Diamond DA 40 Checklist

and

Quick Reference Handbook

2024

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The CAVU Pilot, LLC
Revision 4

V-Speeds

V_{SO}- 52 KIAS
V_S- 53 KIAS
V_R- 59 KIAS
V_X- 64 KIAS
V_Y- 66 KIAS
V_{FE}- 108 KIAS T.O.
91 KIAS LDG
V_A- 108 KIAS >2161 lbs
94 KIAS <2161 lbs
V_{NO}- 129 KIAS
V_{NE}- 178 KIAS
Best Glide- 70-73 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

Parking Brake…….. Set
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
Nav&Strobe Light.……On

Engine Start

MFD……....Engine Page
Fuel Totalizer……..Confirm/Set
Cold Start
Throttle……...½ Inch Open
Fuel Pump…….……..……On
Mixture:

- Rich for 3 seconds then cutoff

Starter…….……Engage
Hot Start
Fuel Pump……..Off
Throttle……½ Open
Starter…….……Engage

When Engine Starts:
Mixture……..……..Rich
Throttle……...800-1000RPM
Oil Pressure……..Check
Mixture…...……....Lean 1 Inch
Fuel Pump…..……Off
Master Switch *(ALT)*.....On
Avionics Master…….On

Pre-Taxi

Flaps…..……..Retract
LRU's……..……..Check
Annunciator Test…….Check
Autopilot…….Check
Electric Trim…..Check then T.O
ATIS…….……..Obtain
Flight Plan……..……..Enter
Flight Instruments...Bug&Check
Parking Brake……..…Off

Run-Up

Parking Brake……...Set
Circuit Breakers……...Check
Fuel Selector…...Switch Tanks
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
Parking Brake…….Off

Diamond DA40 Checklist

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 8)

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
Parking Brake…..…..Confirm Off
Fuel Boost Pump…..……..…On
Flaps...……..……....Set

Go around

Power……...……Full
Flaps……Takeoff
With positive rate of climb and speed above 65kts
Flaps……Up
Continue with climb checklist

After Landing

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

Diamond DA40 Checklist

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
Fuel Pressure……..…..Release
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

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)

- Magnetos: Both
- Throttle: 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)

- Magnetos: Both
- Throttle: 2000 RPM
- Lean mixture until RPM peaks
- Throttle: Return to 2000 RPM
- Perform mag check with mixture as set

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

Diamond DA 40 Power Settings			**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.

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G1000 WARNING CAS Messages

FUEL PRES LO	Page 11	Fuel Pressure Low (Red Range)
DOOR OPEN	Page 11	Unlocked Door
OIL PRES LO	Page 12	Oil Pressure Low (Red Range)
ALTERNATOR	Page 12	Alternator Fail
STARTER ENGD	Page 12	Starter not disengaging
FUEL PRES HI	N/P	Fuel Pressure High (Red Range)

Emergency Landing……Page 10
Emergency Evacuation……..Page 25
Engine
Engine Failure Immediately After Takeoff……..…Page 10
Engine Roughness and/or Power Loss……..…...Page 11
RPM Overspeed……...…Page 13
RPM Underspeed…….…Page 13
Windmill Engine Start……..….Page 14
Powered Engine Start……...Page 14
Electric System
Total Electric Fail……...Page 15
Smoke and Fire
Engine Fire in Flight……..Page 15
Engine Fire on Ground……Page 16
Electric Fire / Smoke in Flight……..Page 16
Electric Fire / Smoke on Ground……Page 17
Other Emergencies
Emergency Descent……..Page 17
Suspicion of Carbon Monoxide……...Page 18
Unintentional Flight into Icing……..Page 18
Landing with defective Main Gear Tire……..Page 18

Power-Off / Emergency Landing

Airspeed……73 KIAS
Place to Land……..PILOT OPTION
Seats & Seat Belts..……...SECURE

If time and altitude permit:

Transponder/ATC……..……..7700/ADVISE
Fuel Selector...……..……...OFF
Mixture…….……..…CUTOFF
Throttle…….……IDLE
Fuel Boost Pump…….……OFF

On Final Approach

Flaps……..……..…LDG
Magneto Switch……....OFF
Master Switch……OFF

Engine Failure Immediately After Takeoff

Airspeed……..…....MAINTAIN SAFE AIRSPEED
Canopy……..……..……....UNLATCH
Land…….……...STRAIGHT AHEAD

Engine Roughness/Engine Failure During Flight

Airspeed……..……...……73 KIAS
Place to Land……..…….....PILOT OPTION
Mixture……..…….....PUSH FULL RICH
Propeller……HIGH RPM
Electric Fuel Pump…….……...ON
Fuel Selector...……...……SWITCH TANKS
Alternate Air……...OPEN
Magneto Switch……..……..BOTH
Starter……..…….....*(if propeller has stopped)* ENGAGE
Engine Instruments……..…….……CHECK
Magneto Switch……..CHECK

Power NOT Restored

Proceed to Power-Off Landing Checklist (Page 10)

Power Restored

Land as soon as practical.

