Baron 58 Update Version 1.0.0 Description

This is a modified ACF file for the **X-Plane 11 Default Baron 58** aircraft that resolves several flight dynamics and stability issues of this otherwise great aircraft, including the annoying constant tendency to roll right during level flight. It also reduces the excessive pitch up when the flaps are lowered, making it much more realistic and easier to handle on approach.

Changes in engine power no longer cause the aircraft nose to pitch excessively up or down.

The final approach speed is now in accordance with the POH recommended speed of 96 knots, and the nose is no longer pitched down during the final approach.

Take off now requires 3 degrees of Up trim, with cruise trim at around 0 to -1 degree Down when the aircraft is flying straight and level.

Switching the autopilot off during short final while making an ILS approach no longer causes the aircraft to suddenly veer to the right and lose runway alignment.

Stability and steering during the takeoff roll has also been improved.

These modifications greatly improve the overall stability and flight dynamics of this aircraft, making it much more realistic and enjoyable to fly.

Baron 58 Update Version 1.0.1 Description

In addition to the improvements in the previous release, this updated version of the default Baron_58.acf file includes the following changes:

1. I moved the aircrafts default CG slightly aft and slightly higher, to what I believe is now the correct location. This further improves the aircrafts handling and stability by reducing the amount of nose heavy behavior experienced during takeoff and landing. It also further reduces the effect of power changes on the aircrafts pitch angle.

2. I reduced the setting for Approach Flaps from 15 degrees to 13 degrees, which is closer to the original setting of 12 degrees, so the panel indicator light would work again. I also did some further fine tuning of the flight dynamics parameters for the flaps, which further reduces the adverse pitch effects of putting the flaps down during flight.

3. All trim adjustments have been made finer so you can more easily achieve the desired correct settings for stable flight. Also, I highly recommend assigning elevator trim to your left yoke handle rocker switch, if you have one, which is the way the real aircraft is configured, because this airplane requires frequent trim adjustment during all phases of flight. The aircraft also now loads with the required takeoff trim setting of 3 degrees up as the default.

4. I reduced the yoke sensitivity when applying up elevator to make the aircraft easier to handle and reduce the tendency to over control and porpoise during the landing flare.

5. In this release, and the previous release, the landing gear tire friction was also increased slightly so that the aircraft will come to and remain at a complete stop at idle engine power, without having to set the parking brake.

6. I did several thorough test flights of the aircraft after making these changes, which included multiple takeoffs and landings, with and without flaps, power off and power on stalls, turns at various speeds and bank angles with and without flaps, and both VFR (auto pilot off) and full ILS approaches and landings.

Baron 58 Update Version 1.0.2 Description

Version 1.0.2 adds the following changes to this update:

1. The idle speed of the engine has been reduced to 600-650RPM, which more closely matches the actual aircraft. This allows the tire friction to also be reduced slightly, providing better takeoff performance when operating from grass runways.

Baron 58 Update Version 1.0.3 Description

Version 1.0.3 adds the following changes to this update:

1. The default forward view has been raised slightly to be closer to the eye level of the simulated pilot, and to improve runway visibility over the nose of the aircraft.

You can create your own custom default forward view by first tilting the view downward, and moving it forward or back, to see as much of the panel as desired, then saving this custom "Quick Look" to a number pad key by pressing CTRL + Number Key. Also assign a yoke button to quickly return to this custom default forward view during flight.

2. The geometry and location of the horizontal stabilizer has been corrected. This significantly improves the pitch stability of the aircraft.

3. The geometry and location of the vertical stabilizer has also been corrected.

4. The flaps have been changed from Plain Flaps to Slotted Flaps, which is what the actual aircraft has. Slotted flaps have much more lift and much less drag than Plain flaps. This change improves the approach and landing flight dynamics and stability.

5. Damping parameters have been added to all of the control surfaces to improve stability and reduce over controlling. This reduces the control surface response to sudden movements, making them react more like the actual aircraft controls.

6. The default Basic Empty Weight of the aircraft has been reduced slightly to 3,980 lbs. for easier weight and balance calculation.

7. The maximum takeoff weight has been reduced from 5,500 lbs. to 5,400 lbs. to match the actual aircraft specifications.

8. The CG forward and aft limits have been changed slightly to more closely match the actual aircraft specifications.

9. The default CG has been moved forward slightly (-1.2 inches) to more closely match the actual aircraft specifications, and to make the weight and balance with different Payloads and Fuel loads more realistic.

10. A simple, easy to use Weight and Balance Guideline has been included in the README file for quickly calculating and setting the Payload and CG sliders in X-Plane for different aircraft payload configurations. This provides a much more realistic simulation of safely loading and flying the actual aircraft with different payloads.

11. A copy of the Baron 58 POH (Pilot Operating Handbook) has been included with this update.

Baron 58 Update Version 1.0.4 Description

Version 1.0.4 adds the following changes to this update:

1. The lift coefficient of the flaps has been reduced to reduce the amount of change in the aircrafts pitch from lowering the flaps.

2. Becuase this aircraft is equipped with larger 300 HP engines, the maximum takeoff weight has been increased back to the original value of 5500 lbs.

