Miltech Simulations U-2

Specifications and Limitations

The numbers our U-2S works with: size, weights, engine, speeds and limits. Where a limit has an alert, the alert is named. Where the sim enforces nothing, this page says so.

Note
Sim values. Performance values are measured in the sim. They may not accurately represent (nor do they intend to accurately represent) the performance of the real aircraft.

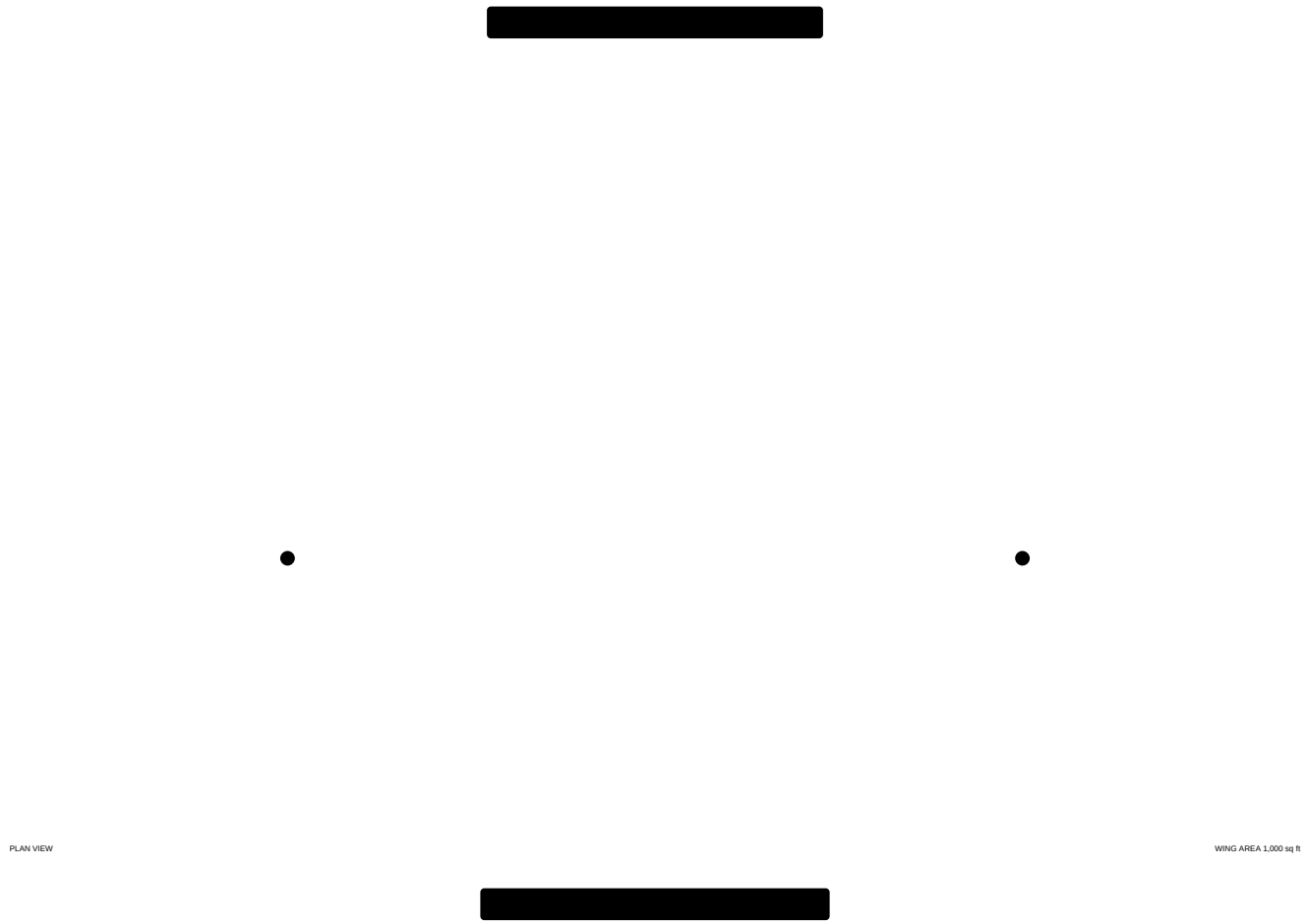
103 ftWingspan

40,000 lbMaximum gross weight

17,000 lbThrust, sea level, full throttle

2,917 galFuel, full tanks

Dimensions





The U-2S in the sim: ASARS-2 nose, Senior Ruby pods and SPAN. Pogo positions in red.

