



*The* **CAVU** *Pilot*

# **Diamond DA 40 Checklist**

and  
Quick Reference Handbook

2023

## V-Speeds

- V<sub>SO</sub>- 52 KIAS
- V<sub>S</sub>- 53 KIAS
- V<sub>R</sub>- 59 KIAS
- V<sub>X</sub>- 67 KIAS
- V<sub>Y</sub>- 76 KIAS
- V<sub>FE</sub>- 108 KIAS T.O.  
91 KIAS LDG
- V<sub>A</sub>- 108 KIAS >2161 lbs  
94 KIAS <2161 lbs
- V<sub>NO</sub>- 129 KIAS
- V<sub>NE</sub>- 178 KIAS
- Best Glide- 78 KIAS
- Max Crosswind- 20 Knots

## Fuel Capacity

	Total	Useable
Full	51 gal	50 gal

Max Imbalance: 8 gal

## Oil Capacity

Minimum: 4 Quarts

Maximum: 8 Quarts

### Note

Long Range Fuel Tanks are installed:

Auxiliary fuel below 3 US gal cannot be indicated by the system. If a fuel indicator shows 16 US gal and the auxiliary fuel indicator reads 0 US gal on the same side, for in-flight fuel consumption / flight planning a fuel quantity available of 16 US gal must be assumed.

# Diamond DA40 Checklist

## Pre-Flight Inspection

### Interior

Documents.....A.R.R.O.W.S  
Control Lock.....Remove  
Flight Controls.....Check  
Emer. Power Switch.....Secure  
Circuit Breakers.....Check  
Elevator Trim.....Set T.O.  
Fuel Valve.....Left or Right  
Mixture.....Cut-Off  
Propeller.....High RPM  
Throttle.....Idle  
Parking Brake.....Set  
ESS Bus.....Off  
Avionics Master.....Off  
Master Switch (*BAT only*).....On  
Magnetos.....Off  
Pitot Heat.....On  
Flaps.....Down  
Aircraft Lights.....All On  
Lights/Pitot Heat.....Check  
Lights/Pitot Heat.....Off  
Fuel Quantity.....Check  
Master Switch.....Off

### Exterior

Left Landing Gear.....Check  
Left Fuel Sump.....Sample  
Left Wing.....Check  
Stall Warning Port.....Clear  
Pitot Probe.....Check

Left Fuel Cap.....Secure  
Landing/Taxi Light.....Check  
Left Wing Tip & Light.....Check  
Left Aileron & Flap.....Check  
Rear Canopy.....Check  
Antennas.....Check  
Left Empennage.....Check  
Stabilizers.....Check  
Elevator.....Check  
Rudder.....Check  
Right Empennage.....Check  
Right Aileron & Flap.....Check  
Right Wingtip & Light.....Check  
Right Fuel Cap.....Secure  
Right Wing.....Check  
Right Main Gear.....Check  
Right Fuel Tank Sump..Sample  
Collector Tank.....Sample  
Exhaust.....Check  
Fresh Air Inlets.....Check  
Windshield.....Check  
Oil Quantity.....Check  
Engine Air Intakes.....Check  
Propeller.....Check  
Nose Gear.....Check  
Oil&Battery Breather.....Check  
Fresh Air Inlet.....Check  
Chocks.....Remove

**Rear Canopy.....Check Secure**

# Diamond DA40 Checklist

## **Before Start**

Front Canopy....Position 1 or 2  
**Rear Canopy...Latch & Secure**  
Passenger Briefing....Complete  
Seat belts.....Adjust & Secure  
Alternate Air.....Closed/Off  
Master Switch (*BAT only*)....On  
Strobe Light.....On

## **Engine Start**

Throttle..... $\frac{1}{4}$  inch Open  
Fuel Pump.....On  
Mixture:  
    • Rich for 3 seconds then lean  
Fuel Pump.....Off  
Starter.....Engage

### *When Engine Fires:*

Mixture.....Rich  
Throttle.....800-1000RPM  
Oil Pressure.....Check  
Mixture.....Lean 1 Inch  
Master Switch (*ALT*).....On  
Avionics Master.....On  
Flaps.....Retract

