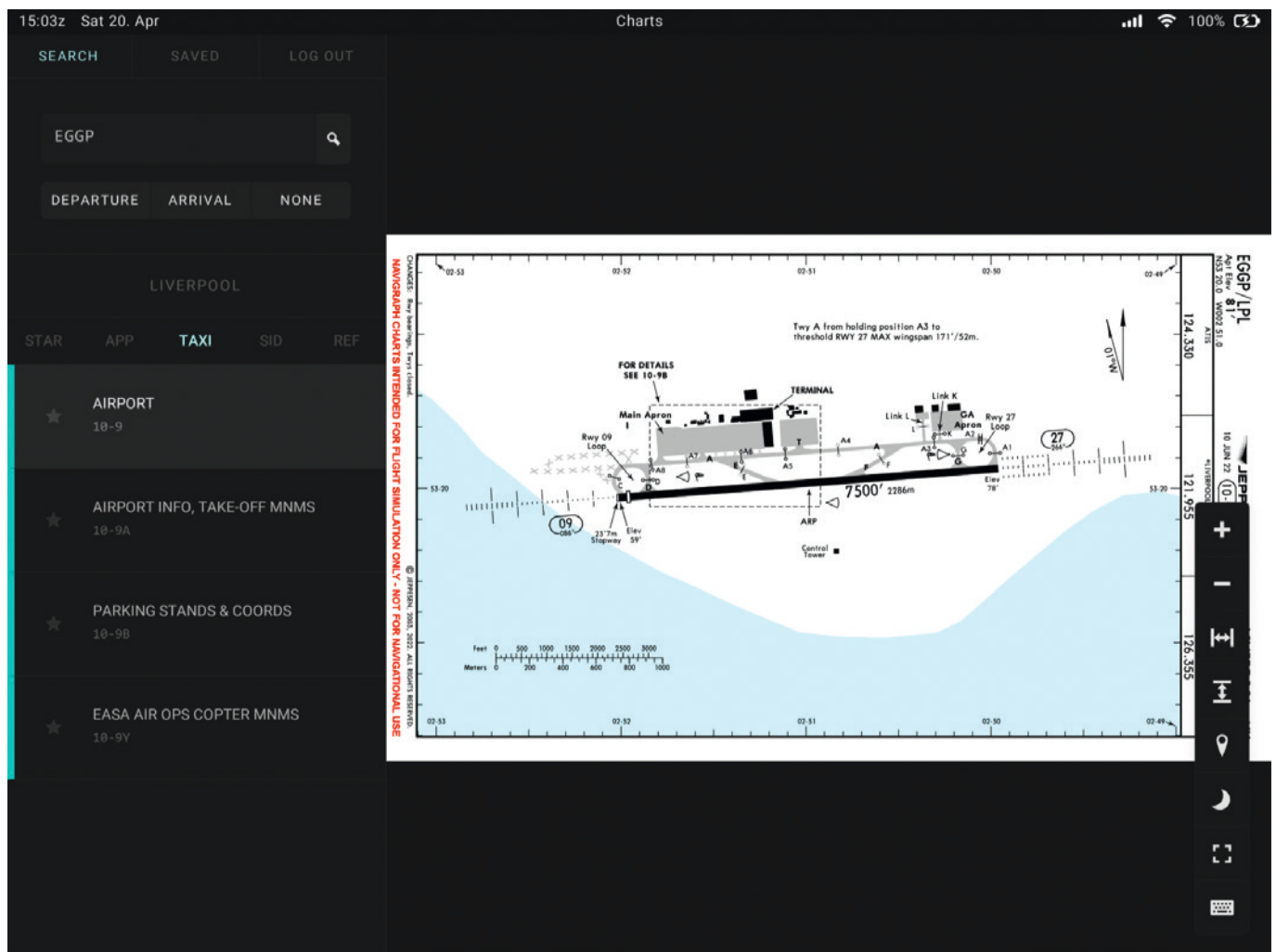
**Note:** *A Navigraph account is required for this functionality.*

AIRCRAFT

Selecting the Aircraft app from the Home page will launch the Aircraft page, which allows you to control various aircraft equipment options and settings.

The screen brightness can be adjusted with the plus and minus controls in the top right corner. The tablet battery status is also shown; this will drain over time if the aircraft's electrical power is switched off and will recharge once it is powered on again. A speaker icon can be clicked to toggle the EFB sounds on/off.

The outside air temperature is shown on the top bar of the EFB in Fahrenheit or Celsius, depending on the selected MSFS unit of measurement.

