CGS HAWK
ARROW II
USER MANUAL

Microsoft **Flight Simulator**

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The Hawk Arrow II is a single-engine, 2-seat ultralight airplane developed and manufactured by CGS Aviation of the United States. The Arrow II is an evolutionary iteration of the CGS Hawk, which took its maiden flight in February of 1982. Pilots know the Hawk Arrow II as an exceptional aircraft for a broad spectrum of operations, from flight instruction to cross-country touring.

The Hawk Arrow II traces its origins to the work of NASA researcher and hang gliding pioneer Chuck Slusarczyk. In 1971, Slusarczyk started Chuck's Glider Supplies to develop and market hang gliders and associated components for the sport. His design process led him to experiment with power systems for hang gliders in 1973, which culminated in the United States Patent "Powered Hang Glider with Reduction Drive."

During his development process, Slusarczyk made several test flights with powered hang gliders and early ultralights. In 1981, he began designing the initial Hawk prototype with his company, renamed CGS Aviation. The model comprised an enclosed cockpit, a strut-braced main wing, wing flaps, a pusher configuration propulsion system, and full 3-axis controls. Slusarczyk unveiled the Hawk in March of 1982 at the Sun 'n Fun International Fly-In and Expo in Florida where it won an award for best new design. The original Hawk proved to be a commercial success, and several evolutionary iterations followed, including the renowned Hawk Arrow II.

The Hawk Arrow II is one of the most advanced designs in the world of ultralights. It is constructed of lightweight aluminum alloy and high-durability fabric. It features an enclosed cockpit with tandem seating, refined 3-axis controls, and a sloping canopy that maximizes pilot visibility. Its strut-braced main wing has a semi-symmetrical airfoil and has fully functioning flaps in addition to its ailerons. The tail boom is curved to keep downwash from the main wing from aerodynamically interfering with the horizontal stabilizer, even with flaps deployed. It is available with fixed tricycle landing gear or a fixed standard undercarriage.

The Hawk Arrow II is powered by a Rotax 912 4-cylinder piston engine that generates up to 100 horsepower and turns a 3-blade DUC fixed-pitch propeller. The Hawk Arrow II cruises at up to 80 miles per hour, stalls at 35 mph, and has a climb rate of up to 1,200 feet per minute.

ROLE: Ultralight/Light-sport aircraft
MANUFACTURER: CGS Aviation
MODEL: Hawk Arrow II – STOL PACK
ORIGIN: USA
FIRST FLIGHT: January 1982
COMMERCIALISATION: March 1982
STATUS: in production
NUMBER BUILT: 1712

