

# Checklist

## Diamond

Katana  
DA20-C1



Ace Aviation, Inc.

### Preflight Inspection

#### I. In-Cabin Check

Structural Temperature Indicator  
(if OAT is greater than 100°F).....Check  
Airplane Documents (A.R.O.W.).....Check  
Flight Control Lock.....Removed  
Flight Controls.....Correct  
Ignition Key.....Pulled Out  
Cabin Heat.....Off  
Parking Brake.....Free  
Throttle.....Idle  
Mixture.....Idle Cutoff  
GEN/BAT Master Switch.....On  
Warning Lights (Gen. & Canopy).....Illuminated  
Fuel Quantity.....Sufficient  
Engine Gauges, Ammeter & Voltmeter.....Check  
Circuit Breakers.....Pressed In  
Map Light.....Operational  
Interior Lights.....Operational & Dimmable  
Trim & Indicator.....Neutral & Check  
Flaps & Indicator.....Extend, Retract & Check  
Exterior Lights.....As Required  
GEN/BAT Master Switch.....Off  
ELT.....Armed  
Fire Extinguisher/Hammer.....Check  
Baggage.....Stowed, Baggage Net Attached  
Canopy.....Clean

#### II. Left Main Landing Gear

Strut/Wheel Fairing.....Inspect  
Tire Pressure (33psi).....Check  
Tire, Wheel, Brake.....Inspect

#### III. Left Wing

Leading Edge.....Check  
Stall Warning Hole.....Check  
Pitot-Static Probe.....Clean, Hole is Open  
Tie Down.....Remove  
Aileron/Flap.....Check

#### IV. Fuselage

Skin.....Inspect  
Fuel Vent.....Check  
Fuel Drains.....Drain Water  
Antennas.....Inspect

#### V. Empennage

Stabilizers & Control Surfaces/Cables.....Check  
Trim Tab on Rudder.....Check  
Tie Down.....Remove

#### VI. Right Wing

Aileron/Flap.....Check  
Tie Down.....Remove  
Leading Edge.....Check

**VII. Right Main Landing Gear**

Strut/Wheel Fairing.....Inspect  
 Tire Pressure (33psi).....Check  
 Tire, Wheel, Brake.....Inspect

**VIII. Nose**

Oil (4-6 quarts).....Check  
 Cowling.....Inspect  
 Air Intakes.....Clear  
 Propeller/Spinner.....Check  
 Nose Gear/Wheel Fairing.....Check  
 Tire Pressure (26psi).....Check  
 Tire, Wheel.....Inspect  
 Wheel Chocks.....Remove

**Contacts**

Flight Service.....1800-WX-BRIEF  
 Reno FSS.....122.5  
 Flight Watch.....122.0  
 Emergency.....121.5

**Airports**

Beckwourth (O02) CTAF.....122.8  
 TPA.....5700  
 Carson City (CXP) AWOS / CTAF.....119.925 / 123.0  
 TPA.....5497  
 Minden (MEV) AWOS / CTAF.....119.325 / 123.05  
 TPA.....5700  
 Lake Tahoe (TVL) ASOS / CTAF.....124.725 / 122.95  
 TPA.....7500  
 Lovelock (LVL) ASOS / CTAF.....120.675 / 122.8  
 TPA.....4704  
 Reno (RNO) ATIS.....135.85  
 Apch N.....126.3  
 Apch S.....119.2  
 Tower.....118.7  
 Ground.....121.9  
 Clearance.....124.9  
 TPA.....5215  
 Sierraville (O79) CTAF.....122.9  
 TPA.....5784  
**Stead (4SD) AWOS / CTAF.....135.175 / 122.7**  
**UNICOM (M-F 8:00am-5:00pm).....122.775**  
**TPA.....5800**  
 Susanville (SVE) AWOS / CTAF.....133.8 / 122.8  
 TPA.....4949  
 Truckee (TRK) AWOS / CTAF.....118.0 / 122.8  
 TPA.....7000

**Airspeed Limitations**

Maneuvering V<sub>A</sub>.....106kts  
 Flap Extended V<sub>FE</sub>.....78kts  
 Max Cruising V<sub>NO</sub>.....118kts  
 Never Exceed V<sub>NE</sub>.....164kts  
 Stall Speed V<sub>SO</sub>.....34kts

