SKY SAFETY

Diamond DA-42 L360

N985JA

Normal Procedures Checklist

PREFLIGHT

Cabin

Canopy & Rear Door ..... CHECK
(Latching Mechanisms & Hinges)
Seat Belts ..... CHECK
Hobbs ..... CHECK
Documents ..... AROW
Fire Extinguisher ..... CHECK
Switches & Inst. Lights ..... OFF
Control Lock..... REMOVE
Trims ..... T.O. & NEUTRAL
Fuel Selectors..... CHECK ON
Throttles..... IDLE
Prop Levers ..... FULL FORWARD
Mixture Levers ..... IDLE CUT-OFF
Master Switch ..... OFF
Ignition Switches ..... OFF
Keys .....REMOVED
Landing Gear Selector ..... DOWN

(Pilot Side)

Manual Gear Extension.....IN
Alternate Static Source... CLOSED
Alternators Left & Right ..... ON
Pitot Heat..... OFF

(Copilot/CFI Side)

Alternate Air ..... CLOSED
Flaps..... UP
Circuit Breakers .....IN
ELT.....ARMED

Cabin (Continued)

AV Master..... OFF
Master Switch ..... ON
(HYD PUMP WILL PRESSURIZE)

WARNING

When turning on Master Switch, using external power or pulling prop through by hand; treat prop as if ignition were on.

DO NOT STAND or allow anyone else to stand in the arc of the propellers.

Landing Gear Lights..... 3-GREEN
Gear Warning Test ..... CHECK
Tach Time.....VERIFY
Fuel Qty. & Total .... CK & UPDATE
Elevator Backstop.....TEST
Flaps ..... LANDING
Stick ..... HOLD FULL AFT
Throttles ..... FULL FORWARD
Flaps . APP *(No Stick Movement)*
Flaps .....UP
(Stick Moves Fwd.- Limiter on)
Throttles ...IDLE*(Stick Moves Aft)*
Stall & Pitot Heat..... ON
External Lights ..... ON
Stall & Pitot Heat..... CHECK
Lights, Stall & Pitot Heat.....OFF

Door Open Warning Check

All Doors & CanopyCLOSE & LATCH
DOOR WARNING.....OFF
Pax Door..... UNLATCH
DOOR WARNING..... ON
Outer Door Handle..... PULL
Safety Hook ..... HOLDS DOOR
Push Button ..... CHECK
Master Switch .....OFF
Door & Canopy Latches .... CHECK

Fuselage/Empennage

Left Static Port .....CLEAR
Antennas ..... CHECK
Elevator & Rudder..... CHECK
Static Wicks ..... CHECK
Tiedown ..... REMOVE
Tail Skid..... CHECK
Right Static Port .....CLEAR

Right Wing

Right Aux Tank ..SUMP & CHECK
Flap, Aileron Static Wick... CHECK
Winglet, Tip & Lights ..... CHECK
Main Fuel Tank . SUMP & CHECK

Fuel Vents .....CHECK
Tiedown.....REMOVE

Right Engine

Aux Tank .....CLOSED & LOCKED
..... *(Cap grip Level)*
Oil *(6-8qts.)*.....CHECK
Cowling..... SECURE
Propeller & Spinner.....CHECK
Gascolator .....SUMP
Oil Breather.....CHECK
Main Gear,.....CHECK
Tire (65PSI), Strut (1½ In.) & Brake

Nose

Cabin Air Inlet .....CHECK
OAT Sensor.....CHECK
Landing & Taxi Lights.....CHECK
Baggage Compartment .....CHECK
(Required Ballast Installed Secure)
Right Baggage Door..... SECURE
Windscreen..... CLEAN
Nose Section .....CHECK
Nose Gear .....CHECK
Tire (87PSI), Strut (2 ½ In.), Door
Cabin Air Inlet .....CHECK

Left Engine

Main Gear,.....CHECK
Tire (65PSI), Strut (1½ In.) & Brake
Gascolator .....SUMP
Oil Breather.....CHECK
Oil *(6-8qts.)* .....CHECK
Cowling..... SECURE
Propeller & Spinner.....CHECK
Aux Tank .....CLOSED & LOCKED
..... *(Cap grip Level)*

Left Wing

Main Fuel Tank .. SUMP & CHECK
Tiedown.....REMOVE
Pitot Vane .....CHECK
Fuel Tank Vents.....CHECK
Winglet, Tip & Lights .....CHECK
Aileron, Static Wicks & FlapCHECK
Aux Fuel Tank.....SUMP
Gats Jar..... STOW IN NOSE
Nose Baggage Door..... SECURE
Rear Door ..... RECHECK SECURE