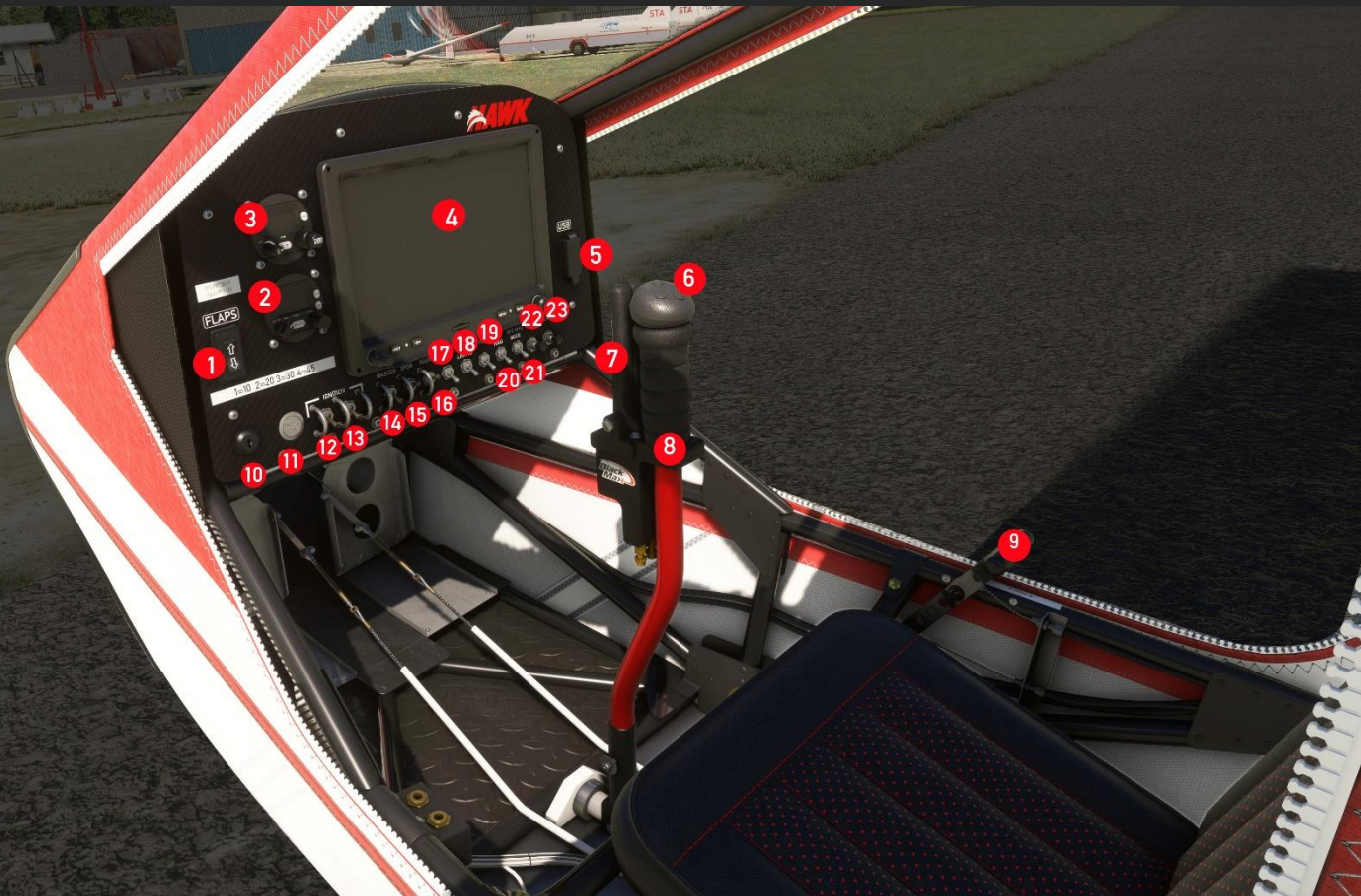**COCKPIT SEATING:** Tandem 2-seat
LENGTH: 20ft 10in/6.27m
WINGSPAN: 28ft 10in/8.79m
HEIGHT: 4ft 6in/1.37m
WING AREA: 135sq ft/12.5m2
EMPTY WEIGHT: 310lb/141kg
GROSS WEIGHT: 600lb/272kg
FUEL CAPACITY: 2x5US gallons/19l
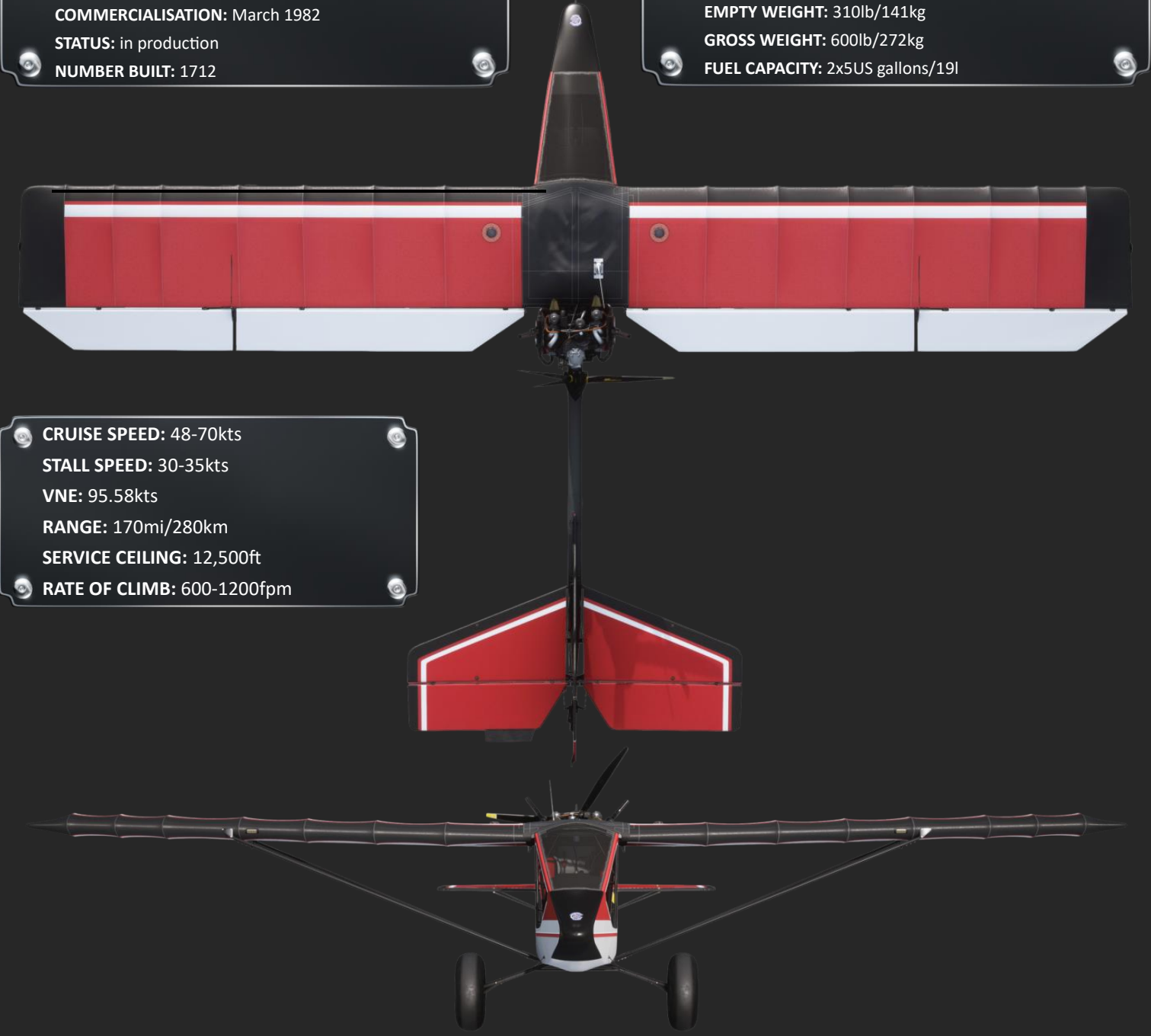
CRUISE SPEED: 48-70kts
STALL SPEED: 30-35kts
VNE: 95.58kts
RANGE: 170mi/280km
SERVICE CEILING: 12,500ft
RATE OF CLIMB: 600-1200fpm

