

# Katana DA20-A1

All specifications are subject to change without notice. Illustrations may show optional equipment.

## Powerplant

Bombardier Rotax 912F3, 81 hp, four-cylinder, horizontally opposed

## Specifications

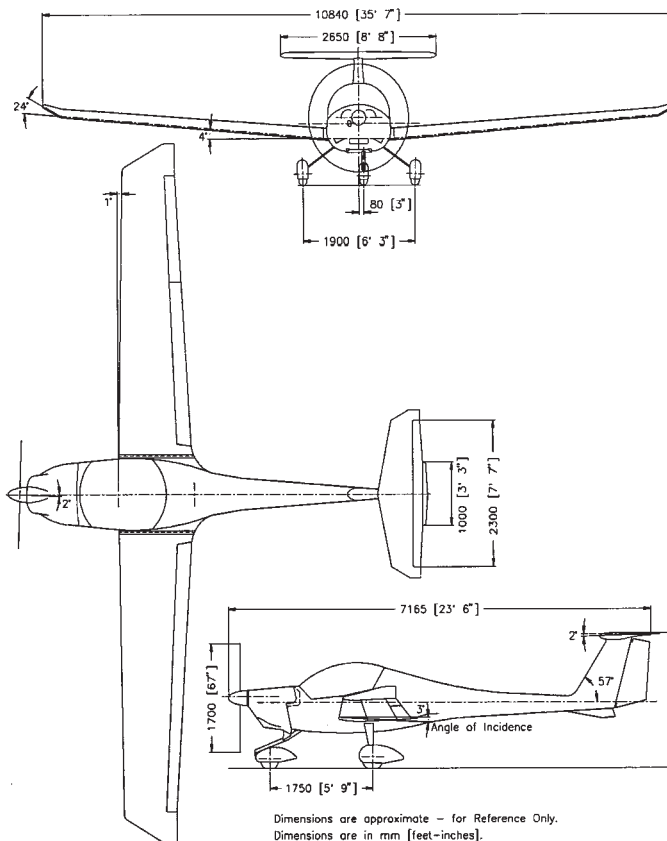
Recommended TBO ..... 1,200 hr  
 Length ..... 23 ft 6 in  
 Height ..... 6 ft 11 in  
 Wingspan ..... 35 ft 7 in  
 Wing Area ..... 125 sq ft  
 Wing Loading ..... 12.9 lb/sq ft  
 Power Loading ..... 19.7 lb/hp  
 Seats ..... 2  
 Empty weight, typical ..... 1,095 lb  
 Maximum gross weight ..... 1,609 lb  
 Payload w/full fuel ..... 394 lb  
 Fuel capacity, std ..... 20.1 gal  
 (19.5 gal usable)  
 Oil capacity ..... 3.2 qt

## Performance

Takeoff distance, ground roll ..... 1,120 ft  
 Takeoff distance over 50-ft obstacle ..... 1,560 ft  
 Max demonstrated crosswind component ..... 15 kt  
 Rate of climb, sea level ..... 680 fpm  
 Cruise speed/fuel consumption 7,500 feet @ 75% power, best economy ..... 117 kt/4.3 gph  
 Service ceiling ..... 14,000 ft  
 Landing distance over 50 ft obstacle ..... 1,490 ft  
 Landing distance, ground roll ..... 748 ft

## Limiting and Recommended Airspeeds

V<sub>x</sub> (best angle of climb) ..... 57 kias  
 V<sub>y</sub> (best rate of climb) ..... 65 kias  
 V<sub>a</sub> (design maneuvering) ..... 104 kias  
 V<sub>fe</sub> (max flap extended) ..... 81 kias  
 V<sub>no</sub> (max structural cruising) ..... 118 kias  
 V<sub>ne</sub> (never exceed) ..... 161 kias  
 V<sub>s</sub> (stall, clean) ..... 41 kias  
 V<sub>so</sub> (stall, in landing configuration) ..... 37 kias



Dimensions are approximate - for Reference Only.  
 Dimensions are in mm [feet-inches].