## **Pre-Taxi**

Fuel Totalizer.....Set  
LRU's.....Check  
Annunciator Test.....Check  
Autopilot.....Check

Electric Trim.....Check then T.O  
ATIS.....Obtain  
Flight Plan.....Enter  
Flight Instruments...Bug&Check

## **Run-Up**

Parking Brake.....Set  
Circuit Breakers.....Check  
Fuel Selector.....Switch Tanks  
Fuel Timer.....Start  
Fuel Pump.....On  
Mixture.....Rich  
Throttle.....2000 RPM  
Propeller.....Cycle 3 Times  
Magnetos.....Check  
(*175 Drop Max/50 Difference*)  
Engine Instruments.....Check  
Ammeter.....Check  
Fuel Pump.....Off  
Throttle.....Idle/1000 RPM

## **Before Takeoff**

Takeoff Briefing.....Complete  
Aircraft Lights.....Set  
Transponder.....Set  
Flaps.....Set  
Pitot Heat.....As Required  
Fuel Boost Pump.....On  
Propeller.....High RPM  
Mixture.....Set  
**Rear Canopy.....Latched/Secure**

## **Climb**

Flaps.....Up  
Throttle.....Full  
Propeller.....2400 RPM  
Fuel Pump.....Off  
Aircraft Lights.....Set

## **Cruise**

Pitot Heat.....As Required  
Cruise Power.....Set

- Reference Cruise Power Table (Page 15)

Mixture.....As Required

## **Descent**

ATIS.....Obtain  
Altimeter.....Set  
Aircraft Lights.....Set  
Mixture.....Set  
Fuel Selector.....Fullest Tank  
Approach Briefing.....Complete

## **Final Check**

Mixture.....Set  
Propeller.....High RPM  
Fuel Boost Pump.....On  
Flaps.....Set  
Approach.....Stabilized

## **After Landing**

Aircraft Lights.....Set  
Flaps.....Up  
Pitot Heat.....Off  
Fuel Boost Pump.....Off  
Mixture.....Lean  
Elevator Trim.....Set for Takeoff  
Flight Plan.....Closed

## **Shutdown**

Aircraft Lights.....Off  
Avionics Master.....Off  
Master Switch (*ALT only*).....Off  
Throttle.....IDLE RPM  
Magneto Check.....Complete

- Off then back to both

Throttle.....1200 RPM  
Mixture.....Cut-Off  
Magnetos.....Off  
Tachometer Time.....Record  
Hobbs Time.....Record  
Master Switch (*BAT*).....Off

## **Securing**

Flight Controls.....Secure  
Left Landing Gear.....Check  
Left Wing.....Check  
Left Aileron & Flap.....Check  
Left Empennage.....Check  
Stabilizers.....Check  
Elevator.....Check  
Rudder.....Check  
Right Empennage.....Check  
Right Aileron & Flap.....Check  
Right Wing.....Check  
Right Landing Gear.....Check  
Propeller.....Check  
Nose Landing Gear.....Check  
Pitot/Cowl Cover.....Install  
Canopy.....Closed & Locked  
Chock/Tie Down...As Required

**Emergency Procedures**

\*Boxed Items Should be Memorized\*

**Engine Failure Immediately After Takeoff**

Airspeed.....	Maintain Safe Airspeed
Canopy.....	Unlatch
Land.....	Straight Ahead

**Engine Failure During Flight**

Airspeed.....	78 KIAS
Place to Land.....	Pilot Option
Mixture.....	Push Full Rich
Propeller.....	High RPM
Fuel Boost Pump.....	On
Fuel Valve.....	Switch Tanks
Magneto Switch.....	Both
Starter.....	<i>(if propeller has stopped)</i> Engage

Engine Instruments.....Check  
Magneto Switch.....Check

**Power NOT Restored**

Proceed to Power-Off Landing Checklist on next page. (Page 8)

**Power Restored**

Land as soon as practical.