COCKPIT OVERVIEW

1. 2 POSITION FLAPS SWITCH
2. TRANSPONDER
3. RADIO
4. GARMIN G3X TOUCH
5. USB CONNECTOR
6. TRIM BUTTONS
7. LEFT AND RIGHT BRAKE LEVER
8. STICK
9. THROTTLE AND CHOKE LEVER
10. CIRCUIT KEY BREAKER
11. STARTER BUTTON
12. IGNITION LEFT
13. IGNITION RIGHT
14. MASTER SWITCH
15. XPDR SWITCH
16. RADIO SWITCH
17. PRIME SWITCH
18. NAV LIGHTS
19. STROBE
20. WIGWAG
21. WIGWAG MODE
22. AUX1 BREAKER
23. AUX2 BREAKER

ENGINE

The **ROTAX 912 ULS** is a popular four-stroke aircraft engine designed by the Austrian company BRP-Rotax, primarily used in light aircraft and ultralights. It is known for its reliability, fuel efficiency, and relatively low weight, making it a preferred choice for light aviation.

This engine is widely used in various types of light sport aircraft (LSA), ultralights, gyrocopters, and even some drones. Its balance of performance, reliability, and low operational cost has made it a top choice for aircraft manufacturers and recreational pilots alike.

Engine type: Four-cylinder, four stroke, horizontally opposed engine, air and liquid cooled

Displacement: 1.352cm3

Power output: 100hp at 5,800RPM

Fuel: Standard gasoline or Avgas

Compression Ratio: 10.5:1

Fuel Efficiency: The 912ULS is highly fuel-efficient, consuming about 15-20 liters per hour at cruising speeds, depending of the aircraft configuration

Durability: The Engine has a TBO of up to 2,000 hours which is impressive for this class of engine.

Lightweight: Weighing approximately 64kg

Altitude performance: The engine performs well at higher altitudes, thanks to its relatively high power-to-weight-ratio and fuel management

Maintenance: Known for being easy to maintain with accessible parts, and its modular design simplifies servicing

CHECKLIST

START UP		
1	Parking brake	**ON**
2	Battery	**ON**
3	Strobe lights	**ON**
4	Navigation lights	**ON**
5	Magnetos	**ON**
6	Throttle	**10%**
7	Strobe Lights	**ON**
8	Throttle	**40% 2100 RPM**
9	Starter	**ON**
10	"CLEAR PROP"	**START ENGINE**
11	Check RPM	**2000 RPM**
12	Check Oil	**CHECK**
TAKE OFF CHECKLIST		
1	Parking Brake	**ON**
2	Flight controls	**FREE**
3	Throttle	**IDLE**
4	Flaps	**10°**
5	Throttle	**FULL**
6	Flaps	**UP ABOVE 300ft**
SHUT DOWN		
1	Throttle	**IDLE**
2	Landing lights	**OFF**
3	Strobe lights	**OFF**
	Navigation lights	**OFF**
	Magnetos	**OFF**
	Battery	**OFF**