## AFTER SALE & CUSTOMER SUPPORT

**Technical & Parts Support**  
 Factory technicians available 7 days a week for technical and A.O.G. parts support.

**Maintenance Training**  
 A five day course, comprised of four days of engine, propeller and airframe system s/troubleshooting procedures, and one day of composite theory and practical repair workshop.

**Field Service Support**  
 Factory technician network available for onsite training, troubleshooting, and repairs.

**Warranty**  
 Airframe: 2 year "tip to tail" parts and labor warranty with unlimited hours. 10 year, 12,000 hr warranty on major structural components.  
 Engine: 1 year or 200 hrs parts and labor. Parts prorated to TBO.  
 Propeller: 1 year or 500 hours parts and labor prorated to TBO.  
 Avionics: Manufacturer 's warrant y.

**Repair and overhaul**  
 Engine: overhaul and factory exchange engines available, including "firewall forward" quick engine changes (OEC).  
 Propeller: overhaul and factory exchange propellers available.

# Katana DA20-A1

The DA20-A1 Katana is a two seat aircraft designed and manufactured by Diamond Aircraft Industries of London, Canada. It is principally intended for primary flight training.

The DA20-A1 Katana features advanced composite structure, single engine, conventional configuration with low wing, T-tail, and tricycle landing gear.

The design of DA20-A1 Katana is based on the DV20 Katana, designed and manufactured by Diamond (HOAC) Aircraft of Austria. The DV20 was type certified by Austrian and German Airworthiness Authorities in 1993, and by Canadian and American Airworthiness Authorities in 1994.

The principal differences are detail design improvements and changes to facilitate production with usage of North American standard parts and materials.

## Approval

The Katana is currently certified for day/night VFR operations and spinning in Canada and the United States as well as being certified by Airworthiness Authorities in the United Kingdom, Austria, Germany, Switzerland, Holland, Turkey, Portugal, France, Australia, Denmark, Czech Rep., Italy, Russia, and South Africa.

## Fuselage

The fuselage is of GRP (Glass Reinforced Plastic) construction with local CRP (Carbon Reinforced Plastic) reinforcement in high stress areas.

The stressed fuselage skin is primarily made of single GRP laminate with local GRP/PVC-foam/GRP sandwich construction to increase stiffness and reduce noise. The two fuselage shells (halves) are bonded together along the joint flange in the vertical plane. Internal structure consists of the firewall, a number of transverse bulkheads, a longitudinal bulkhead in the tail tube (cone), and a main bulkhead (spar bridge) that receives the wing spar stubs. The vertical stabilizer is integrated with the fuselage.

The fixed seat shells are of GRP construction (rudder pedals are adjustable). Aft of the seats a baggage compartment is provided. Baggage is secured with a fabric net. The fuel tank is located beneath the baggage

compartment. The one-piece canopy provides excellent visibility and tilts up and back to provide unrestricted cockpit access.

## Wings

The wing section is a Wortman FX 63-137/20 HOAC laminar profile. The inner 50% of the wing span features flaps for take-off and landing. Each wing is attached to the fuselage with three bolts: two transverse at the root rib, and one longitudinal through the spar bridge and the wing spar stub.

The wing skins are of GRP/FOAM/GRP sandwich construction. The I-section spar is constructed of CRP poltruded spar caps that are joined with a GRP/FOAM sandwich construction spar web.

Several ribs provide mounting surfaces for guides of control tubes and support for control bellcranks. The flaps are actuated electrically via mechanical linkages that also provide synchronization. The ailerons are actuated via steel control tubes and aluminum bellcranks.

The left wing approximately one foot inboard of the wing tip houses individual quartz halogen landing and taxi lights.

## Landing Gear

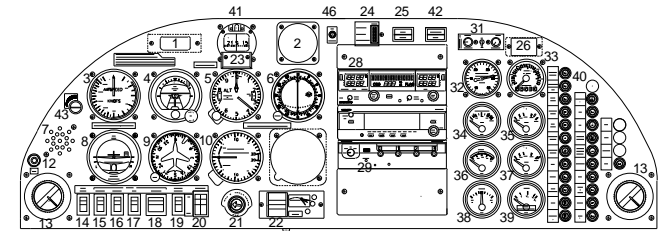
The conventional tricycle landing gear is non-retractable. The main gear struts are aluminum. The nose gear strut is steel tube sprung via an elastomeric spring pack. Steering is provided by differential braking of the main wheels and the friction damped castoring nose wheel.

