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DISCLAIMER

ALL INSTRUMENTS AND SYSTEMS WERE CREATED BY THE X-PLANE 11 DEVELOPERS (LAMINAR RESEARCH). IT IS NOT THE RESPONSIBILITY OF EOI TO PROBLEM SOLVE, REPORT, OR FIX SOFTWARE ISSUES FOUND BY THE USER THAT ARE NOT DIRECTLY RELATED TO ELEMENTS DEVELOPED BY EOI. PLEASE CONTACT EOI AT THE SUPPORT FORUM IF YOU ARE UNSURE OF WHETHER OR NOT YOUR ISSUE MEETS THIS REQUIREMENT. SUPPORT FORUM FOUND HERE:

https://forums.x-plane.org/index.php?/forums/topic/161765-f-35a-lighting-ii-by-eoi/&tab=comments#comment-1524288

FOR BUG X-PLANE REPORTS PLEASE VISIT the SUPPORT PAGE FOUND AT:

https://www.x-plane.com/support/

The JOINT STRIKE FIGHTER (JSF) model produced by Exploration Out Industries (EOI) is not an accurate study level depiction of real F-35 aircraft. A leading factor for differences is that this model operates with basic stock systems provided by XP 11 that were not intended to reproduce fifth generation combat aircraft. It is with great hope that more accurate avionics will be included in future for better representation of the real F-35 A.

All files released in Joint Strike Fighter (F-35 A) package are deemed as freeware and are not made for commercial use or commercial distribution under any circumstances. It is also prohibited that users release alterations as downloadable content for the aircraft without the written expressed consent of EOI, with the one exception third party livery creation. Creation of liveries is welcomed, encouraged, and does not require coordination with the EOI development team. Liveries may be also be uploaded where ever the third party chooses.
DISCLAIMER

While the JSF package includes combat features such as weapons, please remember that X-Plane 11 was designed for commercial and general aviation flight. EOI has produced this model mostly for flight and asks that you the user please not have high expectations for the combat features. In other words, just go fly around and have fun; do some aerobatics and see what this bird can accomplish!
A QUICK THANKS

For providing such wonderful tutorials that I couldn’t have done this without a special thanks goes to:

- Dan Klaue. https://www.youtube.com/user/danklaue/featured
- Blender Guru. https://www.youtube.com/user/AndrewPPrice
  For providing such wonderful tutorials that I couldn’t have done this without!
- Also, I would like to thank the XP community members Built_to_last, Runway_01, and all others not listed who have supported this project.
- And of course, to Laminar Research, Xplane.org, Blender, Xplane2blender, and Gimp for providing this wonderful opportunity.

ADDITIONAL INFO

EOI:
Michael Seng – Lead Project Developer (Research and Planning, Customer Relations, Flight Model, 3d Model, Audio, Paint, Flight Model Testing)

JSF DEVELOPMENT TEAM: listings below are x plane community member names

DEVELOPERS:
Dom Henry: (Paint, Audio, Knowledge Wizard)
Troopie: (Lead Programming)

TEST CREW:
Nasa_Test_Pilot
Renanls
Gulfman650
**Useful links**

**EXPLORATION OUT INDUSTRIES**


JSF SUPPORT FORUM: [https://forums.x-plane.org/index.php?/forums/topic/161765-f-35-a-joint-strike-fighter/&tab=comments#comment-1524288](https://forums.x-plane.org/index.php?/forums/topic/161765-f-35-a-joint-strike-fighter/&tab=comments#comment-1524288)

EOI YOUTUBE: [https://www.youtube.com/channel/UCVtcfb4e4mobAiaUvuDzJ0w](https://www.youtube.com/channel/UCVtcfb4e4mobAiaUvuDzJ0w)

**3d & X-Plane tutorials:**
Danklaue. [https://www.youtube.com/user/danklaue/featured](https://www.youtube.com/user/danklaue/featured)
Blender Guru. [https://www.youtube.com/user/AndrewPPrice](https://www.youtube.com/user/AndrewPPrice)

