A.K.U.A.G. Aces High II Turn Performance Comparison Application Help

By Spatula 3rd November 2009.

Performance Comparison

The performance comparison application has been created by the good people at the Airborne Kitchen Utensil Assault Group (A.K.U.A.G.) for the players of the MMOG World War II Combat Flight Simulator: Aces High II. It is intended to provide players a way to display, or compare the relative performance of, aircraft in the Aces High II plane-set. It provides speed, climb-rate, and turn performance data for almost the entire Aces High II fighter-set.

Users can overlay multiple aircraft on the same graph to see how each aircraft compares to the other. From this conclusions can be drawn about the relative strengths and weaknesses of the compared aircraft. These conclusions can be used to assist in developing tactics for that theoretical engagement. It would be prudent to employ the strengths of one aircraft to exploit the weakness of its rival to ensure it has better than chance odds in emerging from an engagement victorious.

Information is the cornerstone of any engagement. Those with useful information, and the ability to process and use it to form solid tactics under pressure, are the people who thrive in the virtual skies in Aces High II. Learn as much as you can, learn to use it, learn why and when to use it and information will win you the day. All the stick inputs and fancy maneuvers count for nothing if you don't know why you're doing them.

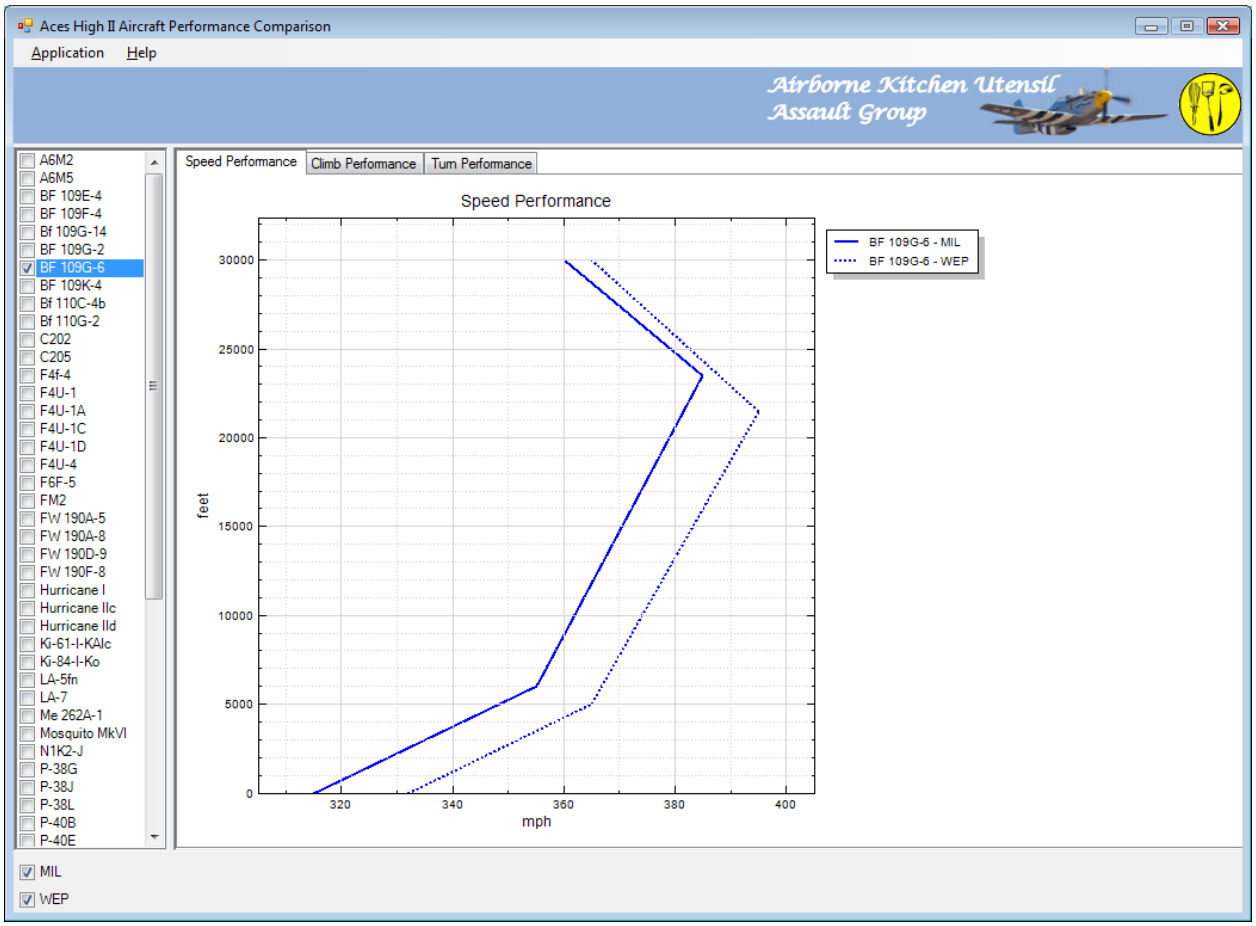
This application should be every virtual combat pilot's reference bible. I've been flying in MMOG combat simulators for over a decade, and I still come back to data like this on a very regular basis.

