

Diamond DV-20

LY-BCB

In-Cabin Check

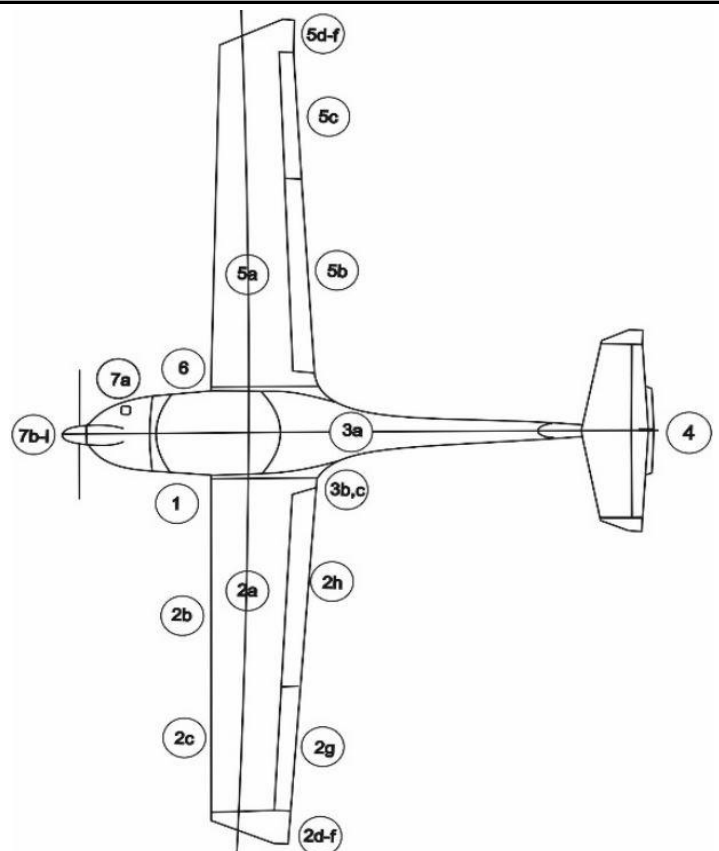
Airplane Documents	CHECK
Weight and Balance	WITHIN LIMITS
1'st Aid kit/Extinguisher	CHECK VALID
Headsets	TWO On board
Parking brake	SET
Ignition Switch	OFF
Master Switch	ON
Coolant Quantity Light	OFF in 3sec
Fuel Quantity	Sufficient
Master Switch	OFF
Throttle	IDLE
Propeller Speed Lever	max RPM
Carburettor Heat	OFF
Foreign Object Inspection	Done
Main Bolts	Secured
Baggage	Secured

Walk around and visual inspection

1. Left Ldg Gear (strut, fairing, tyre pressure 2,3bar, tire, wheel, brake, skid marks)	CHECK
2. a. Left Wing Surface	CHECK
b. Stall Warning	CHECK, TEST
c. Pitot-Static Probe	Clean, Hole Open
d. Wing Tip, Balancing Mass	CHECK
e. Position Light	CHECK
f. Wing Tie Down	DISCONNECT
g. Aileron	CHECK
h. Wing Flap	CHECK
3. a. Fuselage Skin	CHECK
b. Tank Vent	CHECK
c. Tank Drain	Drain Water and CHECK no leak
d. Fuel Quantity	CHECK (using dipstic)

Preflight Inspection

4. a. Empennage, control surfaces	CHECK
b. Tail tie down	DISCONNECT
c. Trim Tab	CHECK
5. a. Right wing surface	CHECK
b. Wing flap	CHECK
c. Aileron	CHECK
d. Wing tie down	DISCONNECT
e. Wing tip, Balancing Mass	CHECK
f. Position Light	CHECK
6. Right Ldg Gear (strut, fairing, tyre pressure 2,3bar, tire, wheel, brake, skid marks)	CHECK
7. a. Engine Oil	CHECK
b. Cowling	SECURED
c. Air Intakes (six)	FREE
d. Propeller	CHECK
Propeller ground clearance	25cm
e. Spinner	CHECK
f-i. Nose Gear (strut, fairing, tyre pressure 1,8bar, tire, wheel, brake, skid marks)	CHECK