Various options on this page allow you to customise your experience. Dark grey boxes indicates that an option is disabled, and light grey boxes indicates that an option is enabled. Please refer to the sections below for further information on the individual functions of the Aircraft app. You can return to the EFB Home page at any time by clicking the tablet's 'Home' button.
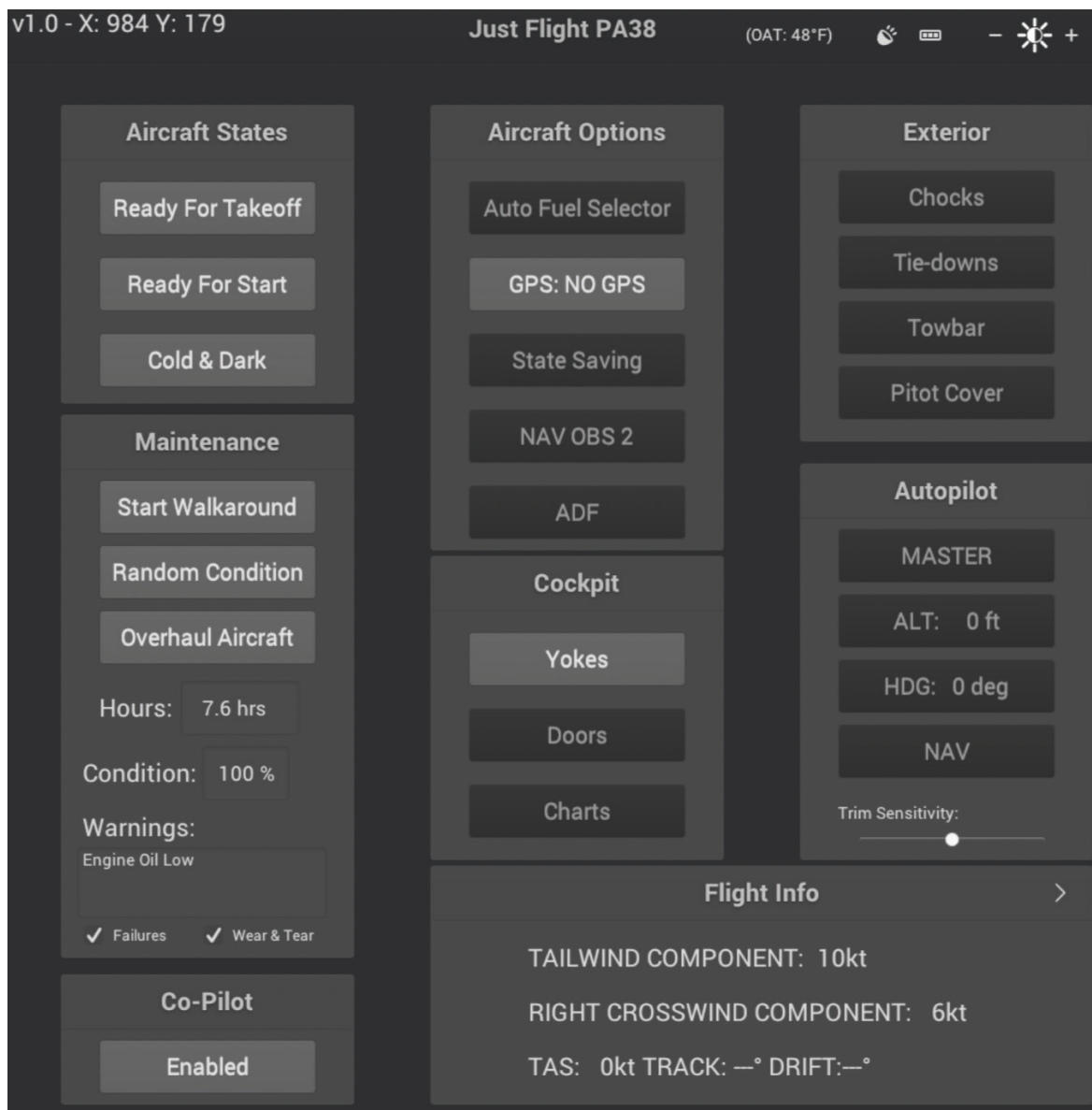
Aircraft States

Three aircraft states can be selected:

Ready For Takeoff – engine and electrical power on, lights on and parking brake on.

Ready For Start – electrical power on and ready for engine start, flaps up, lights on and parking brake on.

Cold & Dark – engine and electrical power off, flaps up, lights off, parking brake on, chocks and tie-downs fitted.

The aircraft will automatically be configured in the Cold & Dark state when a flight is started at a parking/ramp/gate position, otherwise the Ready For Takeoff state will be selected. Restoration of a saved state, if previously enabled in the Aircraft Options section, will then occur.

Maintenance

The maintenance section of the Aircraft app houses a variety of controls and displays information relating to the aircraft's age and condition.

This section can be split into two parts, the first covering the aircraft's interactive walkaround mode and the second covering the aircraft failure system.

Walkaround mode

An interactable walkaround mode can be selected via the Maintenance section. The walkaround mode simulates the pre-flight walkaround and exterior checks that every pilot completes prior to taking an aircraft into the air.

Several buttons and data fields are featured in this section:

Start Walkaround – opens the walkaround page (engine must be shut down). Various areas of the aircraft's exterior can be selected by left-clicking on one of the camera icons and this will take you and the EFB tablet to that position on the exterior (more information below).

Random Condition – randomises the aircraft's age and condition. When triggered, the aircraft's hours and overall condition percentage, as well as the condition of the aircraft's individual components, will be set to a random value. This option is useful for simulating a 'second-hand' aircraft when the aircraft's condition may not be factory fresh.

Overhaul Aircraft – used to restore the aircraft to a factory fresh condition. When triggered, the aircraft's hours will be reset to 0 and the aircraft's condition will be reset to 100% (including all individual components). This option is useful for simulating an aircraft that has just received an overhaul, or one that has just been manufactured.