Speed Performance Tab

The speed performance tab displays a graph charting the maximum speed of the selected aircraft versus altitude. Altitude is measured in Feet and is plotted on the Y axis. Speed is measured in Miles per Hour and is plotted on the X axis.

Select the aircraft to display from the pick-list on the right-hand side of the application. You can pick as many as you like with each being shown simultaneously for relative comparison. Choose to plot speed performance in either MIL (full power) or WEP (War Emergency Power) power settings, or both, by selecting the power setting by checking either check-box in the lower right-hand side of the application. Solid line represents the MIL power setting, and a dashed line represents the WEP power setting.

The following shows the speed performance graph for a Bf 109G-6:

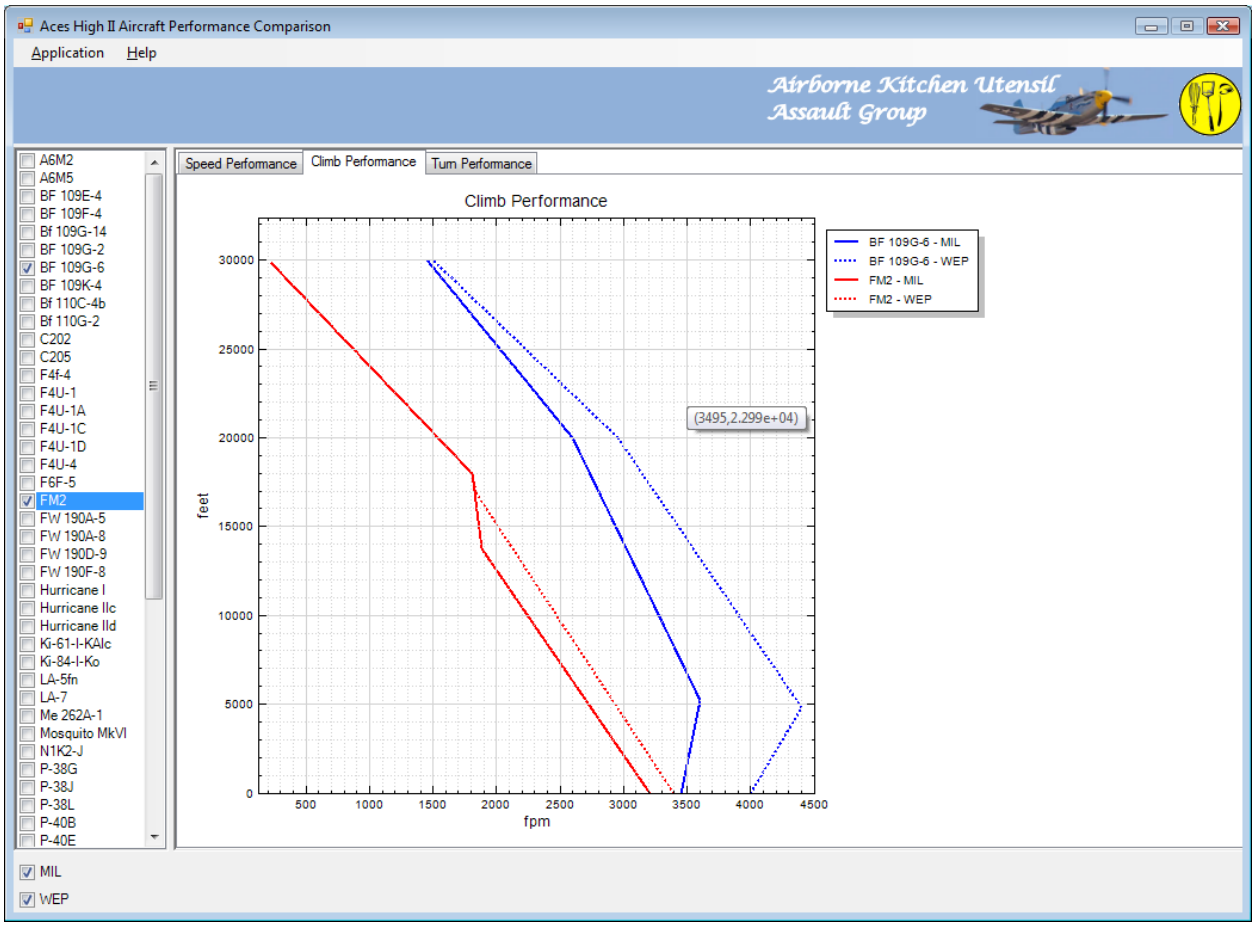


Climb Performance Tab