Item	Value
Wingspan	103 ft
Wing area	1,000 sq ft
Length, nose to tail	about 64 ft
Height, on the main wheel, level	about 17 ft
Main wheel to tailwheel	21.7 ft
Pogo wheels, left to right	59 ft
Wingtip skids, from the centerline	51 ft each side
Ground attitude on main wheel and tailwheel	3.6° nose up

Weights

Item	Value
Empty weight	16,230 lb
Pilot with pressure suit	210 lb
Nose, superpods, Q-bay, SPAN, external sensors	see EFB Aircraft tab
Fuel, full tanks	2,917 US gal (about 19,540 lb at 6.7 lb/gal)
Maximum gross weight	40,000 lb
Center of gravity range	17 - 28 % MAC
Landing weight for the normal technique	24,300 lb or less

The aircraft does not stop you loading more than 40,000 lb. The EFB Aircraft tab shows **Gross** against 40,000 lb and warns you above it. Some typical loads:

Fit	Payload	Zero fuel	With full fuel
Standard nose with the OBC camera, Senior Ruby (Type A) pods	3,160 lb	19,390 lb	38,930 lb
ASARS-2 nose, Senior Ruby (Type A) pods	2,810 lb	19,040 lb	38,580 lb
ASARS-2 nose, Standard (Type B) pods, SPAN	3,510 lb	19,740 lb	39,280 lb

Payload includes the pilot and, where fitted, the 1,050 lb OBC in the Q-bay. Each external sensor adds 300 lb (all four are fitted by default); Senior Spear adds 400 lb.

Engine

Item	Value
Engine	GE F118
Rated thrust, sea level, static	about 17,000 lb at full throttle
Ground idle, sea level	about 60 % N2 / 22 % N1
Idle thrust, low down	about 370 lb, held by the engine control up to about 160 KIAS
Flight idle, above about 18,000 ft	about 80 - 85 % N2 / 65 - 75 % N1
Light-off on a ground start	18 % N2 or more (throttle to IDLE at 20 %)
Starter cut-out	50 % N2
Thrust in SEC, full throttle	up to 10 % less than in PRI (no throttle stop)
Airstart (emergency start system)	25,000 ft or lower, 90 KIAS or more (any speed below 10,000 ft), one attempt

The limits below are shown on SYS → PERF in red or yellow, and raise an MFD alert. See System Pages and Warnings and Alerts.

Parameter	Normal	Limit and alert
N1	about 22 % at ground idle, 92 - 96 % at full throttle	Readout red above 100 %. N1 FAN OVERSPEED above 102 %.
N2	about 60 % at ground idle, 96 - 101 % at full throttle	Readout red above 106.3 %. N2 CORE OVERSPEED above 106.3 %, or above 105.8 % for 10 seconds.

Parameter	Normal	Limit and alert
EGT	about 420 °C at ground idle, 760 °C at full throttle on takeoff (830 °C on a day 20 °C above standard), 650 - 725 °C at climb power	Running (N2 above 55 %): red and EGT HIGH from 842 °C. In a start: above 890 °C, or 843 °C for 10 seconds.
Oil pressure	about 22 psi at idle, 50 psi at full power	OIL and ENG OIL PRESS LOW at 10 psi or less (not on the ground below 55 % N2). ENG OIL PRESS HIGH at 75 psi for 10 seconds.
Oil temperature	-	ENG OIL TEMP HIGH at 160 °C, LOW at -40 °C.
Oil quantity	12 qt when full, in level flight. The reading changes in a climb or a descent.	ENG OIL QTY LOW below 8 qt. Read it in level flight.
Hydraulic pressure	about 3,000 psi	HYD below 2,500 psi. HYD PRESS LOW below 2,850 psi on the ground (above 55 % N2) or 2,800 psi in the air, for 5 seconds. HYD PRESS HIGH above 3,250 psi for 5 seconds, or above 3,500.
Fuel pressure	15 - 19 psi, two pumps	FUEL PRESS LOW below 8 psi, FUEL PRESS HIGH above 25.
Sump quantity	about 70 gal (50 on the outboards)	FUEL SUMP and FUEL SUMP LOW at about 38 gal.