Normal Procedures

Before Starting Engine

Departure Briefing	COMPLETE
Preflight Inspection	COMPLETE
Log Book fill and Tach Time	CHECK
Passenger Briefing	COMPLETE
Pedals	ADJUST and LOCK
Safety belts	FASTEN
Canopy	CLOSE & SECURE
Parking brake	SET
Controls	FREE in Movement
Fuel Shut-off Valve	OPEN
Trim	NEUTRAL
Throttle	free, IDLE
Prop. Speed Lever	free, max RPM
Carburettor Heat	free, OFF
Throttle Friction Device	ADJUST
ELT	ARM
Avionics Master Switch	OFF
Master Switch	ON
Generator Warning Light	Illuminated
Low Voltage Caution Light	Illuminated
Fuel Pressure Warning Light	Illuminated

Starting Engine

Electric Fuel Pump	ON
Fuel Pressure Warning Light	OFF
Throttle	- Cold Start IDLE - Warm Start 2cm forward
Choke	- Cold Start ON, full - Warm Start OFF
Propeller Area	CLEAR!
Ignition Key	START
Throttle	maximum 1500 RPM
Oil Pressure	Green range in 10 Sec Max

If oil pressure is below 0,8bar Shut Down Engine

Choke	OFF
Generator Warning Light	OFF
Low Voltage Caution Light	OFF
Electric Fuel Pump	OFF
Fuel Pressure Warning Light	Stays OFF
Electric Fuel Pump	ON

Before Taxi

Wing Flaps: Extend/retract	CHECK (check operation and indication)
Avionics Master Switch	ON
Flight Instruments	SET
Radios and Avionics	SET
Transponder	Standby
Lights	As required
Parking brake	RELEASE

Taxiing

Brake	TEST
Directional Control	TEST
Flight Instruments and Avionics	CORRECT

Before Take-off

Parking Brake	SET
Safety Belts	Fastened
Canopy	Closed & Locked
Passenger briefing	Complete
Fuel Shut-off Valve	check OPEN
Engine Instruments	within green arc
Fuel Quantity Indicator	Check
Wing Flaps	T/O
Trim	NEUTRAL
Controls	Free
Throttle (when oil temp > 50C)	1700RPM
Propeller Speed Control Lever	Pull 3 times (RPM drop: 100-200 RPM)
Ignition Switch	L-BOTH-R-BOTH (Max RPM drop 150, Max difference 50RPM)
Carburettor Heat	ON than OFF (RPM drop: 30 RPM)
Throttle	FULL for 5sec., CHECK RPM 2300 ± 80RPM, set 1000 RPM
Transponder	Set ALT
Landing Light	ON
Parking Brake	RELEASE

Normal Procedures

Normal Take-off

Electric Fuel Pump	ON
Propeller Speed Control Lever	max. RPM
Flaps	Check T/O
Throttle	FULL (2300 ± 80RPM)
Elevator - at beginning of roll	NEUTRAL
Control direction	Using Rudder
Lift Nose Wheel	51 KT
Climb Speed	65 KT
Prop. Speed Control Lever	2260 RPM (at safe alt.)
Flaps	UP
Electric Fuel Pump	OFF
Landing Light	OFF
Instruments	Check

Maximum performance Take-off

Lift-off Speed	57KT
Climb speed	58KT

Climb

Prop. Speed Control Lever	2260 RPM
Throttle	FULL
Engine Instruments	Within green arc
Airspeed	65 KT (flaps UP or T/O)

Cruise

Wing Flaps	UP
Airspeed	80 KT
Throttle	Set Manifold Pressure 24 in. HG
Prop. Speed Control Lever	1900 RPM
Trim	AS REQUIERD

Descent

Altimeter	Adjust
Throttle	AS REQUIRED
Prop. Speed Lever	1700-2260 RPM
Carburettor Heat	AS REQUIRED

Landing Approach

Approach Briefing	COMPLETE
Airspeed	max. 81 KT

Wing Flaps	T/O
Trim	AS REQUIRED
Throttle	AS REQUIRED
Prop. Speed Lever	max. RPM
Carburettor Heat	ON
Electric Fuel Pump	ON
Landing Lamp	ON
Wing Flaps	LDG
Approach Speed	65 KT

Balked Landing (Go-around)

Prop. Speed Lever	max. RPM
Throttle	FULL
Carburettor Heat	OFF
Wing Flaps	T/O, set with caution
Airspeed	58 KT

After landing

Throttle	IDLE
Wing Flaps	UP
Carburettor Heat	OFF
Brakes	AS REQUIRED
Landing Light	OFF
Electric Fuel Pump	OFF
Transponder	STANDBY

Shut down and Securing

Throttle	IDLE
Parking Brake	SET
Transponder	OFF
Radios, Avionics, Lights	OFF
Avionics Master Switch	OFF
Ignition Switch	OFF
Master Switch	OFF
Flight Plan	CLOSE
Log Book	FILL
Pitot cover	Install
Chocks/tie downs	Secured
Canopy	Closed