PREFLIGHT COMPLETE

Before Starting Engines

Preflight .....COMPLETE
Front Baggage Doors..... CLOSED
Rear Door ..... CHECK SECURE
Safety Hook ..... ENGAGED
Passenger Brief .....COMPLETE
Rudder Pedals ..... ADJUST
Seat Belts ..... FASTENED
Canopy ..... POSITION 1 or 2
Fuel Selectors..... MAIN TANKS
Elevator & Rudder Trim.....SET
Gear Selector..... VERIFY DOWN
AV Master.....OFF

CAUTION

Avionics Power switch must be OFF during engine start to prevent possible damage to avionics.

Alternators ..... CHECK ON
Brakes .....TEST & SET
Circuit Breakers ..... CHECK IN
Strobe Lights..... ON
Master Switch ..... ON
(Note: Hyd. Pump will Presurize)

STARTING ENGINES

Cold Start

Throttles.....1¼ INCH OPEN
Prop Controls..... FULL FORWARD
Fuel Pump(s) ..... ON
Mixtures ..... RICH (3-5 sec)
Then Idle Cutoff
Fuel Pumps.....OFF
First Engine:
- Throttle .....½ Inch Open
- Prop Area .....CLEAR!
- Ignition Switch.....START
- Mixture..... RICH (As Engine Fires)
- Engine Idle.....1000 RPM
- Oil Pressure..CHECK *(W/I 15 secs)*
- Mixture..... LEAN for TAXI
- Ammeter..... CHECK
- Annunciator Panel..... CHECK

Repeat for Second Engine

Hot Start *(Per Engine)*

Throttle ..... 1¼ INCH OPEN
Fuel Pump ..... ON
Mixture..... RICH *(2 sec. then Lean)*
Fuel Pump ..... OFF
Throttle ..... ½ INCH OPEN
Prop..... FULL FORWARD
Ignition Switch ..... START
Mixture .... RICH (As Engine Fires)
Oil Pressure..CHECK *(W/I 15 secs)*
Engine Idle..... 1000 RPMs
Mixture .....LEAN for TAXI
Ammeter..... CHECK
Annunciator Panel..... CHECK
Repeat for Second Engine

Flooded Start

Fuel Pump ..... OFF
Mixture Controls..... IDLE CUT-OFF
Propeller Controls FULL FORWARD
Throttle .....50% OPEN
Ignition Switch..... START
As Engine Starts . MIXTURE RICH
Throttle ..... 1000 RPM
Oil Pressure CHECK *(W/I 15 secs)*
Mixture ..... LEAN for TAXI
Ammeter..... CHECK
Annunciator Panel ..... CHECK

Starting with External Power

AV Master.....OFF
Alternators .....CHECK OFF
Master Switch .....OFF
Plug Jumper into Nose Receptacle
Master Switch .....ON
Execute Normal Start 1st Engine
Master Switch .....OFF
(before removing Jumper Cable)
Master Switch .....ON
Alternator Running Engine .....ON

CAUTION

Do not attempt flight if there is no indication of alternator output.

Normal start for 2nd Engine

After Start

AV Master..... ON
Radios & G1000.....SET
ATIS/AWOS.....RECORD
Instruments..... CHECK & SET
Taxi & Clearance .....OBTAIN
Nav Lights.....ON ***(Night Only)***
Taxi Light ..... ON

TAXI CHECK

Brakes ..... CHECK
Nose Wheel Steering ..... CHECK
Flight Instruments..... CHECK
Fuel Pumps..... ON
Fuel Selectors..... CROSSFEED

CAUTION

Following extended ground ops or high ambient temps, arbitrary changes in RPM & fuel flow, slow reaction to throttle movement or engine will not run at idle, indicate vapor lock.

Clearing Vapor Lock

1. **Fuel Pump(s) ..... ON**
2. **RPM 1800-2000 for 1-2 mins or until engine settles**
3. **Oil & CHTs – Keep Normal Limits**
4. **Throttle – IDLE *confirm smooth engine***
5. **Throttle – 1200 RPM for taxi & rest of ground ops**

BEFORE TAKEOFF

Before Takeoff

Brakes .....SET
Seatbelts.. FASTENED & SECURE
Rear Door ...CLOSED & LATCHED
Canopy ..... CLOSED, LATCHED
Door Open Warning ..... OUT
Annunciations/Engine..... CHECK
Circuit Breakers ..... IN
Trim .....SET T/O & NEUTRAL
Fuel Selectors..... ON
Fuel Pumps.....OFF
Flaps..... CYCLE & SET UP
Flight Controls. FREE & CORRECT

Engine Run-Up

Annunciators.....CHECK
Mixtures..... RICH

NOTE

At 5000 ft. Density altitude or high ambient temps, full rich mixture can cause rough running engine or loss of performance. Set mixture for smooth running of the engine.