Hours – engine hours since the aircraft's last overhaul. This value is persistent between sessions and will continue increasing the more you fly the aircraft. Selecting the Overhaul Aircraft option will reset this value to 0.

Condition – the overall condition of the aircraft (the higher the percentage, the better the aircraft's condition). This value is persistent between sessions and will vary depending on how you fly the aircraft and whether you damage other components.

Warnings – lists all current failures or inoperative components on the aircraft. If more than four items are to be listed, the list will automatically scroll through all items.

Failures – enables/disables the aircraft's failures (see the Failures section for more information).

Wear & Tear – enables/disables the wear and tear on the aircraft's individual components. With this option disabled, no components will wear and the Condition field will not change.

The interactive walkaround mode can be started by selecting the Start Walkaround button and then clicking on one of the camera icons on the walkaround page (the engine must be shut down to enter the walkaround mode). A dotted line is shown on this page, originating from the pilot's door and denoting the path the pilot should take during a walkaround. A standard walkaround would see the pilot following this route in a clockwise direction.
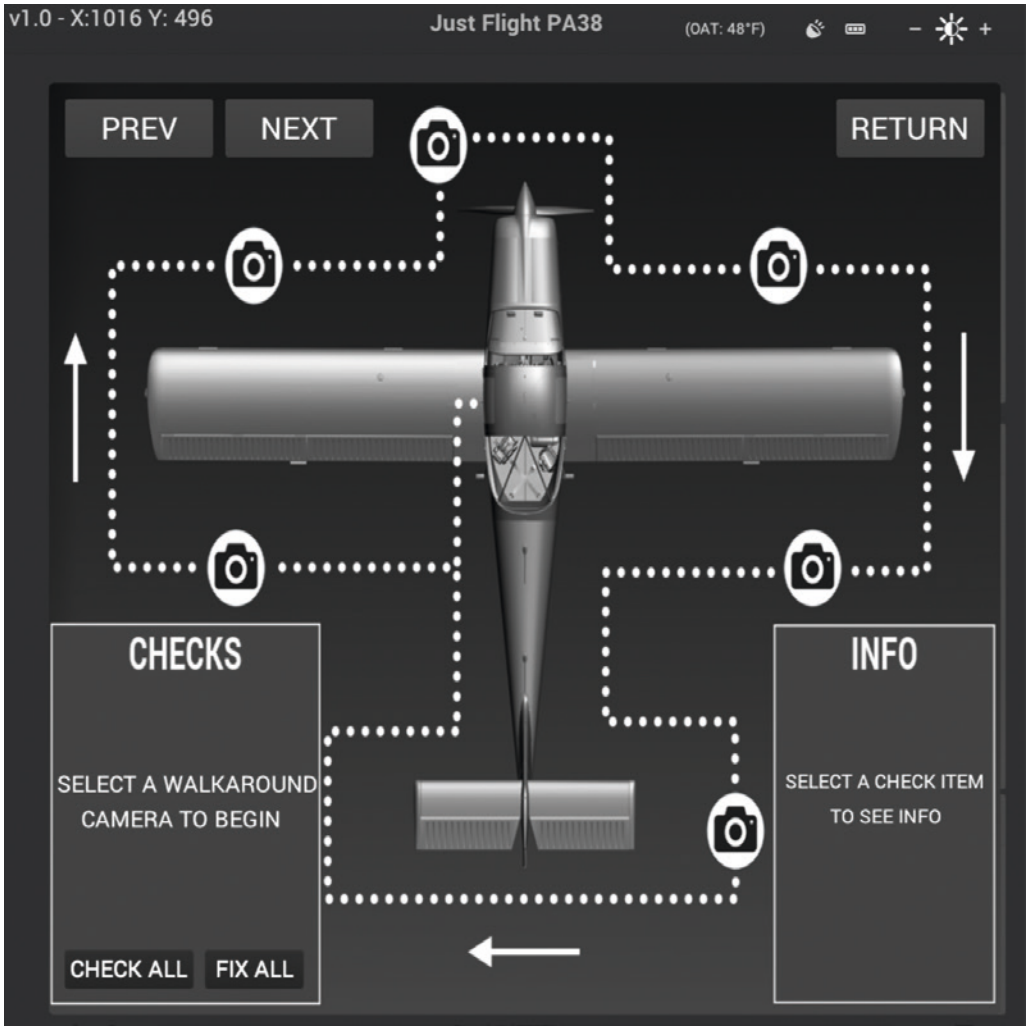
Clicking one of the camera icons will move the camera and the EFB tablet to the respective position on the exterior of the aircraft.
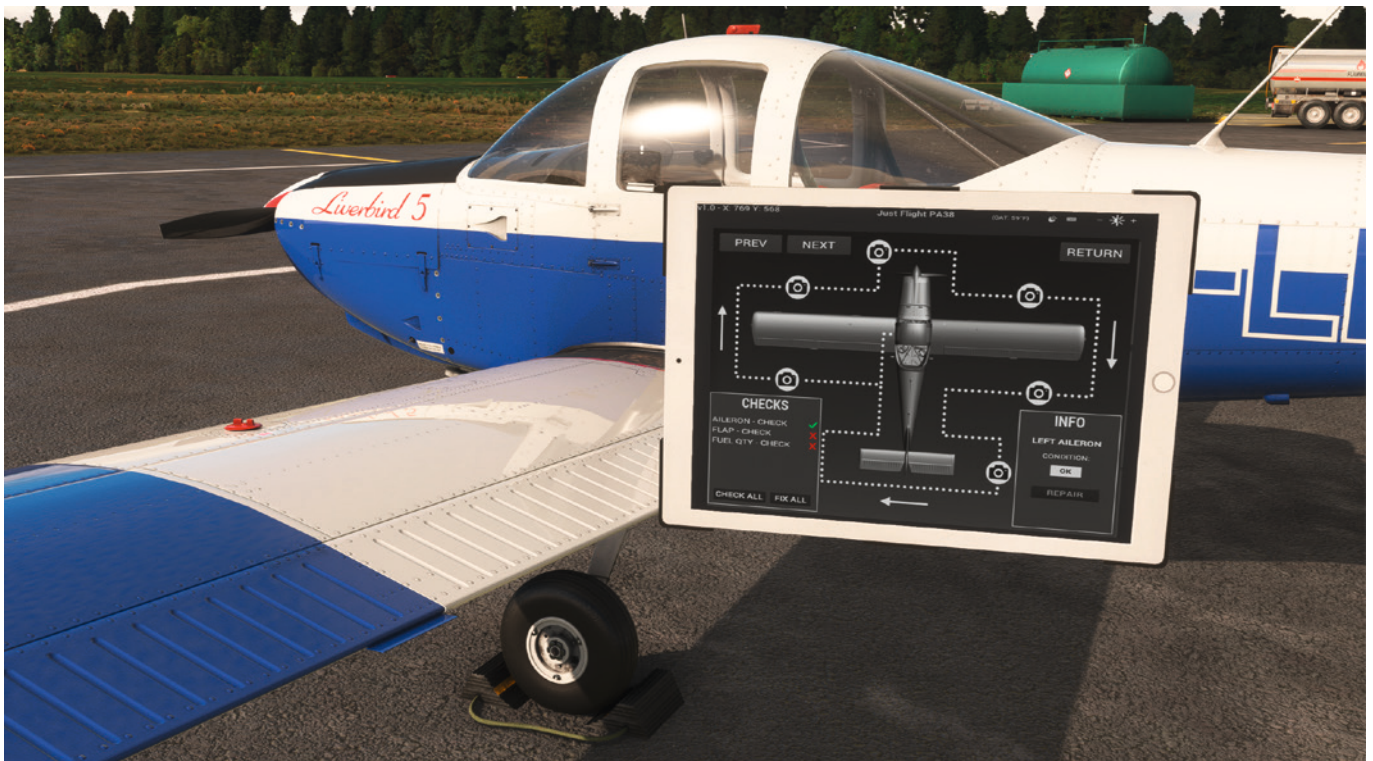
Once you are at one of the walkaround positions on the exterior of the aircraft, the CHECKS box at the bottom left of the page will be populated with a list of items that must be checked at the current position. Clicking on one of the items in the list, or clicking on the component on the aircraft itself, will populate the INFO box at the bottom right of the page with any information regarding the component's condition and status.