**Ditching**

Seats & Seat Belts.....Secure  
Canopy.....Unlatch  
Transponder.....7700  
Flaps.....Pilot's Discretion  
Touchdown.....Level Attitude

Evacuate Through Canopy or Back Door

## Power-Off Landing

Airspeed.....	78 KIAS
Place to Land.....	Pilot Option
Seats & Seat Belts.....	Secure

### If time and altitude permit:

Transponder.....	7700
Radio.....	Mayday Transmit
Mixture.....	Cut-Off
Throttle.....	Idle
Fuel Boost Pump.....	Off
Fuel Selector.....	Shutoff
Magneto Switch.....	Off
Master Switch.....	Off

## Engine Fire During Start

Starter.....	Continue Cranking
<b>If Engine Starts:</b>	
Power.....	2000 RPM for One Minute
Engine.....	Shutdown and Inspect
<b>If Engine Does NOT Start:</b>	
Starter.....	Continue Cranking
Throttle.....	Full Open
Mixture.....	Cut-Off
Fuel Boost Pump.....	Off
Fuel Selector.....	Off
Magnetos.....	Off
Master Switch(ALT&BAT).....	Off



## Engine Fire In Flight

Mixture.....	Cut-Off
Fuel Boost Pump.....	Off
Fuel Valve.....	Off
Airspeed.....	129 KIAS

Forced Landing.....Execute  
Proceed to Power-Off Landing Checklist on page 8.

## Cabin/Electrical Fire

Master( <i>ALT&amp;BAT</i> ).....	Off
Avionics Master.....	Off
Essential Bus.....	Off
Windows.....	Closed
Cabin Vents.....	Closed
Cabin Heat.....	Off
Fire Extinguisher.....	Activate

### After Fire is extinguished:

Windows.....Open  
Cabin Vents/Heat.....As Needed

### If Fire Appears Out and Electrical Power is Needed:

Electrical Switches (*Except Magnetos*).....All Off  
Circuit Breakers.....Do NOT Reset  
Essential Bus.....On  
Electrical Switches.....On, One at a Time, As Required  
Land as soon as possible and inspect for damage.

## Emergency Descent

Throttle.....	Idle
Propeller.....	High RPM
Mixture.....	Rich
Fuel Boost Pump.....	On*
Bank.....	30°- 45°
Airspeed.....	Do Not Exceed 129 KIAS
Rollout.....	Pilot Option

**\*In the event of an engine fire, the mixture and Fuel Boost Pump should be Off.\***

## Spin Recovery (PARE)

Power.....	Idle
Ailerons.....	Neutral
Rudder.....	Full Opposite Direction of Rotation
Elevator.....	Briskly Forward
<b>When Rotation Stops:</b>	
Rudder.....	Neutral
Power.....	As Required

## Door Open CAS Message

*The Door Open CAS message will not indicate which door is open.*

**Main Canopy Open:** Confirm canopy is full down and latch is firmly closed and locked.

**Rear Door Open:** DO NOT ATTEMPT TO RE-LATCH DOOR IN FLIGHT

Airspeed.....Reduce Below 100 KIAS

Land as soon as practical

Shutdown and confirm the rear door is fully closed, the latch is firmly locked, and the safety latch is secure to the inside of the fuselage.

## **Low Volts**

Master (*ALT only*).....Off  
ALT circuit breaker.....Check In  
*(If out, you may reset once)*  
Master (*ALT only*).....On  
Battery amps and volts.....Check Charging

### **If charging:**

Battery amps and volts.....Monitor

### **If not charging:**

Battery (*ALT only*).....Off  
Electrical Load.....Reduce  
Land as soon as practical.

The main battery will provide power to all avionics for approximately 30 minutes.

The Horizon Emergency Switch will power the standby attitude indicator for approximately 30 minutes.

## **PFD Failure**

The Garmin G1000 flight deck is equipped with an automatic reversionary mode. If the system recognizes a PFD failure. The system will automatically revert the PFD display to the MFD. Should the system fail to automatically revert the PFD to the MFD, press the red Display Backup button located on the central comm panel.

**AHRS Failure**

A partial or complete failure of the AHRS system is indicated by a red “X” over the Attitude Indicator or HSI on the PFD. The G1000 does not have a backup AHRS system. You must use the standby attitude indicator and magnetic compass.