Oil Temp..... At Least 100^{O}
Throttles..... 2200 RPM
Magnetos..CHECK *(175 max; 50Diff)*

NOTE

If RPM drop exceeds 175 RPM but engine runs smoothly, slowly lean mixture until RPM peaks, reset 2200 RPM & check. If within tolerance, ignition is working properly.

Props .....CYCLE 3 TIMES

1 engine at a time; RPM Drop (100-200 Max) Do not allow RPM to drop more than ***500*** *when cycling, MP rise & Oil Press. Movement*

Engine Instruments .....CHECK
Alternator Outputs.....CHECK
Throttles.....SET 1500 RPM
Feather . CHECK (***Max 300 RPM Drop)***
Throttles.....IDLE CHECK
Throttles..... 1000 RPM
Mixtures .....FULL RICH
Props ..... FULL FORWARD
Alternate Air ..... CHECK CLOSED
Throttle Friction .....SET
Transponder .....SET, ALT
Comm & Nav Radios.....SET
Flight Instruments..... CHECK

Emergency Procedures REVIEW

Departure..... BRIEF
Nav Lights.....ON ***(Night Only)***
Strobe Lights..... CHECK ON

Hold Short Check

Landing Light .....ON
Pitot Heat.....AS REQUIRED
Fuel Pumps..... ON
Takeoff Time.....RECORD
Canopy, Door & Windows CHECK SECURED
Final Approach.....CLEAR

Engine Failure Before Rotation ..... ABORT
Engine Failure Before Gear UP.....
THROTTLES IDLE; LAND STRAIGHT AHEAD
Engine Failure Insufficient Runway .....

1. **MAINTAIN DIRECTIONAL CONTROL**
2. **PITCH FOR BLUE LINE..... 90 KIAS**
3. **MIXTURES, PROPS, THROTTLES – FULL FORWARD**
4. **FLAPS.....UP**
5. **GEAR.....UP**
6. **IDENTIFY, VERIFY, FEATHER**
   a. **Identify.....DEAD FOOT, DEAD ENGINE**
   b. **Verify.....CLOSE THROTTLE**
   c. **Feather..... PROP TO FEATHER**
   d. **Mixture..... IDLE CUT-OFF**
   e. **DECLARE EMERGENCY & LAND**
7. **Inadequate Climb PerformanceTHROTTLE BACK & LAND STRAIGHT AHEAD WITH GEAR DOWN WHEN ABLE**

TAKEOFF

Normal Takeoff

Taxi ..... INTO POSITION
Brakes ..... HOLD
Throttles..... 2200 RPM
Engine Instruments ..... CHECK
Brakes ..... RELEASE
Throttles..... FULL POWER
Rotate..... V_R 78 KIAS
Positive Rate Tap Brakes GEAR UP
Airspeed ..... 90 KIAS

Short Field Takeoff (Flaps Up)

Use all available runway
Flaps..... UP
Brakes ..... HOLD
Throttles..... 2200 RPM
Engine Instruments ..... CHECK
Throttles..... FULL POWER
Brakes ..... RELEASE
Rotate..... 78 KIAS
Positive RateTap Brakes GEAR UP
Climb Thru 50' ..... 85 KIAS (V_x)

CLIMB

Landing Gear ..... UP
Climb Speed ..... 90 *(V_y)*
Power ..... 25" MP & 2500 RPM
Fuel Pumps..... OFF
1000' AGL ***(One at a Time!)***
Landing & Taxi Lights..... OFF
Alternators ..... CHECK
Engine Instruments ..... CHECK

ENROUTE CLIMB

Climb Speed ..... 90 KIAS
Throttles..... 25" MP
Props ..... 2500 RPM
Mixtures.... LEAN AS NECESSARY

CRUISE

Throttles..... SET
Props ..... 2000-2700 RPM
Mixtures..... LEAN
(100^O RICH of PEAK or 1450^O EGT)
Trim ..... SET
Lights..... AS REQUIRED
Annunciator & Systems . MONITOR
Fuel Quantity ..... MONITOR
(Max Difference..... 5 Gal)
Heading Indicator ..... CHECK

CAUTION

If Fuel Pressure Low warning illuminates, activate electric fuel pump

AUX TANK OPERATION

Main Tanks 17gals or Less
Both Aux Pumps ..... ON

NOTE

(When Main Tanks are Full. Aux Pumps will shut off with associated Annunciator Msg.)