If a component is within limits to permit safe operation, a green tick will appear next to that item in the list and the next item can then be checked.

If a component is not within safe limits, a red cross will appear next to the item. In this situation, action is required in order to make that item safe for flight. The INFO box will state the condition of the component and will provide a variety of options to rectify the issue, depending on the type of component (such as REFILL for fluids or REPAIR for mechanical components). Once a component is safe for flight, a green tick will appear next to that item in the list and the next item can then be checked.
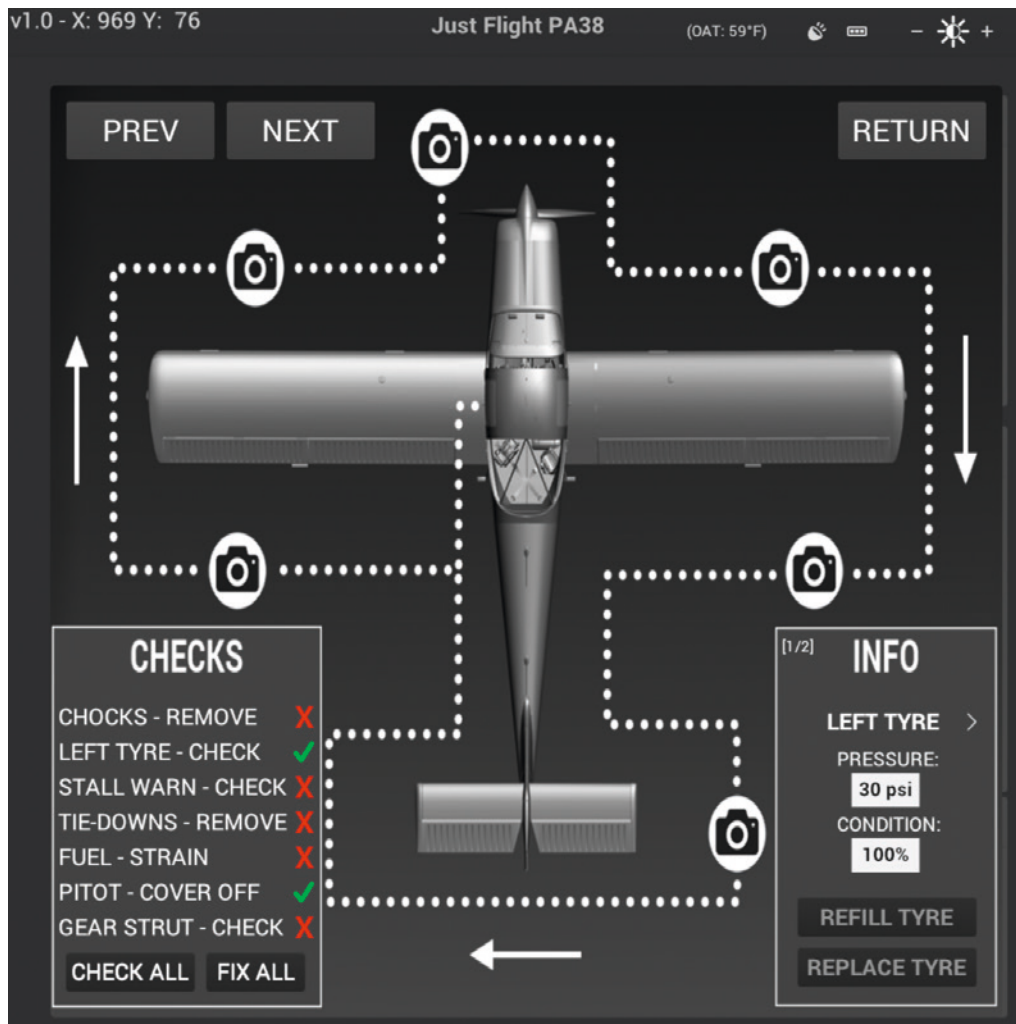
This process is to be carried out around the entire exterior of the aircraft as part of the pre-flight checks. Once checks have been completed on one part of the exterior, the next area can be selected by clicking the respective camera icon on the EFB or by pressing the PREV or NEXT buttons.

The camera can be moved freely during the walkaround mode via the normal MSFS cockpit camera controls, but due to limitations within the simulator the EFB will not move with you during the walkaround. You must therefore return to the EFB in order to move to the next position on the walkaround. If you cannot locate the EFB, press the [F] key on your keyboard to reset the camera back to the default cockpit camera position.

Once a walkaround has been completed, press the RETURN button to return to the cockpit.

Two options at the bottom of the CHECKS box allow you to quickly check or fix all of the items at the current position. Pressing the CHECK ALL button will check all components at the current position, leaving any components that are not within safe limits with a red cross next to them. Pressing the FIX ALL button will fix all the components at the current position that are not safe for flight, leaving green ticks next to all items in the list.

The CHECK ALL and FIX ALL buttons are also available on the walkaround page prior to clicking one of the camera icons. Pressing one of these buttons before starting the walkaround mode allows you to check and fix all components on the walkaround without leaving the cockpit.

All components listed during the interactive walkaround are persistent between sessions, and each component will wear at a different rate depending on how you fly the aircraft. For example, if you mainly fly to/from unpaved airfields, your tyres will wear faster than if you were to only fly from paved airfields. If you exceeded the flap limit speed during the previous flight, you have a higher chance of the flaps failing the pre-flight check and they may need repairing.

Safe limits vary from component to component, so the wear limit allowed for the tyres will be different to that for the brakes. It is therefore important to look after all aspects of your aircraft to avoid excessive repair jobs.

Failures

In addition to supporting the host simulator's own failures system, this simulation also includes a few of the more common failures found on General Aviation aircraft:

Spark plug fouling – this can occur if the engine is kept at low RPM for prolonged periods and symptoms include rough running with a subsequent increase in cockpit vibration. If fouling occurs, increase engine RPM.

Vapour lock – this can occur for up to approximately 30 minutes after the engine has been shut down. After shutdown, fuel vapour can remain within the fuel lines as the result of high temperatures. This vapour disrupts the operation of the fuel system and creates an incompatible mix of air and fuel, so you might need a few attempts at starting the engine before ignition occurs. This problem is more likely to occur when operating in high temperatures.

Engine failure caused by low oil quantity – over time the engine will consume oil. The current oil quantity can be checked and refilled using the interactive walkaround. If the engine consumes all the oil, the engine will eventually fail.

Battery failure – the battery can be quickly drained, either by leaving electrical systems switched on without the engine (and therefore alternator) running, or by repeated attempts to start the engine.

These failures are disabled by default and can be enabled/disabled using the Failures tick box at the bottom of the Maintenance section.

Indications of any failure are shown in the Warnings box at the bottom of the Maintenance section.

If you are unable to start the engine, check the following items:

Fuel flow – to ensure sufficient fuel flow for ignition, confirm that the fuel pump is switched on and that the mixture lever is set to rich (forward). Confirm fuel flow using the flow gauge prior to attempting an engine start. Refer to the NORMAL PROCEDURES section of the Operations Manual for more information.

Vapour lock – fuel vapour disrupts the operation of the fuel system and creates an incompatible mix of air and fuel, so you might need a few attempts at starting the engine before ignition occurs.

Oil quantity – make sure that you have sufficient engine oil before attempting to start the engine, otherwise engine failure may occur.