Speeds for operation at Maximum Take-Off Weight

Rotation speed (Flaps T/O)	51 KT	VR	Approach speed (Flaps LDG)	65 KT	VAPP
Best angle of climb (Flaps T/O)	58 KT	VX	Manoeuvring speed	104 KT	VA
Best rate of climb spd. (Flaps T/O)	65 KT	VY	Maximum flap extended speed	81 KT	VFE
Best rate of climb spd. (Flaps UP)	70 KT	VY	Maximum structural cruising speed	117 KT	VNO
Best glide speed (Flaps T/O)	70 KT	VBG	Never exceed speed	161 KT	VNE

Engine Failures

Engine Failure During Take-off Run

Throttle	IDLE
Brakes	As required

Engine Failure After Take-off

I INSUFFICIENT ENGINE POWER

Airspeed	59KT
Throttle	FULL
Carburettor Heat	OFF
Choke	OFF
Fuel Shut-off Valve	OPEN
Ignition Switch	BOTH
Electric Fuel Pump	ON

Propeller Speed Control Lever max. RPM
(if engine performance not restored immediately, airplane should be landed)

Shortly before landing:

Fuel Shut-off Valve	CLOSED
Ignition Switch	OFF
Master Switch	OFF

II ENGINE INOPERATIVE

Perform Emergency Landing

Engine Failure During Flight

I ENGINE RUNNING ROUGHLY

Carburettor Heat	ON
Electric Fuel Pump	ON
Magnetos	check BOTH
Throttle	at present position

No improvement - reduce throttle to minimum required power, land as soon as possible.

II LOSS OF OIL PRESSURE

Oil Temperature	CHECK
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If oil pressure drops below green arc but oil temperature is normal - Land at nearest airfield

If oil pressure drops below green arc but oil temperature is rising - Reduce throttle to minimum required power, land as soon as possible. Be prepared for engine failure and emergency landing.

Emergency procedures

III LOSS OF FUEL PRESSURE

Electric Fuel Pump	ON
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If Fuel Pressure Warning Light does not extinguish - Land as soon as possible. Be prepared for engine failure and emergency landing.

IV RESTARTING ENGINE WITH PROPELLER WINDMILLING

Airspeed	70KT
Wing Flaps	T/O Position
Propeller Speed Control lever	max. RPM
Electric Fuel Pump	ON
Ignition Switch	BOTH
Fuel Shut-off Valve	OPEN

Throttle	2 cm Forward
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(If the engine does not start in 10 seconds:)

Cold Start	Throttle	IDLE
	Choke	ON (Pulled)
	Ignition Sw.	START

V RESTARTING ENGINE WITH PROPELLER AT FULL STOP

Electric Consumers	OFF
Master Switch (Battery)	ON
Propeller Speed Control lever	max. RPM

Electric Fuel Pump	ON
Throttle	Cold Start: IDLE

Warm Start: 2 cm Forward

Choke	Cold Start: ON (Pulled)
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Warm Start: OFF

Ignition Switch	START
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(Engine restart can be also done by increasing IAS to approx. 108 KT)

After successful re-start:

Oil Pressure	Check
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Choke	OFF
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Electric Consumers	ON if required
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Oil Temperature	Check
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Choke	OFF
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Electric Consumers	ON if required
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Oil Temperature	Check
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EMERGENCY LANDING - SEE NEXT PAGE



EMERGENCY LANDING

Emergency Landing With Engine Off

Airspeed	59 KT
Flaps	As required
Fuel Shut-off Valve	CLOSED
Ignition Switch	OFF
Master Switch (Battery)	OFF

Precautionary Landing

Suitable place to land	LOCATE
Throttle/Trim/Wing flaps	As required
Make low pass (min 350ft) over selected landing area, check for obstacles	
Final approach:	
Throttle	As required
Propeller Speed Control Lever	max. RPM
Carburettor Heat	ON
Electric Fuel Pump	ON
Wing Flaps	LDG
Airspeed	59 KT
Touch-down with minimum speed and hold nose wheel above ground as long as possible	
After Touch-down:	
Fuel Shut-off Valve	CLOSED
Ignition Switch	OFF
Master Switch (Battery)	OFF

Smoke and Fire

Fire On Ground

I ENGINE FIRE AT STARTING ENGINE

Fuel Shut-off Valve	CLOSED
Throttle	FULL
Master Switch (Battery)	OFF
Ignition Switch	OFF
Evacuate Airplane Immediately	