**Freeware downloads that may be useful:**

**Blender:**
[https://www.blender.org](https://www.blender.org)

**GIMP:**
[https://www.gimp.org](https://www.gimp.org)

**Xplane2blender:**
[https://github.com/der-On](https://github.com/der-On)

**XP Developer:**
[https://developer.x-plane.com](https://developer.x-plane.com)

**FMOD:**
[https://www.fmod.com](https://www.fmod.com)

**FlyWithLua** by X-Friese - *for running certain addons:*

**Night Vision Preference** by joe_rowe - *Note that in XP 11.3 it appears to not function:*
Useful links

Default Keyboard layout:

Planemaker Manual:
https://developer.x-plane.com/manuals/planemaker/#modifyingtheappearanceofanaircraft

FlyAgi Tweak Utility (For computers that struggle)

F-35 INFO:  https://www.f35.com

WHAT’S INCLUDED IN THE PACKAGE?

1) One F-35 A with multiple liveries, and one F-35 A test squadron plane.
2) 2 Scenery Objects (Further liveries to be included in the future).
3) F-35 A.I. Model with liveries.
4) Plugins
   a. Accurate default Flaperon and Leading-Edge Slat positions (Also controls automatic functions.
   b. Changes the values for cannon ammunition to reflect closer to accurate numbers.
   c. Other features to be included in the future to include HMD, G-Force governance, weapon functions, etc...
5) FMOD (Game Sound Engineering)
   a. Real F-35 A audio for flyby sounds.
   b. Custom exterior and interior sounds.
   c. “Mostly” accurate supersonic flyby sound that is silent until the plane reaches your point of view and then is accompanied by a double sonic boom!
6) Paint Kit
7) 13 Liveries Included:
   a. Default
   b. USAF
   c. RAAF
   d. ITAF
   e. IAF
   f. RNLAF
   g. RNOAF
   h. FICTIONAL: USAF THUNDERBIRDS & RAF
WHAT’S INCLUDED IN THE PACKAGE?
1) Go to **SETTINGS**

2) **Optional:** You may need to make adjustments to the **FLIGHT MODELS PER FRAME** depending on your computer make up. (Often resolves issues with skidding when parked)

3) **Optional:** Go to **DATA OUTPUT** “I check the box to show **COMMANDED THROTTLE.**”

4) **Optional:** Under Joystick settings it can be helpful to set response and stability to suit individual preference on handling.

5) Go to Keyboard to set up and keyboard functions you may want to use.

6) **Optional:** Under **SLIDERS** you may set up a hot key for quickly activating and deactivating the HMD. Do so under **Slider #1**
1) Under the **Weight, Balance, & Fuel** menu, X-Plane will automatically add around 6,000 extra pounds to the aircraft weight. This will affect performance and it is important to set the payload weight to something similar to that of a pilot and some extra gear.

2) Under the **Weapons** menu you may decide to change the weapons under slots (3 & 4) for either **AIM 120-AMRAAM** or any of the other bombs included. The primary (1 & 2) **AIM 120-AMRAAM** slots are not designed for any other weapons besides air to air missiles.

   Additionally, you may set all slots to empty by selecting the “X” on the right-hand side. The cannon may be set to **Gun-Unloaded** for having only the gun weight without when no ammunition is desired.

3) **AND DON’T FORGET TO** choose here for your livery options.
This is a brief overview of “some” of the exterior elements of the F-35 A. For more thorough and accurate documentation, please take a look at the links on the useful links page listed in this document.
1) Canopy / Cockpit.
2) Cannon housing.
3) Lead edge Slats / Flaps. (I’ve found multiple terminology – you decide)
4) Aerial refueling port.
5) Flaperons (The F-35 A does not have ailerons. It uses a combination of the flaps and horizontal stabilizers for maneuvering.
6) Horizontal and Vertical stabilizers.
7) Forward Landing gear bay.
8) Weapons bay.
9) Aft Landing gear bay.
10) Exhaust port.
11) IPP opening and exhaust port (somewhat similar to APU) To be modeled in the future.
12) Extending ladder and compartment.
13) Secondary door that opens up when the cannon is armed.
14) Emergency hook (Not for carrier operations but it does work in X-Plane so if you want to pretend...)
15) Vertical stabilizers with combined aileron support.
16) Formation lighting.
Cockpit Guide