You can also start the engine by using the Ready For Takeoff aircraft state option.

A 'Priming/Fuel Flow Required' warning message will appear if priming is required before engine start can be achieved. To prime, ensure that the fuel tank selector is set to LEFT or RIGHT with sufficient fuel in the selected tank, switch ON the electric fuel pump and set the mixture lever to RICH. Confirm fuel flow on the fuel flow indicator after approximately three seconds and then bring the mixture lever back to IDLE CUTOFF (back). The engine is now primed for engine start. Rotate the ignition key to the START position and advance the mixture lever to FULL RICH (forward) to achieve combustion.

Co-Pilot

The co-pilot can be enabled/disabled using the button in this section.

When enabled, the co-pilot model will appear in the cockpit whenever the aircraft's battery is switched on. Enabling this option will also add the weight of the co-pilot to the aircraft's weight and balance, and will therefore affect the way the aircraft handles.

When disabled, the co-pilot model will not be visible in the cockpit and no weight will be added to the aircraft's weight and balance. With no co-pilot in the aircraft, it will have a tendency to roll to the left due to the weight imbalance.

The co-pilot model can be changed in MSFS Options > General Options > Misc > Pilot Avatar Settings.

Aircraft Options

A variety of aircraft options are available and can be used to configure the aircraft with various equipment and enable quality-of-life additions:

Auto Fuel Selector – enables or disables the automatic fuel selector. The Tomahawk is capable of fairly long-range flight so we have included an automatic fuel selector switcher, allowing you to leave the simulator for prolonged periods without risking a fuel imbalance. This system will automatically switch selected fuel tanks every twenty minutes or if the fuel imbalance is greater than five gallons.

GPS – toggles between the various GPS configurations. There are five options:

- No GPS
- GPS DUAL (Working Title GNS430 and GNS530)
- GNS 530 (Working Title GNS530)
- PMS50 GTN750 (requires the freeware or payware PMS50 GTN750)
- TDS GTNXi (requires the payware TDS GTNXi)

Note 1: The two GTN750 options will not be shown if the required software is not detected in your MSFS installation.

Note 2: We advise against toggling GPS options with an active flight plan loaded on one of the GPS units as the flight plan will not transfer between all GPS units. If you wish to use a flight plan imported from the MSFS main menu, ensure the GPS you wish to use was selected when exiting the previous flight.

State Saving – enables or disables aircraft state saving. With this option enabled, the aircraft state will be saved and reloaded automatically between flights, allowing you to always return to your cockpit in the same state you left it in.

NAV OBS 2 – enables or disables a second NAV OBS 2 on the main instrument panel.

ADF – enables or disables an ADF indicator on the left side of the main instrument panel, and a KR-85 ADF system on the right side of the main instrument panel.

Cockpit

Various pieces of general cockpit equipment can be toggled in this section:

Yokes – enables or disables the visibility of both cockpit yokes.

Doors – opens and closes both doors.

Charts – enables or disables the paper chart located on the pilot's seat (see the 'Interactive paper charts' section of the PA-38 Tomahawk Operations Manual for further information).

Exterior

The PA-38 Tomahawk features a range of exterior equipment that can be controlled from this section:

Chocks – enables/disables the wheel chocks. When removed, the wheel chocks will be stored in the aircraft's rear baggage compartment.

Tie-downs – enables/disables the tie-downs.

Towbar – enables/disables the towbar.

Pitot Cover – enables/disables the pitot cover.

Autopilot

The real PA-38 Tomahawk was not equipped with an autopilot, but for convenience we have included options on the EFB that allow you to control some basic autopilot modes:

MASTER – engages/disengages the autopilot.

ALT – engages/disengages altitude hold and holds the altitude at the time of engagement.

HDG – engages/disengages heading hold and holds the heading at the time of engagement.

NAV – engages/disengages NAV mode. Can be used to follow a route loaded into one of the GPS units if the GPS is also set to GPS mode.

An additional Trim Sensitivity slider is included on this panel, allowing for fine tuning of the aircraft's pitch trim sensitivity to suit each user's personal preference. Moving the slider left will decrease the pitch trim sensitivity and moving it right will increase the pitch trim sensitivity.

Flight Info

The Flight Info section provides a variety of information:

- Groundspeed (GS) – nautical miles per hour, statute miles per hour and kilometres per hour
- Endurance – hours and minutes
- Range – nautical miles, statute miles, kilometres
- Nautical miles per gallon and statute miles per gallon
- Density altitude and pressure altitude (feet)
- True airspeed (knots), track (degrees) and drift (degrees)
- Fuel flow – gallons and litres
- Fuel used – total fuel burn for this flight (gallons)
- Crosswind component (knots)
- Headwind/tailwind component (knots)

This information is divided into several pages which can be cycled through using the left and right arrows.

The total fuel burn can be reset by clicking on the Reset button.

NOTES

The Notes app acts as a virtual notepad for the pilot, allowing you to take text-based and handwritten notes on the fly (particularly useful for noting clearances and taxi instructions).

The Notes app supports standard keyboard inputs and will automatically display a scrollbar once the content exceeds the height of the input area.