**Weight and Moment**

Empty Weight.....1231 lbs  
 Max Useful Load.....533 lbs  
 Max Weight.....1764 lbs  
 Max Wt in Baggage Compartment.....44 lbs  
 Empty Moment.....12051.49 in/lbs

**Before Starting Engine**

Preflight Inspection.....Completed  
 Pedals.....Adjusted  
 Passenger Briefing.....Completed  
 Safety Belts.....Fasten  
 Parking Brake.....Set  
 Flight Controls.....Free  
 Fuel Shut-off Valve.....Open  
 Mixture.....Full Rich  
 Throttle.....Full  
 Avionics Master Switch.....Off  
 BAT Master Switch.....On  
 Exterior & Interior Lights.....As Required  
 Canopy.....Closed/Lock  
 Canopy Unlock Warning Light.....Off

**Starting Engine**

Toe Brakes.....Hold  
 Propeller Area.....Clear  
 Fuel Pump.....On  
 Fuel Primer.....On (10 sec)  
 Throttle.....1/2" from Idle  
 Fuel Primer.....Off  
 Ignition Switch.....Start  
 Throttle.....1000RPM  
 Engine Gauges.....Check  
 GEN Master Switch.....On  
 Warning Lights.....Push to Test  
 Fuel Pump.....Off  
 Mixture.....Lean  
 Avionics Master Switch.....On  
 Parking Brake.....Release

**Taxi**

Brakes.....Test  
 Flight Instruments.....Check  
 Avionics.....Check  
 Compass.....Check

### Before Take-off

Brakes.....Apply  
Safety Belts.....Fastened  
Canopy.....Closed/Locked  
Fuel Pressure.....Check  
Fuel Shut-off Valve.....Open  
Fuel Quantity Indicator.....Check  
Fuel Primer.....Off  
Fuel Pump.....On  
Trim.....Neutral  
Flight Controls.....Free/Correct  
Oil Pressure.....Check  
Throttle.....1700RPM  
Magneto Check (25-150) drop.....Check  
Electrical Load.....Check  
Vacuum Gauge.....Within Green  
Heading Indicator.....Set  
Throttle.....1000RPM  
Flaps.....T/O  
Transponder.....Alt  
Parking Brake.....Release

### Take-off & Climb

Fuel Prime.....Off  
Fuel Pump.....On  
Mixture (under 3000MSL).....Full Rich  
Throttle.....Full  
Trim.....Neutral  
Directional Control.....Use Rudder  
Rotate.....50kts  
Climb.....70kts (58kts short field)  
Flaps.....Up  
Engine Gauges.....Within Green  
Trim.....Adjust

### Cruise

Fuel Pump.....Off  
Throttle.....As Required  
Mixture.....Lean  
Trim.....As Required  
Engine Gauges.....Check

### Descent

Flight Instruments.....Adjust  
Fuel Pump.....On  
Mixture.....As Required  
Throttle.....As Required

### Balked Landing

Throttle.....Full  
Mixture.....As Required  
Flaps.....T/O  
Airspeed.....58 KIAS

### Landing

Seat Belts.....Fastened  
Lights.....As Required  
Fuel Pump.....On  
Mixture.....Adjust  
Throttle.....1500RPM  
Flaps.....As Required  
Throttle.....As Required  
Final.....Trim for 60kts

### Pre-Maneuver

Area.....Clear  
Fuel Pump.....On  
Mixture.....As Required  
Throttle.....As Required  
Radio Call.....Complete

### Flight in Rain

Performance might be reduced, especially for the T/O-distance and the max horizontal air speed. The influence on flight characteristics is negligible. Flights through heavy rain should be avoided.