In PRI the engine control holds the EGT at 840 °C, just under EGT HIGH; in SEC nothing holds it, and full throttle above about 55,000 ft runs past 842 °C. Hold 650 - 725 °C with the vernier up there.

The MEC cuts the fuel if N2 reaches 110.25 %; bring the throttle below 10 % to clear it. Past a limit you get the alert; the engine is not damaged.

Speed Limits

The U-2's speed limit changes with altitude and with the gust-control setting. The PFD and SFD draw it as a red band, and the speed digits turn red when you pass it. The lower of the airspeed and Mach limits applies.

Altitude	Airspeed limit	Mach limit
Below 30,500 ft	181 KIAS wing faired 241 KIAS gust control UP	M .751
30,500 - 42,999 ft		M .651
43,000 - 49,499 ft	181 KIAS either way	M .751
49,500 ft and above	none	

Alert	Comes on
AIRSPEED and AIRSPEED HIGH	From 180 KIAS wing faired, 230 KIAS gust control UP - at any altitude.
AIRCRAFT OVERSPEED	At or past the red band, airspeed or Mach.
MACH RATE	When, at your present rate of acceleration, you will reach M .75 within 5 seconds.

Alert	Comes on
AIRSPEED DEVIATION / MACH DEVIATION	Only if you set the PFD speed limit monitors (L1 A/S).

Performance Calculator

Stall speeds, takeoff and landing speeds and distances, the cruise ceiling and the fuel for a trip, for your fit and your conditions. It is the calculator of the Datalink portal, on the same aircraft numbers (flight model, engine tables and the EFB fuel model). Your entries are kept in this browser.

Loading the calculator...

Cruise Techniques

The ◇ **Technique** selector on the CONFIG tab sets how the cruise is flown. The fuel, range and cruise altitude figures change with it.

Technique	How it is flown	Result
Long-range cruise	Full throttle climb, then Mach 0.715 at 3,000 ft below the altitude where the climb rate falls to 100 ft/min. The speed stays at least 10 kt above the stall, and the altitude stays at 80,000 ft or lower. As the fuel burns, the aircraft climbs slowly.	The throttle is below full in the cruise. This gives the lowest fuel burn for each NM and the longest range.
Max-altitude cruise	Full throttle all the time. The aircraft climbs until the climb rate falls to 50 ft/min, then holds the altitude. This is the method of the EFB fuel planner.	A higher cruise altitude, with 25 - 35 % more fuel for each NM than the long-range cruise.

Use the max-altitude cruise to get the same figures as the EFB in the aircraft. Use the long-range cruise to plan for the maximum distance. For the technique in flight, see High Altitude and the Cruise Climb.

Altitude limit	Value
Altitude the autopilot can hold	up to 75,000 ft
Flaps	none above 45,000 ft
Airstart	25,000 ft or lower
Cabin pressure differential	3.88 psi (canopy seal ON)

Load Factor

Flaps	Positive	Negative
Up	+4.0 g	-3.2 g
Down	+2.8 g	-2.4 g

Structural limits of the flight model. MSFS applies them only with its aircraft stress damage option on. There is no g warning: watch the PFD G meter. Less than 0.2 g for more than about 1.5 seconds gives AMAD and AMAD OIL PRESS LOW.

Related pages: High Altitude and the Cruise Climb · Fuel System · Engine Start and Cockpit Controls

Miltech Simulations U-2. SIMULATION USE ONLY. This documentation describes the simulated aircraft as delivered in the add-on and must not be used for real-world aviation.