An on-screen keyboard is also available. This can be toggled on/off by pressing the keyboard icon at the bottom right of the page. Once open, the keyboard can be moved freely to any position on the display by clicking and holding the top bar of the keyboard. To hide the keyboard, simply press the keyboard icon again (this feature is particularly useful for VR users).

To make handwritten notes, press the pen icon at the bottom right of the page and then left-click with your mouse and drag the pen to write on the screen. To erase text, press the eraser icon and, again with your mouse, left-click and drag to erase what you have written.

To erase all handwritten notes from the page, simply press the paintbrush icon at the bottom right of the page.
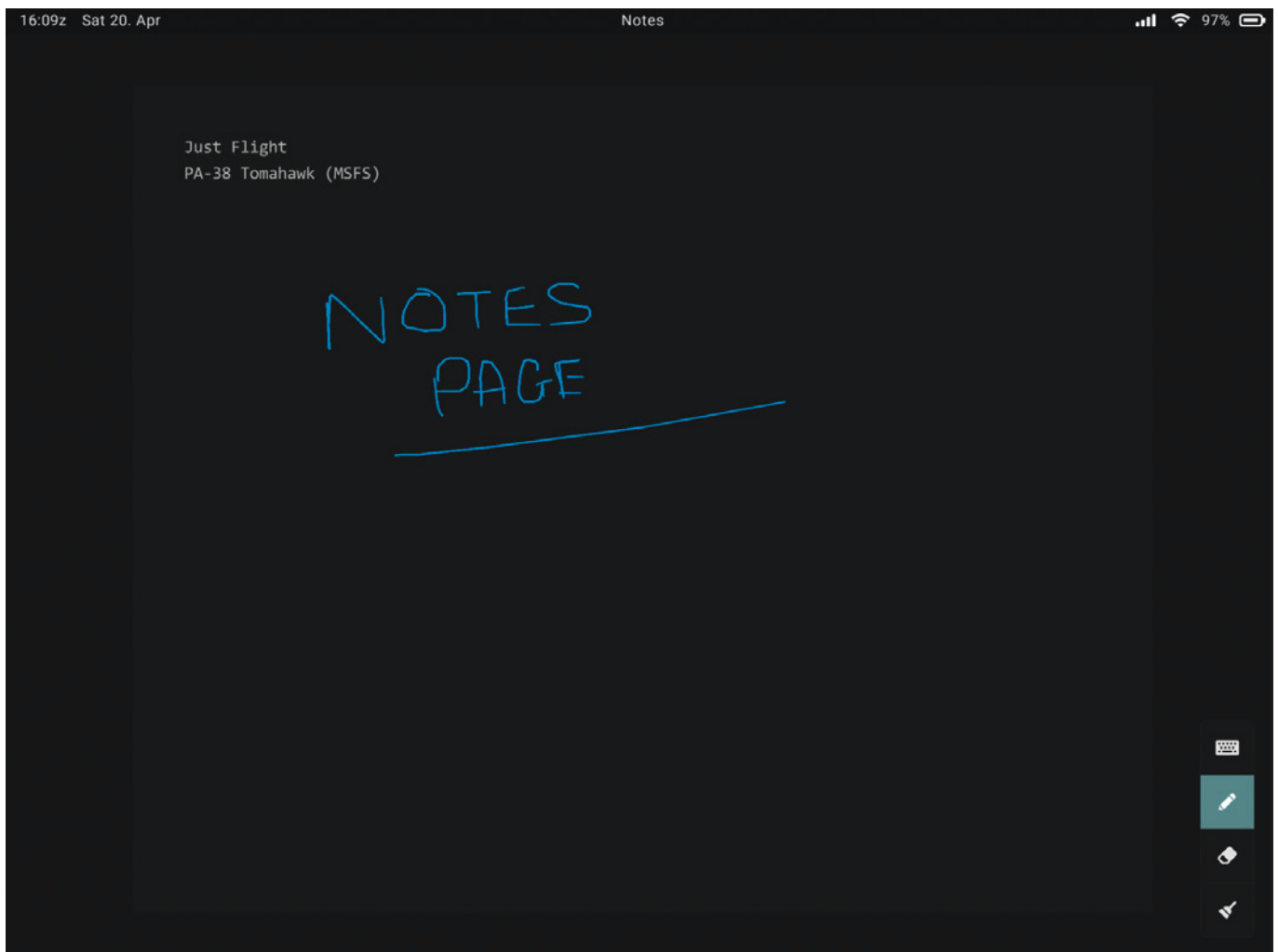
CHECKLIST

The Checklist app allows you to view all the aircraft's checklists on one easy-to-navigate page. The title of each checklist is shown on the left side of the page. Pressing the title of a checklist will open the respective checklist on the right side of the page.

Each step of a checklist has an item, action and a tick box which can be manually ticked to allow you to keep track of your progress. You can see your progress through the checklist at the top of the page.

Two controls at the bottom right of the page allow you to tick all boxes on the page or to untick all boxes.

Note: The Checklist page on the EFB is intended to be used as a guide only. For interactive checklists please use the interactive checklist menu within MSFS.

TOD CALCULATOR

The top of descent calculator is a useful tool which allows you to calculate and view the exact point at which you should begin your descent.