### Idle Power Operations

When engine speed falls below 1000 RPM (e.g., stalls, spins, descents, landings, taxiing, etc.)  
Fuel Pump.....On  
Mixture.....As Required  
Throttle.....Idle

### Shutdown

Transponder.....Standby  
Fuel Pump.....Off  
Avionics Master.....Off  
\*DO NOT GROUND CHECK\*  
Throttle.....1000RPM  
Lights.....Off  
Mixture.....Idle Cut-Off  
GEN/BAT Master Switch.....Off  
Ignition Key.....Off

### Securing

Ignition Key.....Remove & Secure  
Cockpit Area.....Clean

### If Hanged

Engine Heating System.....Install and On

### If Tied Down

Flight Control Lock.....Install  
Stall Warning Hole Cover.....Install  
Pitot-Static Probe Cover.....Install  
Wheel Chocks (Nose Wheel).....Place  
Tie-Downs (Wings and Tail).....Attach  
Canopy Latch Handles.....Close  
Canopy Cover.....Install

## EMERGENCY PROCEDURES

### Transponder Codes

Hijacking.....	7500
Lost Comm.....	7600
Emergency.....	7700

### Airspeeds (Kts)

Engine Failure After Take-off.....	58
(Flaps T/O)	
Maneuvering.....	106
For Best Glide Angle (Flaps CRUISE.....	73
& Max Gross Wt.: 1720 lbs.)	
Precautionary Ldg (Power and Flaps LDG).....	52
Ldg With Engine Off (Flaps T/O).....	58
Ldg With Engine Off (Flaps LDG).....	52
Ldg With Engine Off (Flaps CRUISE).....	62

### Engine Failures

#### Failure During Take-Off Run

Throttle.....	Idle
Brakes.....	As Required
Flaps.....	Up
Mixture.....	Idle Cut-Off
Ignition Switch.....	Off
GEN/BAT Master Switch.....	Off

#### Failure After Take-Off

Airspeed.....	58kts
Throttle.....	Full
Mixture.....	Full Rich
Alternate Air.....	Open
Fuel Shut-off Valve.....	Open
Ignition Switch.....	Both
Fuel Pump.....	On

#### Shortly Before Landing:

Mixture.....	Idle Cutoff
Fuel Shut-off Valve.....	Closed
Ignition Switch.....	Off
Flaps.....	As Required
GEN/BAT Master Switch.....	Off

### If Engine Does Not Restart

Airspeed.....	73kts
Wind.....	Note Direction
Select Landing Point.....	Execute
Mixture.....	Idle Cut-Off
Fuel Shut-off Valve.....	Closed
Ignition Switch.....	Off
Squawk.....	7700
Radio Call (Location & Intentions).....	121.5
Flaps.....	As Required
GEN/BAT Master Switch.....	Off
Airspeed.....	58kts

### Failure During Flight

#### Engine Running Roughly

Mixture.....	Full Rich
Alternate Air.....	Open
Fuel Shut-off.....	Open
Fuel Pump.....	On
Ignition Switch.....	Cycle L-R-Both
Throttle.....	At Present Position
No Improvement.....	Reduce Throttle to Min Required Power & Land at Nearest Airport

### Loss of Oil Pressure

Oil Temperature.....	Check
If Oil Drops Below 30psi.....	Land at Nearest Airport
If CHT does not rise.....	Reduce power and land at the nearest airport
If CHT starts to rise.....	Make a power off landing if it can be done safely

### Loss of Fuel Pressure

Fuel Pump.....	On & Land at Nearest Airport
If Fuel Pressure is not.....	Land at Nearest Airport Restored

### Restarting with Propeller Windmilling

Airspeed V <sub>IAS</sub> .....	60-73Kts
Mixture.....	Full Rich
Fuel Shut-off Valve.....	Open
Ignition Switch.....	Both
Fuel Pump.....	On
Fuel Prime.....	On
Throttle.....	3/4 in Forward

#### After Successful Re-Start:

Oil Pressure.....	Check
Oil Temperature.....	Check
Fuel Prime.....	Off
Electrical Equipment.....	On if Required

### Restarting with Propeller at Full Stop

Airspeed.....73Kts  
Electrically Powered Equipment.....Off  
GEN/BAT Master Switch.....On  
Mixture.....Full Rich  
Fuel Shut-off Valve.....Open  
Fuel Pump.....On  
Fuel Prime.....On  
Throttle.....3/4 in Forward  
Ignition Switch.....Start

A re-start may also be possible by increasing airspeed to 137Kts with a descent attitude. Expect a loss of 1000 ft.