The climb performance tab displays a graph charting the maximum climb rate of the selected aircraft versus altitude. Altitude is measured in Feet and is plotted on the Y axis. Climb rate is measured in Feet per second and is plotted on the X axis.

Select the aircraft to display from the pick-list on the right-hand side of the application. You can pick as many as you like with each being shown simultaneously for relative comparison. Choose to plot climb performance in either MIL (full power) or WEP (War Emergency Power) power settings, or both, by selecting the power setting by checking either check-box in the lower right-hand side of the application. Solid line represents the MIL power setting, and a dashed line represents the WEP power setting.

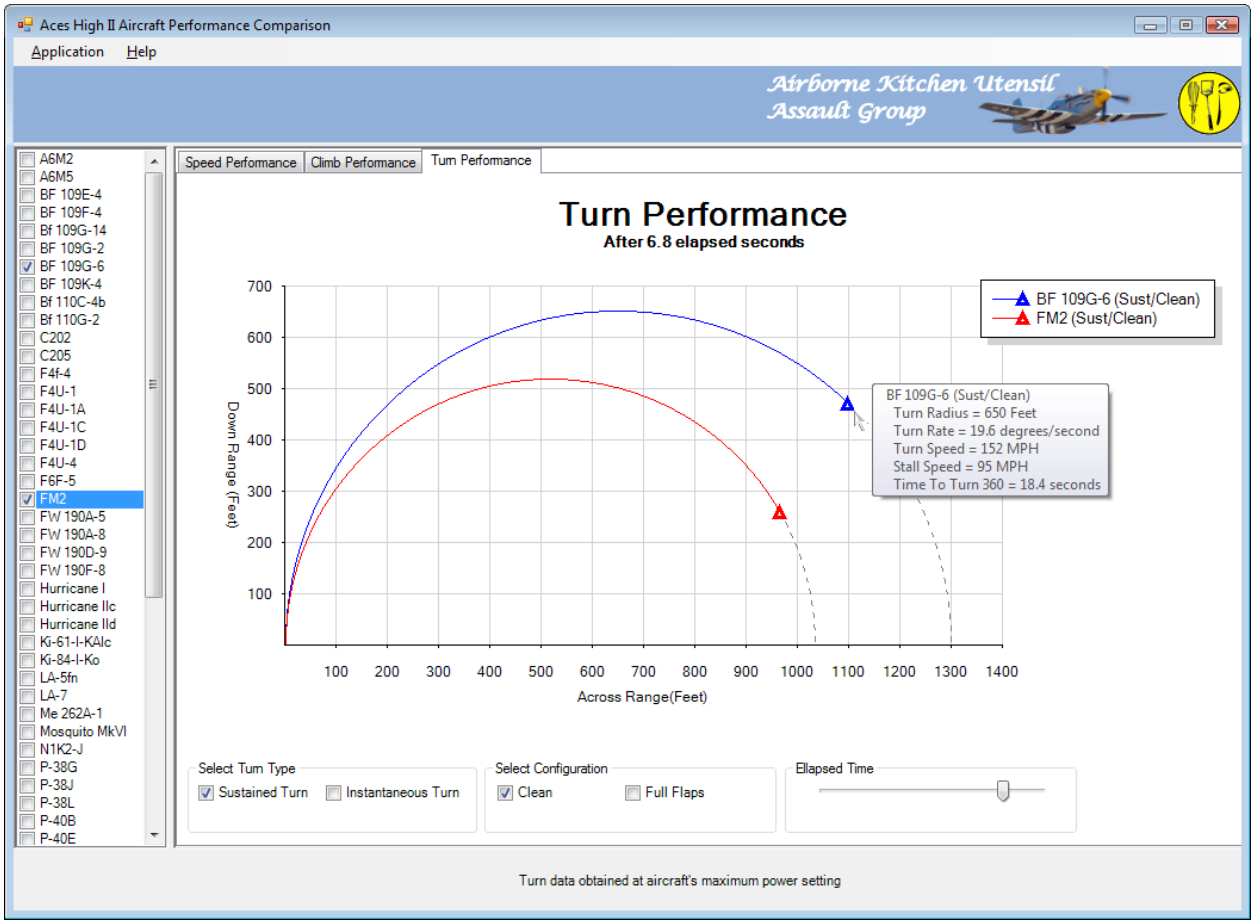
The following shows the climb performance graph for the Bf 109G-6 versus an FM2 Wildcat.