1) Fuel Dump
2) Brakes & Parking Brake
3) Emergency Hook (For landing strips equipped with arrestor cables - common on modern U.S. Fighters).
4) Landing Gear Handle
5) Emergency Landing Gear Pump (Currently has some bugs to work out)
6) Landing Lights
7) Unused - to be established further in development.
8) Elevator Trim Reset (Sometimes the trim gets stuck after using autopilot - this will reset)
9) Upper Multifunction Display Screen
10) Lower Multifunction Display Screen
11) Helmet Mounted Display On / Off
12) Instrument Brightness
13) Camera On / Off
14) Night Vision On / Off
15) Flood Light Brightness
16) Formation Lights On / Off
17) Touch Pad for Camera Direction
18) Clock / Timer
19) Secondary Horizon Indicator
20) Unused - to be established further in development.
21) Protective Housing Cover for Weapons
22) Cannon Door Open
23) Missile Door Open
24) Bomb Door Open
25) Cannon Arm
26) Missile Arm
27) Bomb Arm
28) Air to Air Next Target Lock
29) Air to Air Previous Target Lock
30) Ground Target Lock (Must have camera on and AGM armed to work)
31) Camera Quick Position Up
32) Camera Quick Position Down
33) Rudder Pedals
34) Unused - to be established further in development.
35) Air Refuel Bay Doors Open / Close
36) Advanced Flight Control On / Off (Default to on - activates flaperon with pitch).
37) Instrument Lights
38) Navigation Lights
39) Strobe Lights
40) Taxi Light
41) Engine Starter Push Button
42) Fuel Switch with Protective Housing Cover
43) Batteries One & Two
44) APU
45) Igniter
46) Avionics
47) Generator One & Two
48) Inverters One & Two
49) Pitot Sensor Heat
50) Throttle
51) Hi / Low Idle
52) Joystick
53) Unused - to be established further in development.
54) Canopy Open / Close
55) Transponder & Audio Panel
56) Ejection Seat Handle
Multi-function Display (MFD)

Multi-Page Touch Screen Display.

DISCLAIMER: For G1000 instruction and all other X-Plane stock instrument instruction (everything in this plane) please refer to the instruction manuals that are included with the XP 11 Install.
Multi-function Display (MFD)

- At the **top center** of the MFD click on any of the **four green boxes** to activate a different display screen.
- G1000 is tangible on the screen and with normal pop out window function.

Three primary display settings and customizable to user preference.

1) Main Control Display (MCD)
2) Default G1000 Display (DGD)
3) EFFIS & Tactical Display (ETD)
4) EFFIS & Tactical Display with Ground Target Acquisition Camera (ETD + GTAC)
Multi-function Display (MFD)

1) N1, air speed, radio alt.

2) Flaps, speed breaks, gear positioning. Select on screen for function or use hot key to enable.

3) Wheel brakes, warning indication system, test button.

4) Display selection.

5) G indicator, glide scope, overall fuel quantity.

6) Autopilot controls. Select “AP” button for automatic pitch / select “HOLD” to hold altitude. Autopilot can also be controlled from the G1000 screen. Also includes, terrain follow, heading, localizer, vertical speed for altitude changes, and speed control.
Cold and Dark Start Up: *It’s so easy!*

This section provides a step by step guide on how to start the F-35 A.

**ENGINE START UP SECTION**

1) External Lights Panel / Night lighting for switches.
2) Batteries / APU / Ignitor / Avionics / Generator / Inverter / Pitot heat.
3) Starter push button / Fuel Selector Switch On/Off (under the red housing).
4) Hi / Low Idle Switch.
COLD & DARK START UP

Cold and Dark Start Up: *It’s so easy!*

1) Turn **Batteries 1 & 2** “ON.”
2) Flip the **APU** to “ON.” (Note the real F-35 has what is called an *Integrated Power Package* (IPP) instead of an APU, however, this is not a provided feature of X-Plane as of this time.)
3) Flip the Ejection handle up so that it may be used if need be.

4) Flip the **Ignitor**, **Avionics**, and open Red Cover Housing for the **Fuel Selector Switch**, set to “ON” then close it back up.