The distance of your descent can be calculated based on the following four factors:

- Current altitude (feet)
- Ground speed (knots)
- Target altitude (feet)
- Desired angle (degrees)

Each of these factors is shown on this page, where text can be entered into each of these fields either via an external keyboard or via the on-screen keyboard which can be toggled from the lower right corner of the page.

Once values have been entered into each of these four fields, the calculator will then produce two outputs:

- Desired TOD distance – the ground distance covered between the start of your descent and your target altitude.
- Desired vertical speed – the vertical speed that the aircraft will have to descend at to meet the distance stated.

Note: Desired distance, Desired vertical speed and Desired angle are all interchangeable values and can be toggled by pressing the arrow buttons in the fourth field.

For ease of use, the CURRENT ALTITUDE (FT) and GROUND SPEED (KT) fields both have a SYNC feature; once active, this continuously inputs the aircraft's current altitude and ground speed into their respective fields. With this feature active, the calculator's outputs will be constantly updated as the aircraft's altitude and speed change during its descent.

SETTINGS

The Settings screen offers several options to adjust the look and behaviour of the EFB:

Clock: 12h format – toggles the 12/24-hour format of the top bar clock.

Clock: Local time – toggles between UTC and local time on the top bar clock.

OFP: Username login – allows SimBrief identification via username instead of pilot ID.

Theme – switches the EFB's colour scheme.

Brightness – increases/decreases the EFB's brightness.
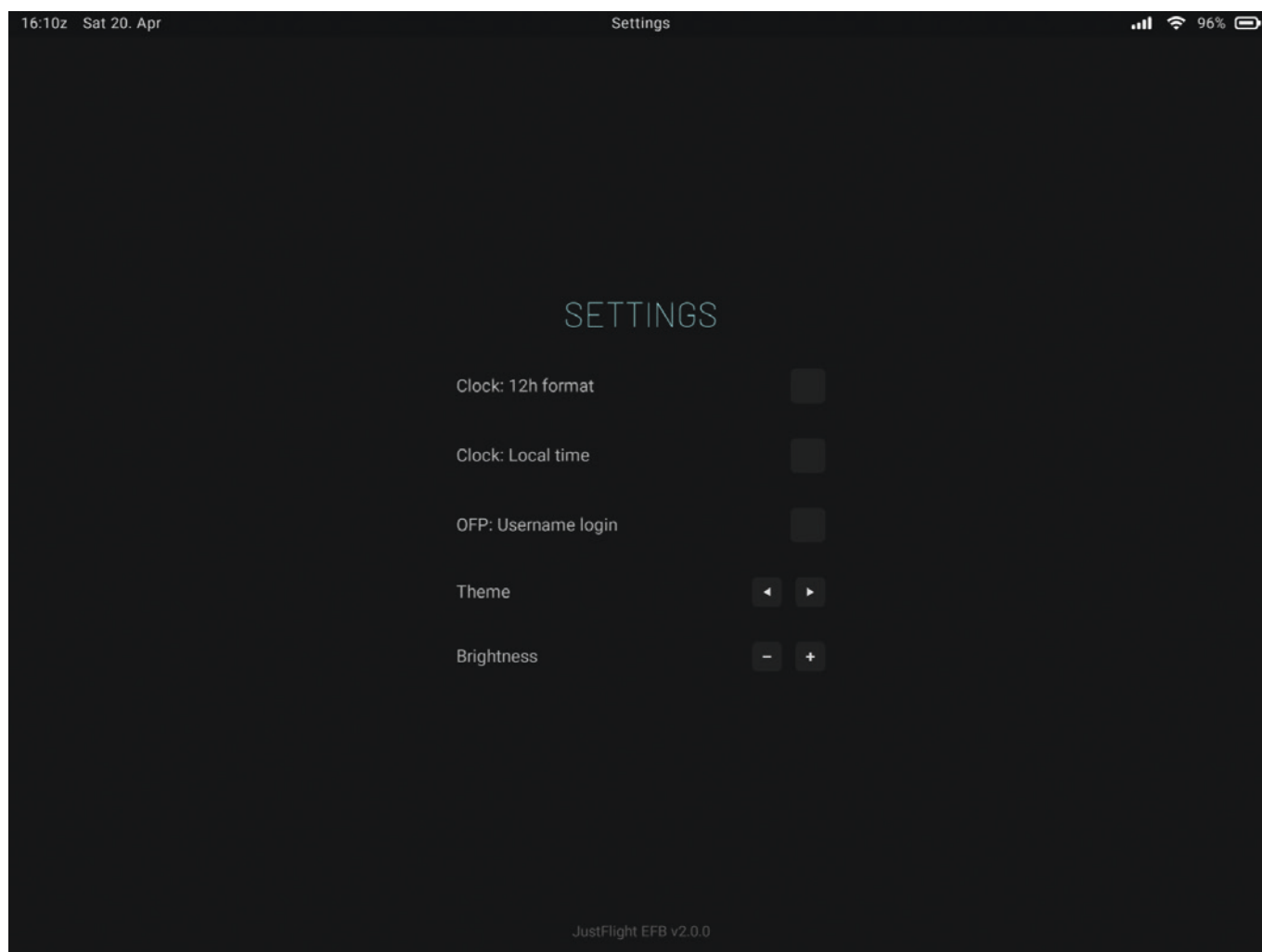
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