3. The elevator trim sensitivity has been reduced to allow finer pitch settings.

4. A 1 degree incidence angle has been added to the horizontal stabilizer.

5. The default CG has been moved slightly aft (-0.6 inches)

Baron 58 Update Version 1.2.0 Description

Version 1.2.0 of this update includes the following additional changes:

1. This update is now based on the **X-Plane 11.5x** version of the **Baron_58.acf** file, which contains several important fixes and updates to the aircraft made by Laminar Research, including the following:

- The DME display has been fixed so that the Panel Light switch no longer has to be on to see it.
- The autopilot annunciator display panel has been updated with several additional mode indicators, including ARM, BC and CPLD.
- The prop pitch parameters have been updated.

2. The Main Wing incidence angle has been increased slightly.

3. The Flaps Lift and Pitch coefficients have been increased slightly.

4. The geometry of the Vertical Stabilizer has been modified slightly, to more closely match the actual aircaft.

5. A 1,410 liter crew oxygen supply has been added, to match the aircraft specifications, and to prevent hypoxia when flying at altitudes above 12,500 ft. To utilize the crew oxygen you must assign the following X-Plane commands to eithr keyboard keys, or joystick buttons:

Crew oxygen: master valve open/on (assign this command to the "o" key)

Crew oxygen: master valve closed/off (assign this command to the "Shift + o" key)

6. The default Pilot's viewpoint has been moved slightly forward and slightly left, to more closely match the actual Pilot's viewpoint.

7. The main Landing Gear has been repositioned to more closely match the actual aircraft.

8. A modified **Baron_58_vrconfig.txt** file is now included with this update, which correctly sets the default **Pilot's Hot Spot Viewpoint**, and the **Copilot's Hot Spot Viewpoint**, when using VR.

9. A seperate **VR Viewpoint Modification Procedure** document has also been included, which describes a simple procedure for easily and accurately modifying any of the VR Hot Spot Viewpoints in the **_vrconfig.txt** file for any X-Plane 11 VR ready aircraft. This procedure does not require any additional plug-ins or utilities.

10. The FMOD sound zones for this aircraft were recently reconfigured by Laminar, based on a much higher incorrect default CG location, which now causes a problem with the engine sound changing to the "outside" level when the viewpoint is raised too high in the cockpit of the updated aircraft. The current version of the FMOD engine sounds are also too loud, making it difficult to hear the radios in the cockpit.

To fix these problems, a copy of the aircraft's **FMOD** folder from the previous release of X-Plane has been included with this update, which can be used to replace the current **FMOD** folder.

Note: The change to the default CG location will affect any "Quick Looks" you may have previously defined and saved, requiring them to be redefined.

Weight and Balance Guideline

X-Plane automatically adjusts the aircraft weight and CG for any changes in fuel load, based on the aircraft fuel tank locations, but changes in weight and CG as a result of different Payloads must be made manually using the sliders on the X-Plane Weight and Balance configuration screen.

The default CG location has been correctly set for the aircraft's default Payload weight when it loads in X-Plane, which includes the Pilot and about 50 lbs of Baggage.

Use the following simple guideline to calculate and adjust the Payload and CG sliders in X-Plane for different loading configurations of this aircraft. This is based on actual aircraft weight and balance calculations using the Baron 58 POH:

Payload	**Payload Weight**	**CG Change**
Pilot	170 lbs.	+0 inches (default)
Co-pilot / Front Passenger	+170 lbs.	+0 inches (default)
Passengers 2 & 3	+340 lbs.	+2.5 inches
Passengers 4 & 5	+340 lbs.	+4.8 inches
Forward Baggage Area	+100 lbs.	-1.6 inches
Rear Baggage Area 1	+100 lbs.	+1.2 inches
Rear Baggage Area 2	+100 lbs.	+2.0 inches
Total Payload	1,320 lbs.	+8.9 inches

Set the X-Plane Payload and CG sliders to the **Total Payload** and **CG Change** values calculated above**.**

Note: The CG Change for each Payload item listed above is proportional to the weight, so if you use more or less weight for any Payload item, adjust the CG Change value for that item by the same amount.

The **Total Payload** weight and **CG Change** can now be added to the aircraft **Basic Empty Weight and CG**, and the **Fuel Weight** , and the resulting **Loaded Airplane Total** weight and CG can then be checked against the **MOMENT LIMITS vs WEIGHT** envelope on page 6-14 of the POH to insure that they are within the allowable range.

	Weight	**CG**
Basic Empty Weight	3,980 lbs.	79.0 inches aft of Datum
1/2 Fuel (97 usable gallons)	+582 lbs.	+0.3 inches
Total Payload	+1,320 lbs.	+8.9 inches
Loaded Airplane Total	5,882 lbs.	88.2 inches aft of Datum

Note: The above loading example is 382 lbs. over the maximum takeoff weight of 5,500 lbs., and the CG is +2.2 inches beyond the allowable aft limit of 86.0 inches. So, the Payload must be reduced and redistributed, and/or the Fuel load must be reduced to bring the aircraft weight and CG back within the allowable limits.