## Powerplant

The engine is a Rotax 912F3 with a take-off power rating of 81HP (DIN). The 912F3 is a horizontally opposed 4-cylinder, 4-stroke engine. It features liquid cooled cylinder heads, dual ignition, dry sump lubrication, dual carburetors, and a propeller drive reduction gear box (2.2727:1).

The engine features an integral 20A alternator directly driven by the crankshaft and a 40A alternator which is belt driven off the pulley that is mounted to the propeller drive flange. The DA20-A1 Katana uses the 40A alternator to power avionics, instruments and electrical accessories. The integrated 20A alternator is used exclusively to power the dual capacitance

## Instrument Panel



- |                            |                        |                                   |
|----------------------------|------------------------|-----------------------------------|
| 1. Outside Air Temp Ind.   | 17. Taxi Light Switch  | 33. Tachometer                    |
| 2. Not used                | 18. Nav. Light Switch  | 34. Oil Pressure Ind.             |
| 3. Air Speed Ind.          | 19. Avionics Master    | 35. Oil Temp. Ind.                |
| 4. Artificial Horizon Ind. | 20. Master Switch      | 36. Voltmeter                     |
| 5. Altimeter               | 21. Ignition Switch    | 37. Cylinder Head Temp. Indicator |
| 6. CDI                     | 22. Flap Control       | 38. Ammeter                       |
| 7. Stall Warning Horn      | 23. Compass Card       | 39. Fuel Indicator                |
| 8. Turn and Bank Ind.      | 24. Trim Indicator     | 40. Circuit breakers              |
| 9. Directional Gyro        | 25. Annunciator Lights | 41. Compass                       |
| 10. Vertical Speed Ind.    | 26. Hobbs Meter        | 42. Canopy Locking Warning Light  |
| 11. Not used               | 27. Not used           | 43. I-Panel Reostat               |
| 12. Microphone Jack        | 28. Radio              | 46. Trim Ind. Dimmer              |
| 13. Air Vent               | 29. Transponder        |                                   |
| 14. Fuel Pump Switch       | 30. Not Used           |                                   |
| 15. Strobe Light Switch    | 31. Intercom           |                                   |
| 16. Landing Light Switch   | 32. Manifold Pressure  |                                   |

discharge, electronic ignition system.

The engine mount is of conventional welded steel tubing construction.

The hydraulically controlled, 2 blade constant speed propeller is the Hoffmann HO-V352F. The prop blades are of wood core construction, with composite skins and aluminum or polycarbonate bonded edge inserts.

The GRP firewall is clad with insulating Fibrefrax and stainless steel skin. Cowlings are fire protected by fire resistant paint.

## Empennage

The rudder halves are of GRP/foam/GRP sandwich construction. The rudder is cable actuated via dual, adjustable pedals. The horizontal stabilizer and elevator are GRP/Foam/GRP sandwich construction with local CRP reinforcement. The anti-servo tab is made of CRP.

The elevator is actuated by steel control tubes. Centering and increased control forces are provided by two compression coil springs mounted concentric to the vertical push-pull tube of the elevator control system. The common spring base can be moved by an electric actuator

which provides elevator trimming function.

## Electrical/ Avionics

Electric power (nominal 12 V) is provided by the 20 A/hr battery and the 40A alternator which features internal voltage regulation. The alternator is belt driven off the propeller shaft drive flange pulley. Electric power is supplied to the user systems via the main or avionics bus, as applicable. Circuit protection is provided by resettable panel mounted circuit breakers for each circuit.

Instrumentation and Avionics equipment is tailored to individual customer requirements. A typical equipment suite and layout are depicted in the above diagram.

## Documentation

The following documentation is available:

- *Airplane Flight Manual*
- *Airplane Maintenance Manual*
- *Airplane Illustrated Parts Catalogue*
- *Miscellaneous Vendor Technical Documentation (i.e. Engine, Propeller, Avionics etc.)*

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