FUEL PRES LO

Fuel Flow……..……...CHECK

If fuel flow is high (red range) suspect fuel leak.

Land as soon as practical

DOOR OPEN

Airspeed…….……REDUCE BELOW 90 KIAS
Canopy and Rear Door…….……CHECK VISUALLY

Never attempt to relatch the rear door in flight.

Land as soon as practical

OIL PRES LO

Oil Pressure……..……..…….CHECK
Oil Temperature……..……..……CHECK
Cylinder Head Temperature (CHT).....….CHECK

Oil Pressure below green and Oil Temperature Normal
Oil Temerature and CHT…….…….MONITOR

Oil Pressure below green and Oil Temperature or CHT Rising
Engine Power……..……..REDUCE TO MINIMUM REQUIRED
Land ASAP. Be prepared for Emergency Landing

Oil Pressure near zero, vibration, loss of oil, smoke
Mechanical Failure……..……...…….……SUSPECT
Engine…….…….SHUTDOWN
Proceed to Emergency Landing Checklist (Page 10)

ALTERNATOR

Circuit Breakers……..……...….CHECK
Master Switch (ALT).....OFF, then ON

If alternator does not reset:
Essential Bus (ESS BUS).....ON
Unnecessary Equipment……..……..OFF
Land within 30 minutes

If PFD attitude information is lost:
Horizon Emergency Switch……..……ON

STARTER ENGD

Throttle……IDLE
Mixture……CUTOFF
Ignition……OFF
Master Switch (ALT/BAT).....OFF

RPM OVERSPEED

Friction Adjuster……CHECK
Oil Pressure……CHECK

If oil pressure is lost, adjust rpm with power lever

Continue with oil pressure low checklist (Page12)

RPM UNDERSPEED

Electric Fuel Pump……ON
Fuel Selector……SWITCH TANKS
Propeller Control……HIGH RPM
Friction Adjuster……CHECK

If no success, regulate RPM with Throttle.

Land as soon as practical.

WINDMILL ENGINE START

Airspeed……..…….73-80 KIAS
Fuel Selector……..…….FULLEST TANK
Magnetos……..….BOTH
Mixture……..……RICH
Electric Fuel Pump……..……ON
Alternate Air……..….OPEN

If no success:

Mixture……..…..LEAN
Mixture…….….SLOWLY ADVANCE TO RICH

POWERED ENGINE START

Airspeed……..…..80KIAS
Electrical Equipment……..….OFF
Avionics Master……..……..OFF
Master Switch……..……OFF
Mixture……..……RICH
Fuel Selector……..……FULLEST TANK
Electric Fuel Pump……..……ON
Alternate Air……..……OPEN
Magnetos……..……..START

TOTAL ELECTRICAL FAIL

Circuit Breakers……CHECK, PULL, RESET
Essential Bus……..……ON

If no success:

Horizon Emergency Switch…….……..ON
Flood Light……...……ON
Power……..SET
Set power according to known position or engine noise

Flaps……..…VERIFY POSITION
Land as soon as practical

ENGINE FIRE IN FLIGHT

Cabin Heat……OFF
Emergency Landing…….……..PREPARE
Airspeed…….…..73 KIAS
ATC……..….ADVISE
Front Canopy…….…… UNLATCH AS NECESSARY

When landing is assured:

Fuel Selector…….……OFF
Throttle……..MAX POWER
Electric Fuel Pump…….…..OFF
Master Switch(BAT)……..……ON

On Final Approach:

Mixture……...….CUTOFF
Flaps……LDG
Magnetos……OFF
Master Switch……....OFF

ENGINE FIRE ON GROUND

Starter……..……..CONTINUE CRANKING

If Engine Starts:

Power……..……2000 RPM for One Minute
Engine....……..……..Shutdown and Inspect

If Engine Does NOT Start:

Starter……..……....CONTINUE CRANKING
Throttle……..……...FULL OPEN
Mixture……..……CUT-OFF
Electric Fuel Pump……...OFF
Fuel Selector...……...OFF
Magnetos……....OFF
Master Switch*(ALT&BAT)*……..……OFF

Evacuate aircraft.
Use fire extinguisher as necessary

ELECTRIC FIRE / SMOKE IN FLIGHT

Horizon Emergency Switch……..……..ON
Master*(ALT&BAT)*.....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

Continue on next page →

Master Switch (BAT).....ON
Essential Bus……..……..ON
Master Switch (ALT) .....ON
Essential Bus……..…..OFF
BATT and ESS TIE Circuit Breakers……..……PULL
Electrical Switches…….……On, One at a Time, As Required

Land as soon as practical and inspect for damage

ELECTRIC FIRE / SMOKE ON GROUND

Master Switch (BAT).....OFF
Throttle……IDLE
Mixture…….CUTOFF

When engine stops

Canopy…….……OPEN

Evacuate Aircraft

Fire Extinguisher…….……ACTIVATE

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.