**ADC Failure**

An Air Data Computer Failure is indicated by a red “X” over the Airspeed indicator, Altimeter, and Vertical Speed Indicator. The G1000 does not have a backup ADC. You must use the standby Airspeed indicator and Altimeter. Using the alternate air is for static port blockages only and will not work for an ADC failure.

**Inaccurate Air Data Indications**

If you suspect incorrect data from the Airspeed indicator, Altimeter, or Vertical Speed indicator:

- Pitot Heat.....On
- Alternate Air.....On

Use caution, all indications will be higher than actual.

**Abnormal Procedures**

**Loss of Communication**

- Radio Volume.....Adjust
- Headset Jack and Volume.....Check
- Push-to-Talk Switch.....Check
- Circuit Breakers.....Check, If Open, Do NOT Reset
- Transponder.....Squawk 7600

Proceed as necessary for VFR or IFR Conditions.

Alternate Courses of Action:

- Attempt to use different frequencies
- Try other push to talk switch
- Set audio panel to speaker (SPKR)
- Use your cell phone to call flight service 1-800-992-7433

**Engine Roughness**

- Mixture.....Adjust for Maximum Smoothness
  - Fuel Boost Pump.....On
  - Fuel Selector.....Switch Tanks
  - Magneto Switch.....L then R then Both
- If operation is satisfactory on either magneto, proceed on that magneto at a reduced power setting to the nearest airport.
- Alternate Air.....Open

**If engine roughness persists:**

Prepare for a power-off landing (Page 8)

**Low Oil Pressure**

- Oil Pressure.....Check
  - Oil Temperature.....Check
- Prepare for a Power-Off Landing (Page 8)

**High Oil Temperature**

- Mixture.....Rich
  - Throttle.....Reduce
  - Airspeed.....Increase
  - Oil Pressure.....Check
  - Oil Temperature.....Check
- If high oil temp persists, prepare for a Power-Off Landing (Page 8)

## Flooded Engine Procedure (Hot Start)

Fuel Boost Pump.....Off  
Mixture.....Cut-Off  
Throttle.....1 inch Open  
Starter.....Engage  
Throttle.....Slowly Reduce to 1/4 Inch Open  
Mixture.....Smoothly Advance to Full Rich  
Once engine starts:  
Oil Pressure.....Check  
Master Switch (ALT).....On  
Avionics Master.....On  
Mixture.....Lean

## Faulty Magneto Check Procedures

### **Fouled Spark Plug**

(Rapid mag drop usually accompanied by engine vibration)

- Set magnetos to both
- Open throttle to full
- Lean mixture as far as possible or to peak EGT
- After 15 seconds, return to 2000 RPM
- Perform mag check with mixture as set

*This procedure should be limited to two attempts*

### **Overly Rich**

(Slow, smooth mag drop out of standards)

- Return mag switch to both
- Lean mixture until RPM peaks
- Return to 2000 RPM
- Perform mag check with mixture as set

If neither procedure fixes the problem, return to the ramp and contact maintenance.

<b>Diamond DA 40 Power Settings</b>			Engine Power as % of Max. Take-Off Power				
			65%			75%	
	RPM		2000	2200	2400	2200	2400
Fuel Flow US gal/hr	Best Economy		7.9	8.2	8.5	9.2	9.5
	Best Power		-	9.5	9.8	10.7	11
ISA	°C	°F	Manifold Pressure (MP) (inHg)				
MSL	15	59	26.8	24.9	23.4	27.3	25.8
1000	13	55	26.4	24.5	23.2	26.8	25.5
2000	11	52	26.0	24.2	22.9	26.5	25.2
3000	9	48	25.7	23.8	22.6	26.1	24.8
4000	7	45	25.4	23.5	22.3	-	24.5
5000	5	41	-	23.1	22.0		24.1
6000	3	38		22.8	21.7		-
7000	1	34		22.4	21.4		
8000	-1	31		-	21.0		
9000	-3	27			20.7		
10000	-5	23			-		

The areas shaded gray under each RPM heading are the recommended bands.