Note, that climb performance also offers a rough indicator of an aircrafts slow-speed acceleration capability. Although this fails to fully take into account the effect of drag, you can use the climb chart as a reasonably good indicator of an aircraft's relative slow-speed acceleration performance.

Turn Performance Tab

The turn performance tab displays a graph charting the best turn performance of the selected aircraft at 500 feet. The graph shows the theoretical partial turn circle (from a birds-eye view) that the selected aircraft would fly in a specific time period, given the selected parameters. The further around the circle the aircraft has flown in the specific time-frame, the higher its turn rate at those parameters; the smaller the circle's radius, the better the aircraft's turn radius at those parameters.



You can select from numerous parameters to show the turn performance of the selected aircraft in different configurations and different turn types:

- **Select Turn Type**. Allows the user to select between sustained turn performance, and instantaneous turn performance.
    - Sustained turn performance. This is the maximum turn performance that the aircraft can sustain over a theoretical infinite period. This is the best turn performance which can be sustained assuming level flight. This is what most people think "turn performance" actually is.

    - Instantaneous turn performance. This is the maximum turn performance that the aircraft can achieve at its “corner velocity”. This is the best turn-rate performance which can be achieved by the aircraft, but not usually the best turn radius. “Corner velocity” is the speed at which the aircraft can turn its maximum number of degrees per second. For propeller-driven aircraft, this tends to be at a higher speed than that gives the best sustained turn performance.

- **Select Configuration**. Allows the user to select between Clean and Full-Flap configurations.
    - Clean. This is the aircraft with no external stores, external weapons, no flaps, no undercarriage, and no spoilers or airbrakes deployed.
    - Full-Flaps. This is identical to the clean configuration with the exception of the aircraft’s trailing-edge flaps being fully-deployed (leading-edge flaps/slats deploy automatically as/when required).

- **Elapsed Time**. This slider allows the user to adjust the time period the graph is representing.

The user can ‘hover’ the mouse over the end-cap of a turn plot, or over an entry in the legend to the right of the graph, to get a ‘tool-tip’ which details the turn performance figures of the selected aircraft/configuration setting. This is useful to get the full context of that measured turn performance.

When reading the graph, please note the following:

- All testing was done at maximum engine power. If the aircraft has WEP, it is performed with WEP engaged. If the aircraft has no WEP, it is performed at the MIL power setting.
- All aircraft are loaded with 25% of the aircraft’s total internal fuel capacity. No external fuel tanks were attached. Due to differences in internal fuel capacity between aircraft, actual fuel weight is not a constant across the tests performed. Fuel burn-rate is set to zero.
- Default weapons package is chosen. No external weapons are loaded.
- Speed is not a constant in the displayed graph. E.g. it does not show how two aircraft would compare at the same speed – rather how two aircraft compare at their best turn performance speeds.
- All turns are performed to the left. Some aircraft perform better turning to the right (Yak 9t and 9u, Tempest and Typhoon, Spitfire Mk14).
- All tests are performed at 500 ft.
- The data provided is for each aircraft’s best turn results under well-defined criteria. Due to the uncontrolled nature of actual engagements, the graph does not directly predict the turn performance of any aircraft across a particular engagement. When interpreting data from the graph, its best to take into account all the data presented, both in the turn circle graphics, and in the tool-tip data; this gives you the full context.