Fuel Quantity ..... MONITOR
(Ensure Main Tanks are filling)
Both Aux Pumps ..... OFF
(Transfer remainder when Main Tanks show 17 gals or less)

DESCENT

Throttles..... SET (16" M.P.)
Props ..... SET (1700-2400 RPM)
Seatbelts & Harnesses..... SECURE
Parking Brake ..... OFF
Mixture..... ENRICHEN

APPROACH

Landing & Taxi Lights..... ON
Gear Warning Horn ..... TEST
Fuel Selectors ..... CHECK ON
Fuel Pumps..... ON

AIRSPEEDS (Downwind - 100; Base - 95; Final – 85 Min. V_{REF})

Mid Field Downwind

Gear ..... DOWN

"3 Green, 1 in the Mirror"

Throttles..... 16 Inches MP
Mixtures ..... ENRICHEN/FULL RICH
Props ..... FULL FORWARD
Flaps..... APCH *(137 Max)*

Normal Landing

Flaps..... LDG *(111 Max)*
Gear ..... CHECK DOWN
"3 Green, 1 in the Mirror"
Final Speed..... 85 Min.
Touchdown .. MAIN WHEELS FIRST
Rollout ....LOWER NOSE & BRAKE

Short Field Landing

Gear ..... DOWN
"3 Green, 1 in the Mirror"
Mixtures..... ENRICHEN/FULL RICH
Props ..... FULL FORWARD
Flaps..... LDG *(111 Max)*
Approach Speed ..... V_{REF} 85 KIAS
Touchdown .. MAIN WHEELS FIRST
Throttles.....IDLE
Stick.....APPLY BACK PRESSURE
Brakes ..... APPLY

GO AROUND (BALKED Landing)

Mixtures, Props, & Throttles .. FULL
Airspeed ..... 85 KIAS
Flaps.....APP
Positive Rate..... GEAR UP
Flaps.....UP
Airspeed ..... 90 KIAS
At safe Altitude
Fuel Pumps.....OFF
(One at a Time!)

TAXI BACK FOR TAKEOFF

Clear of Runway

Trim ..... SET for TAKEOFF
Flaps.....UP
Mixtures..... LEAN for TAXI
Fuel Pumps..... OFF for TAXI
Lights.....AS REQUIRED

Holding Short

Mixtures....ENRICHEN/FULL RICH
Fuel Pumps.....ON
Lights.....ON as REQUIRED

AFTER LANDING

(Taxi to Park)

Taxi..... CLEAR OF RUNWAY
Throttles..... IDLE (1000 RPM)
Mixtures .....LEAN FOR TAXI
Pitot Heat.....OFF
Fuel Pumps.....OFF
Flaps.....UP
Landing & Taxi Lights.... AS REQ'D
Strobes .....ON (Day) OFF (Night)

ENGINE SHUTDOWN & SECURE AIRPLANE

Throttles..... 1000 RPM
Engine/System Page..... CHECK
ELT.....CHECK *(Not Transmitting)*
Props .. ENSURE FULL FORWARD
AV Master.....OFF
Electrical Equipment .....OFF
Lights Except Strobes .....OFF
Mixtures.....IDLE CUT-OFF
Ignition Switches .....OFF
Tach & Hobbs Times.....RECORD
Master Switch ..... OFF
Sunshades.....INSTALL
Personal Items & Trash...REMOVE
Pitot Cover & Tiedowns....INSTALL