II ELECTRICAL FIRE/SMOKE ON THE GROUND

Master Switch	OFF
<i>If engine is running:</i>	
Throttle	IDLE
Fuel Shut-off Valve	CLOSED
Ignition Switch	OFF
Canopy	OPEN
Fire Extinguisher	As required

Emergency procedures

Smoke and Fire

Fire During Take-off

I SUFFICIENT RUNWAY LENGHT FOR STRAIGHT-AHEAD LANDING

Throttle	IDLE
Brakes	Apply heavy. Stop the aircraft.
After stopping - perform "Fire on Ground"	

II NO SUFFICIENT RUNWAY LENGHT AVAILABLE FOR NORMAL LANDING

Suitable place to land	LOCATE
Airspeed	59 KT
Flaps	T/O
Fuel Shut-off Valve	CLOSED
Throttle	FULL
Electric Fuel Pump	OFF
Cabin heat	CLOSED
Master Switch (Battery)	OFF
Perform emergency landing	

Fire In Flight

I ENGINE FIRE IN FLIGHT

Airspeed	70 KT
Flaps	T/O
Fuel Shut-off Valve	CLOSED
Throttle	FULL
Electric Fuel Pump	OFF
Cabin heat	CLOSED
Master Switch (Battery)	OFF
Perform emergency landing	

II ELECTRICAL FIRE/SMOKE IN FLIGHT

Master Switch (Battery)	OFF
Cabin heat	CLOSED
Cabin Air	OPEN
Fire Extinguisher - use only if smoke development continues. Vent the cabin.	
<i>If fire is off and electric power is required:</i>	
Avionics Master Switch	OFF
Electric Consumers	OFF
Master Switch (Battery)	ON
Avionics Master Switch	ON
Radio	ON
Land as soon as possible	

Emergency procedures

Fire In Flight

III CABIN FIRE

Master Switch (Battery)	OFF
Cabin Air	OPEN
Cabin Heat	CLOSED
Fire Extinguisher	As required
Land as soon as possible	

Electrical Power Failure

I GEN WARNING light (engine running)

Ammeter	CHECK
(If indicates discharge -all nonessential equipment off. Land at nearest airfield)	

LO/V CAUTION light (in flight)

Landing Lights	OFF
If LO/V light is still on and ammeter indicates discharge-Land at nearest airfield	

Unintentional Flight Into Icing Area

Leave icing area - change altitude or flight direction to reach higher outside air temp.

Continue to move control surfaces to maintain their movability

Carburettor Heat	ON
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Increase RPM to avoid icing on propeller

Cabin Heat	OPEN
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Recovery From Unintentional Spin

Throttle	IDLE
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Rudder	fully opposite to direction of spin
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Control Stick	Neutral
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Rudder	Neutral when spin stops
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Wing flaps	UP
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Elevator	Pull cautiously
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Bring airplane from descent in to level flight

AIRSPEED LIMITATIONS

Speeds (IAS)	KT IAS	Remarks
V _{FE} Maximum flap operating	81	Do not exceed this speed with full flaps
V _A Manoeuvring 1609 Lb	104	Do not make full or abrupt control movements above this speed as this may cause stress in excess of limit load factor.
V _{NO} Maximum structural cruising	111	Never exceed this speed unless in smooth air and then only with caution.
V _{NE} Never exceed	149	Never exceed this speed in any operation.
V _{S1}	43	Stalling speed Flaps UP
V _{S TO}	39	Stalling speed in take-off configuration
V _{S LDG}	38	Stalling speed in landing configuration

POWERPLANT LIMITATIONS

Power: max. T/O - (5min) 100 HP 2385 RPM, Max continuous - 94 HP 2260 RPM

Oil temperature/ CHT	Oil pressure
Minimum 50 °C, Maximum 130 °C	Minimum 0,8 bar below 1450 RPM
CHT maximum 135 °C	Normal 2 - 5 bar above 1450 RPM
Starting engine at OAT less than -25°C preheat is required. Max. starting temperature +50°C	Maximum 5,0 bar
	Max. in case of cold start (short-term) 7,0 bar

Engine Oil - Maximum 3L, minimum 2L. Maximum demonstrated crosswind velocity - 15 KT

Maximum take-off and landing weight - 1609lbs(730kg), Max. baggage: 44lbs(20kg)

Usable fuel - 77L, Total - 79L.

Tyre pressure front 1,8(26psi), rear 2,3bar(33psi).