5) Press the **Start** push button until the N1 value on the G1000 display reaches **20%** and then let off.
6) Once the N1 value has reached around 50%, turn all of the remaining switches to “ON.” *Note that the Inverters require only one switch to be activated to turn both of them on.*
7) Turn the **APU** “OFF”.
8) Flip the **High / Low Idle** switch to Low.
COLD & DARK START UP

9) NOW REMEMBER TO TURN ON THE EXTERNAL LIGHTS IF YOU HAVEN’T ALREADY unless you are planning to go destroy something... This is a stealth fighter after all.

   *Note the landing light switch will be covered momentarily. (There are also functions on the MFD for all lighting operations.*

10) YOU DID IT! THE F-35 ENGINES ARE POWERD ON!

Side notes:
The avionics switch turns on the multifunction display (MFD). Some lighting features may also be found in the MFD in addition to the switches and knobs.

-Switch lighting can be activated at night on the Lights panel. **Formation Lights** can be activated from the center console button labelled FORM LTS, **HMD** toggles the Helmet Display. **INST** and **FLOOD BRIGHT** knobs control lighting in the cockpit. **CAMERA** toggles the external targeting camera. Leaving this off can help save FPS. **NVG** toggles night vision.
For taking off.

1) You can toggle any exterior lighting from the MFD or by switches in the cockpit.

2) You can set the trim however this is not needed if Advanced Flight Control is activated (On by default).

3) Flap and Slats are automatic and there is no need for the user to make any settings adjustments.

4) If you want a controlled burn for take-off set the Auto Throttle (ATHR) to around 248-250 kts or your desired take of speed. (Mach vs Knots can be toggled on the small dot above this.)

5) Next select the ATHR button. You may notice the engines start revving up and I’m not sure why it does this.
6) Finally select the Flight Director (FLIGHT DIR) button once to where it says on and your speed will be controlled.

7) Note that autopilot functions can be controlled from the G1000 as well.

8) Rotate around 140 to 160 knots and you are on your way. Don’t forget the raise the landing gear. If Advanced Flight Control is deactivated, trim needs to be set manually or take off speed will require 180 knots.

PLEASE NOTE: Due to certain limitations, flying in inclement weather may require deactivation of one or all three elements of the artificial stability. Refer back to page 17, item 4, and you will see on the MFD four green square buttons towards the center bottom of the left screen. Those are the artificial stability buttons that activate / deactivate, all or individual elements. In the future we hope to have code that will provide drastic improvements to the artificial stability system.
1) For fuel efficiency, the best cruise setting is 40% throttle at 30k to 40k ft. (NOT to be confused with N1 found on the far left- that is not your throttle setting!!!). The ECAM display will provide readouts of fuel amounts, weight, etc... It is quite helpful.

2) Should you find the elevator trim is off center there is a FCS / ENG reset button found to the front right of the throttle. Push it and the elevator trim will return to center. For aileron and rudder, just push one of the blue buttons found on the screen.
**BASIC FLIGHT & LANDING**

**FLIGHT / LANDING**

3) For use of speed brakes, just like all other controls, they can be controlled by a hotkey, assignment to a hardware button, or by click on the screen. If you click to the very top of the icon, this will activate automatic speed braking upon landing and is very useful.

4) For landing, you need to learn how to do this by reading and watching tutorials found all over the internet. The best time to land the F-35 A is with minimal weight, at around 130-140 kts, on a stable glide scope, and at 10-15 AOA upon touch down. Advanced Flight Control activation / deactivation will have a direct impact on how your nose will come down (soft or hard). My advice is to watch a lot of videos on how the F-35 A lands and strive to mimic what you see happening.

5) Last note: The F-35 A is equipped with an emergency hook for “LAND” based arrestor cables only!!! This is a common feature found on other modern fighters such as the F-16. While flying in X-Plane 11 you can land on an aircraft carrier should you choose, but that is not what the plane was intended for in real life. So, if you want to play realistic, don’t land on the aircraft carrier. The hook is for emergency landings at airfields that have arrestor cables installed. (Currently I am unaware of any sceneries that provide functioning arrestor cables.)