GENENERAL SPECIFICATIONS (KIAS)	
Tire Pressure Main	65 psi
Tire Pressure Nose	87 psi
Max Ramp Weight	3957 lbs.
Max Takeoff Weight	3935 lbs.
Max Landing Weight	3748 lbs.
Max Zero Fuel Weight	3638 lbs.
Minimum Flight Weight	3009 lbs.
Max. Nose Baggage	66 lbs.
Max. Cockpit Baggage & Extension	100 lbs.
Max X-W Landing	17 kts.
Cruise Speed TAS 65% 6000 ft.	152
Electrical system	24 Volt
Oil Temps	149^{O} – 245^{O}F
Oil Quantity	4 qts. Min 6 – 8 qts
Oil Pressure Green Arc	56-95 PSI
Oil Pressure Min-Max	25-97 PSI
Max CHT	500^{O}F
Fuel	100 LL
Fuel Capacity w/Aux Tanks	79 Gal
Unusable Fuel	3 Gal
Max Fuel Imbalance	5 Gal
Engines	IO-360-M1A & LIO-360-M1A
Horsepower	180 HP @ 2700 RPM
Max Cont. HP	160 HP 2700 RPM @ 25.5”
V_{SO}	57
V_S	64
V_{MC} (Red Line)	65
V_R	78
V_X	85
V_{XSE}	85
V_{REF} Final Approach	85
V_Y	90
V_{SSE}	80
V_{YSE} (Blue Line)	90
V_{FE}	APP 137 LDG 111
V_{LE} Gear Up	156
Emer. Gear Extension	156
V_{LO} Gear Down	194
V Final App & Go Around	85
V_A	Above 3400# 126; Up to 3400# 120
V_{NO}	155
V_{NE}	194

Takeoff Data

PRESSURE ALTITUDE	WEIGHT 3935 LBS									
	15 °C (59 °F)		25 °C (77 °F)		35 °C (95 °F)		45 °C (113 °F)	
	GROUND ROLL	TOTAL DISTANCE TO 50'	GROUND ROLL	TOTAL DISTANCE TO 50'	GROUND ROLL	TOTAL DISTANCE TO 50'	GROUND ROLL	TOTAL DISTANCE TO 50'
feet	feet	feet	feet	feet	feet	feet	feet	feet
0	1590	2450	1710	2630	1830	2820	1950	3010
1000	1750	2710	1880	2910	2010	3120	2150	3340
2000	1930	3000	2070	3230	2220	3470	2370	3730
3000	2130	3340	2290	3600	2450	3880	2630	4170
4000	2350	3730	2530	4030	2720	4350	2920	4690
5000	2610	4190	2810	4540	3020	4910	3240	5320
6000	2910	4730	3130	5140	3370	5590	3620	6070
7000	3310	5490	3570	5990	3840	6540	4130	7140
8000	3770	6420	4080	7050	4400	7740	4740	8510
9000	4320	7600	4670	8400	5050	9310	5440	10340
10000	4960	9140	5380	10220	5820	11470	6280	12960

Landing Data

PRESSURE ALTITUDE	WEIGHT 3750 LBS							
	15 °C (59 °F)		25 °C (77 °F)		35 °C (95 °F)		45 °C (113 °F)	
	GROUND ROLL	TOTAL DISTANCE TO 50'	GROUND ROLL	TOTAL DISTANCE TO 50'	GROUND ROLL	TOTAL DISTANCE TO 50'	GROUND ROLL	TOTAL DISTANCE TO 50'
feet	feet	feet	feet	feet	feet	feet	feet	feet
0	1210	2410	1260	2480	1310	2550	1360	2620
1000	1260	2480	1310	2560	1360	2630	1410	2700
2000	1320	2560	1370	2630	1420	2710	1470	2780
3000	1370	2640	1430	2720	1480	2790	1540	2870
4000	1430	2720	1490	2800	1550	2880	1600	2960
5000	1490	2810	1550	2890	1610	2970	1670	3050
6000	1560	2900	1620	2980	1680	3070	1740	3150
7000	1630	2990	1690	3080	1760	3170	1820	3260
8000	1700	3090	1770	3180	1830	3270	1900	3360
9000	1770	3190	1840	3290	1910	3380	1980	3480
10000	1850	3300	1930	3400	2000	3500	2070	3590

Max Continuous Power

Pressure Altitude Feet	Manifold Pressure (MAP) (in Hg)
Sea Level	26.7
1000	26.3
2000	26.0
3000	25.7
3500	25.5

NOTE

Above 3500 feet pressure altitude, the available power never exceeds MCP.

Pressure Altitude ft (m)	Percent Power	-20 ISA -12 °C (54 °F)	ISA 8 °C (48 °F)	+20 ISA 28 °C (82 °F)
		Airspeed (KTAS)		
3500 (1067)	MCP	164	168	172
	75%	154	157	161
	65%	145	148	151
5000 (1524)	MCP	163	167	171
	75%	156	160	163
	65%	147	150	153
	55%	137	140	142
7000 (2134)	MCP	162	166	169
	75%	159	162	166
	65%	150	153	156
	55%	139	142	145
9000 (2743)	MCP	160	164	167
	65%	152	156	159
	55%	141	144	147