#### After Successful Re-Start:

Oil Pressure.....Check  
Oil Temperature.....Check  
Fuel Prime.....Off  
Electrically Powered Equipment.....On if Required

### Gliding

Flaps.....CRUISE  
Airspeed  $V_{IAS}$  (at 1653 lbs).....73Kts  
Glide Ratio.....11:1  
11,000 ft (1.8NM) distance : 1,000 ft of altitude

### Fire

#### During Start

Fuel Shut-off Valve.....Closed  
Cabin Heat.....Closed  
Mixture.....Idle Cut-Off  
GEN/BAT Master Switch.....Off  
Ignition Switch.....Off  
Obtain Fire Extinguisher and Evacuate

#### During Flight

Fuel Shut-off Valve.....Closed  
Cabin Heat.....Closed  
Airspeed.....73-100kts  
Fuel Pump.....Off  
\*Flames Out\*  
Airspeed.....73kts  
Wind.....Note Direction  
Select Landing Point.....Execute  
Mixture.....Idle Cut-Off  
Fuel Shut-off Valve.....Closed  
Ignition Switch.....Off  
Squawk.....7700  
Radio Call (Location & Intentions).....121.5  
Flaps.....As Required  
GEN/BAT Master Switch.....Off  
Airspeed.....58kts

### Electrical Fire and Smoke on the Ground

GEN/BAT Master Switch.....Off  
**If Engine Running:**  
Throttle.....Idle  
Mixture.....Idle Cut-Off  
Fuel Shut-off Valve.....Closed  
Ignition Switch.....Off  
Canopy.....Open  
Fire Extinguisher.....As Required

### Electrical Fire and Smoke During Flight

GEN/BAT Master Switch.....Off  
Cabin Air.....Open  
Fire Extinguisher.....As Required  
Cabin.....Vent if using Fire Extinguisher  
Avionics Master Switch.....Off  
Electrical Equipment.....Off  
Circuit Breakers.....Pull All  
Circuit Breakers.....Push BATTERY  
BAT Master Switch.....On  
Circuit Breakers.....Push GEN & GEN CONTROL  
GEN Master Switch.....On  
Circuit Breakers.....Push AVIONICS and AVIONICS MASTER  
Avionics Master Switch.....On  
Circuit Breakers.....Push to activate systems as required  
Radio.....On  
Land ASAP

### Cabin Fire During Flight

GEN/BAT Master Switch.....Off  
Cabin Air.....Open  
Cabin Heat.....Closed  
Fire Extinguisher.....As Required  
Cabin.....Vent if using Fire Extinguisher  
Land ASAP

### Icing

Leave icing area through altitude or change of direction.  
Controls.....Continue to Move  
Alternate Air.....On  
Throttle.....Full  
Cabin Heat.....On/Defrost  
Airspeed and Alt.....May Be Wrong

### **Landing with Defective Main Gear Tire**

Flaps.....LDG  
Land on the side of runway opposite to the side with the defective tire.

Land with wing slightly tipped in the direction of the non-defective tire. The nose-wheel should be brought to the ground as soon as possible after touch-down.

Aileron should be fully applied in the direction of the non-defective tire.

### **Electrical Power Failure**

#### **Total Failure**

Battery Circuit Breaker.....If Tripped, Reset  
GEN/BAT Master Switch.....Check On  
Master Switch.....Off if power not restored  
If Unsuccessful.....Land at nearest airport

#### **Generator Failure**

GEN. Annunciator Illuminated  
GEN Master Switch.....Cycle Off - On  
Generator Circuit Breaker.....If Tripped, Reset  
Generator CONTROL .....If Tripped, Reset  
Circuit Breaker

If Generator can not be brought on-line, switch Off all non-flight essential electrical consumers. Monitor Ammeter and Voltmeter. Land at nearest airport.

*There is 30 minutes of battery power at a discharge load of 20 amperes when the battery is fully charged and properly maintained.*

#### **Low Voltage** (Needle in Yellow Arc)

##### **While on the Ground**

RPM.....Increase until needle is in the Green Arc. This should occur before exceeding 1100 RPM.