PLEASE NOTE: Due to certain limitations, flying in inclement weather may require deactivation of one or all three elements of the artificial stability. Refer back to page 17, item 4, and you will see on the MFD four green square buttons towards the center bottom of the left screen. Those are the artificial stability buttons that activate / deactivate, all or individual elements. In the future we hope to have code that will provide drastic improvements to the artificial stability system.
G1000 OPERATIONS

THE G1000 THAT COMES WITH THIS F-35 PACKAGE IS THE X-PLANE 11 STOCK INSTRUMENT. IT WAS CREATED AND PROVIDED BY LAMINAR RESEARCH AND THE ONLY THING EOI DEVELOPMENT HAS DONE IS CHANGED ITS APPEARANCE.

IF A FUNCTION OF THE G1000 DOES NOT WORK FOR YOU THE USER, IT IS YOUR RESPONSIBILITY TO REPORT THE PROBLEM TO LAMINAR RESEARCH.

IT IS NOT THE RESPONSIBILITY OF E.O.I. TO PROBLEM SOLVE, REPORT, OR FIX ANY G1000 BUGS FOUND BY OTHER USERS.

As I cannot dedicate time to explain how to use the G1000, I would at least like to provide some instructional resources for those who seek to learn. Also note that the G1000 autopilot features may be used in conjunction with the autopilot buttons found in the top right-hand corner of the MFD.

THE COMPLETE USER MANUAL BY LAMINAR RESEARCH:


BEGINNER TUTORIAL VIDEOS BY REACTION REVIEW:

1) https://www.youtube.com/watch?v=JeDJhL0Pb4

2) https://www.youtube.com/watch?v=JhfyrgS1Wl8

PHILIPP RINGLER – COMMERCIAL DEVELOPER

1) https://www.youtube.com/channel/UCgkAYGe5a56RbnwYXFC1p6w

OTHER G1000 TUTORIALS

1) https://www.youtube.com/watch?v=ED0-I4nKj-A

2) https://www.youtube.com/watch?v=qQz7xaW05fU

3) https://www.youtube.com/watch?v=sXeDbXg01Zk
These real-life photos of the F-35 reveal how the flaperon deflection surface moves in conjunction with pitch. Leaving aside any discussion of the real-world applications of this setting, I can tell you that there is at least one use of this deflection when it comes to advanced maneuvers in X-Plane.

Pulling all the way back on the joystick will cause the deflection to occur, and at certain speeds and bank angles, a drifting motion with additional AOA begins to take shape due to certain losses of lift. This is great if the users desire is to do specific flight maneuvers that could benefit from this loss of lift, however, having flaperons mapped to pitch deflection comes at a cost. Some might not be interested in simulating more advanced flight and would enjoy a something more laid back and user friendly. Therefore, a toggle switch has been placed on the right panel so that you may control when you want this function activated. By default, it is on.
COMBAT

STEPS TO ACTIVATE AND USE WEAPONS

NOTE:

1) For now, the only way to show the target lock for air to air mode is by using the 2D Simulator View illustrated below. If the target is not in view, green or red arrows will point to where the target is at. This is X-Plane 11 stock functions that come with the program and I am not responsible for how good or bad it works. The HMD can be on while in 2D mode for extra flight information.

2) If you want external animations to work with the weapons you need to use the center console button defined below and not the MFD. The MFD will still work, but I haven’t been able to get the different functions to cooperate for whatever reason. Probably because this isn’t a combat simulator.
1) Click on the red protective cover to open it

2) Select the Weapon standby button for the weapon you wish to use. (This is the function that will open the bay doors)

3) Select the weapon "Arm" buttons to activate the weapon - Air to Air / Air to Ground selections will blink on the screen. Guns will simply show a name on the screen.

4) Fire when target has been acquired (you can select air and ground targets from the center console as well.)

To deactivate, do all of these steps in reverse.

Click the Arm button until the a2a or age stop blinking if any are left or until the guns display disappears...
COMBAT

Then click the standby button for the weapon

Then close the protective covering.

To lock onto ground targets, use the Maverick AGM or TV guided bombs. Arm the weapon, turn the camera on and then hit the ground target lock (GRND TRGT LOCK) button once you see what you want to shoot line up in the cross hairs of the camera. It’s honestly a lot easier if you just set up a hot key for it. Search “target lock” in the keyboard settings and you should be able to find it. If not, just look around like I did, and you will eventually figure it out.