SUSPICION OF CARBON MONOXIDE

Cabin Heat……OFF
Cabin Vents……OPEN

If condition persists

Forward Canopy……UNLATCH

Land as soon as practical

UNINTENTIONAL FLIGHT INTO ICING CONDITIONS

Pitot Heat……ON
Cabin Heat……ON
Cabin Air Distrubition……UP
RPM……INCREASE
Alternate Air……OPEN

Inform ATC, Exit Icing Conditions

LANDING WITH DEFECTIVE MAIN GEAR TIRE

ATC……ADVISE

For landing:

- Land on runway side with “good” tire
- Keep “good” side wing low
- Support directional control with brakes

Once Aircraft Comes to a Complete Stop
DO NOT ATTEMPT TO TAXI

G1000 Caution CAS Messages

Pitot Fail	**Page 20**	**Pitot heat has Failed**
Low Volts	**Page 20**	**Bus Voltage Low**
L/R Fuel Low	**N/P**	**Fuel Tank Quantity < 3 GL**
Pitot Off	**N/P**	**Pitot Heat is OFF**

Engine Instrument Indiations Outside of Green Range

Oil Pressure High……Page 21
Oil Temperature High……Page 21
Cylinder Head Temperature (CHT) High……Page 22
Exhaust Gas Temperature (EGT) High……Page 22
Fuel Flow High……Page 22
Overvoltage……Page 22
Manifold Pressure High……Page 23

Other Abnormal Conditions

Loss of Communication……Page 23
PFD Failure……Page 24
AHRS Failure……Page 24
ADC Failure……Page 24
Inaccurate Air Data Indications……Page 24

PITOT FAIL

Check Pitot Heat is ON

If in icing conditions:

- Expect failure of pitot-static system

Alternate Static Air Valve……OPEN
Icing Conditions……EXIT

LOW VOLTS

On Ground:
Throttle……1200 RPM

If Annunciation Persists

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 Annunciation Persists
Terminate Flight

In Flight:
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

Continue on next page →

If not charging:

Master *(ALT only)*.....OFF
ESS BUS……ON
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.

Oil Pressure High

Oil Temperature……CHECK

If oil temperature increasing

Throttle…..……REDUCE

Land as soon as practical

If oil temperature remains in normal operating range

Suspect faulty sensor, continue flight

Oil Temperature High

Mixture……..……..……..RICH
Throttle……..….REDUCE
Airspeed……....INCREASE
Oil Pressure……....CHECK
Oil Temperature……...CHECK

If high oil temperature persists

Land as soon as practical

CHT or EGT High

Mixture……..…….RICH
Throttle…….…..REDUCE

If condition persists

Land as soon as possible

FUEL FLOW HI

Electric Fuel Pump……..……ON
Fuel Pressure…….……Check after 15 Seconds

- If the fuel pressure is low, refer to 3.2.3 (i) - LOW FUEL PRESSURE WITH THE ELECTRICAL FUEL PUMP SET TO ON.

- If the fuel pressure is in the green sector, or the fuel pressure warning light is not illuminated, the likely cause is a defective fuel flow indication, which should thus be ignored (the airplane should be serviced). Fuel flow data should be taken from the engine performance table in Chapter 5. 3.

- Check fuel quantity. A rapid reduction in fuel quantity confirms a high fuel flow.

OVERVOLTAGE

ESS BUS……ON
Master Switch (ALT).....OFF
Master Switch (BAT).....ON

Turn off all unnecessary equipment
Land as soon as possible

Manifold Pressure High

If clearly above green range
Reading is faulty

Loss of Communication

Radio Volume……ADJUST
Headset Jack and Volume……...CHECK
Frequency……..……CONFIRM
Push-to-Talk Switch……...CHECK
Circuit Breakers……..……....CHECK
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

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.

EMERGENCY EVACUATION

Power……IDLE
Parking Brake……SET
Mixture……CUTOFF
ATC……ADVISE
ESS BUS……OFF
Master Switch (ALT & BAT).....OFF
Emergency Ecvacuation……EXIT AIRCRAFT

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