Non-flight Essential.....Switch Off until needle Electrical Consumers is in the Green Arc

If needle remains in the Yellow Arc and the ammeter is indicating to the left of center (discharge), discontinue any planned flight activity

##### **During Flight**

Non-flight Essential Electrical.....Switch Off Consumers

If needle remains in the Yellow Arc and the ammeter is indicating to the left of center (discharge), refer to

**Generator Failure** above

##### **During Landing**

After Ldg.....Refer to **Low Voltage** above

### **Flap System Failure**

#### **Flap Position Indicator Failure**

Flaps.....Visual Check  
Airspeed.....Within White Arc  
Flap Toggle Switch.....Check all positions  
(flap stops are fail-safe)

Approach and Ldg.....Modify as Follows:

- Only CRUISE available:
  - raise approach speed by 10 kts
  - throttle as required
  - flat approach angle
- Only T/O available:
  - normal approach speed
  - throttle as required
  - flat approach angle
- Only LDG available:
  - normal landing

#### **Starter Does Not Disengage After**

#### **Starting the Engine** (Start Light Remains Illuminated)

Throttle.....Idle  
Mixture.....Idle Cutoff  
Ignition Switch.....Off  
Discontinue any planned flight

### **Avionics System Failure**

#### **Total Failure**

Check Avionics Master Circuit Breaker. If popped, press and monitor status. If it pops again, land at nearest airport.

Check Avionics Master Switch. Toggle switch. If avionics system remains off-line, pull avionics master control circuit breaker. Land at nearest airport if operation is not restored.

#### **Radio System Operative** (No Reception)

Microphone Key.....Check for Stuck Microphone Key on Transceiver Display  
Headphones.....Check, Deactivate SQUELCH for a Few Moments. If SQUELCH Not Heard, Check Headset Connection

#### **Radio System Operative** (Transmitting Not Possible)

Selected Frequency.....Check if correct  
Microphone.....Check. If Available, Use Different Headset.

Problem cannot be resolved: switch transponder (if operating) to "7600" if required by the situation.

### Trim System Failure

#### Stuck Trim

Circuit Breaker.....If Tripped, Reset  
Rocker Switch.....Depress in both directions.  
Wait 5 minutes. Try again.

Land at nearest airport

#### Runaway of Trim

Control Stick.....Grip and Maintain Control  
Trim Motor Circuit Breaker.....Pull  
Rocker Switch.....Check if Depressed  
If reason for runaway condition is obvious and has been resolved, push in (engage) circuit breaker.

*Full travel of the elevator trim system will take approximately 10 seconds.*

#### Instrument Panel Lighting Failure

Rocker Switch, Map Light.....On  
Rocker Switch, I-panel Lighting.....Cycle Off - On  
Dimming Control.....Turn Fully Clockwise  
Internal Lighting Circuit Breaker.....If tripped, Reset  
If NOT Successful.....Use Flashlight  
Expect electrical power failure. Refer to **Electrical**

**Power Failure** above

#### Spin Recovery – P.A.R.E.

Power (Throttle).....Idle  
Ailerons.....Neutral  
Rudder.....Opposite of Spin  
Elevator (Control Stick).....Ease Forward  
Rudder.....Neutral after Spin Stops  
Control Stick.....Ease Stick Backward Cautiously  
Bring airplane from descent into level flight position.  
Do not exceed maximum maneuvering speed ( $V_A$ )

### Indicated Airspeeds for Normal Flight Operation

#### Take-Off

Climb for 50 ft obstacle.....58Kts  
Best Rate-of-Climb at sea level  $V_y$ .....75Kts  
Flaps CRUISE  
Best Angle-of-Climb at sea level  $V_x$ .....60Kts  
Flaps CRUISE  
Best Rate-of-Climb at sea level  $V_y$ .....68Kts  
Flaps T/O  
Best Angle-of-Climb at sea level  $V_x$ .....57Kts  
Flaps T/O  
Max Demonstrated Crosswind.....20Kts

#### Landing

Approach with Flaps LDG.....52Kts  
Balked Landing Climb with Flaps LDG.....52Kts  
Max Demonstrated Crosswind.....20Kts

#### Cruise

Max Permissible in Rough Air  $V_{NO}$ .....118Kts  
Max Permissible with Full Control.....106Kts  
Surface Deflections  $V_A$   
Max Permissible with Flaps T/O ( $V_{FE}$  T/O).....100Kts  
Max Permissible with Flaps LDG ( $V_{FE}$  LDG).....78Kts

#### Miscellaneous

Max Cruising Altitude (Std Cond).....13120 ft  
Max Useable Fuel.....24 US Gal  
Demonstrated Crosswind Component.....20Kts



#### Ace Aviation Contacts

775-247-4534  
775-338-2173  
775-750-0241  
775-843-3008  
775-846-9422

