

How to Correct FS98/FS2000 Gear Length Problems

"The Dreadful Sunken or Floating Wheels Issue"

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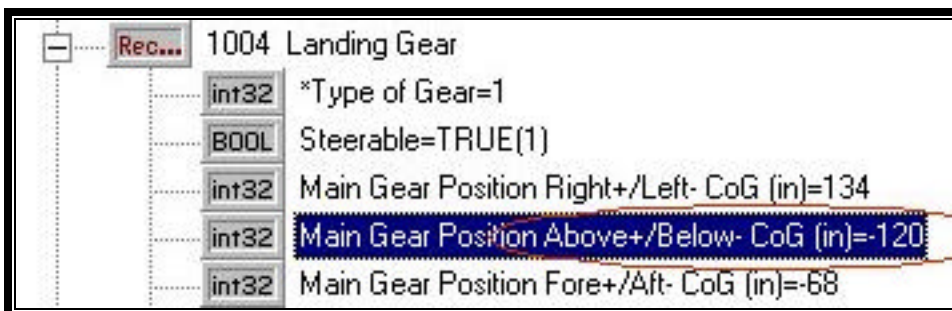
One of the most common questions I encounter is how you can correct the sunken or floating appearance of the wheels in some MS Flight Simulator aircraft. This problem usually occurs when the flight dynamics file of the aircraft (which is the file with an *.air extension under your aircraft flight-sim subdirectory) has been replaced or modified from the original belonging to the particular airframe (the visual model). It is a common practice to switch the .air file if the aircraft's flight dynamics do not perform adequately. However, quite frequently, the switched .air file does not provide an "exact" match with the replacement airframe in terms of gear lengths. For example, one designer of a 737 airframe might use 2 feet gear lengths, while another may make one with 2.5 feet. However, if you attempt to use an .air file that was designed for 2.5 feet gear lengths it will obviously look sunken on the 2 feet airframe.

To correct this problem, the gear lengths and center of gravity height need to be modified in the .air file. Center of gravity will hereafter be referred to as "COG". In order to edit the .air file, the following freeware tools can be used:

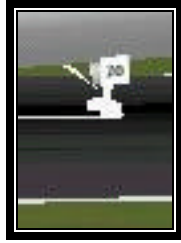
AirEd available at <http://members.dsl-only.net/~eagle/#statement>

Abacus FDE available at <http://www.flightsimdownloads.com/catalog/s372.htm>

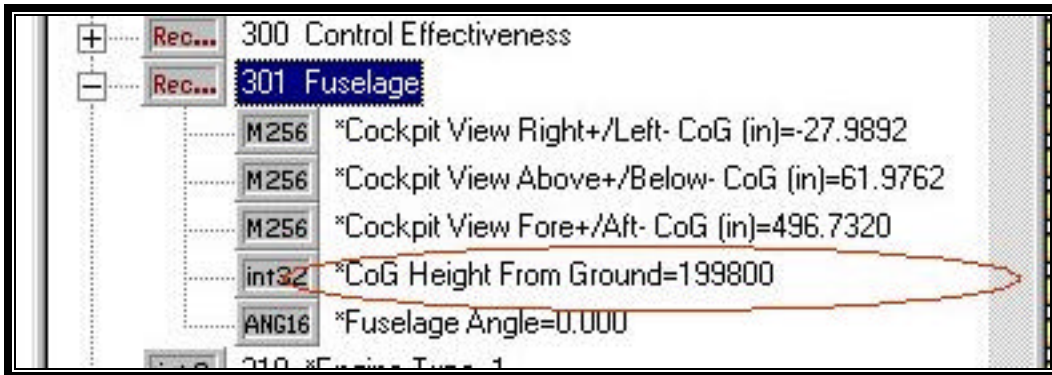
Each of these tools organize the .air file settings as various records with section identification numbers. The first thing to change is the section 1004 main gear height above/below COG to a higher or lower value:



Here -120 (highlighted) is 120 inches below the COG. Let's say your new replacement airframe uses shorter gear lengths like 5 feet; you would then replace -120 with -60. How do you figure out what length to use? I eye-ball it. The following picture is a nose gear that has its entire tires sunken into the runway. You can approximate that it is about 20 to 25 inches into the ground and you add that to the Above/Below CoG number. So if you started with -120 and it looks like this picture, then try adding -20 and enter -140 as an example.



After this, you also need to re-calculate the COG Height position, or else the aircraft may keep crashing. This is changed in section 301:



Let's assume you changed the gear length from -120 to -140. To calculate the new COG Height in section 301, you multiply $140 * 1665$ for jet/turbine aircraft generally or multiply $140 * 1500$ for piston aircraft. Note that you use the gear length from the Main Gears (not the Center gear).

Now you can reload the aircraft in MS Flight Simulator and see if these modifications have substantially corrected your sunken or floating wheel problem. You will probably have to go back and fine tune the gear length depending on how it looks. Ordinarily, you can change the gear lengths using fine increments of a few inches and NOT have to re-calculate the COG. If you make big changes, then the COG should be recalculated as above. Good luck!