



Fly Corps Aviation – Twin Star DA42NG- N426YP – Preflight and Start Up Procedures

<p align="center">— Cabin Check —</p> <p>Airplane Documents Check Flight Planning Complete Hobbs Time Record Parking Brake Set Canopy & Rear Door Check Baggage Secured Fuel Selector ON Power Lever Check then Idle Alternate Static Closed Manual Gear Handle Pushed In Alternate Air Closed Alternator On Voter Switch AUTO Pitot Heat OFF Engine Master OFF Start Key OUT Electric Master OFF Avionics Master OFF Gear Selector DOWN Flaps Selector UP Circuit Breakers IN Electrical Equipment OFF Emergency Switch Off/Secured ELT Armed Electric Master ON Fuel Quantity Check/Rest Lights Check Stall Warning Check Stall Heat Check Pitot Heat Check Gear Warning and Fire Detector Test Control Stick Aft & Hold Power Level MAX Variable Elevator Backstop Check Power Level Idle Variable Elevator Backstop Check Electric Master OFF Controls Free & Clear Trims Free and correct</p> <p align="center">— Main Gear —</p> <p>Strut & Lock Check Down Switch Check Uplock Switch Check Tire Condition Check Brake Line Check Slip Marks Check Landing Gear Door Check Chocks Remove</p>	<p align="center">— Left Engine —</p> <p>4 Air Inlets/ 2 Air Outlets Clear Engine Oil Level Check Gearbox Oil Check Cowling Check Gascolator Drain Venting Pipe Check Exhaust Pipe Check Propeller Check De-icing Boots Check Underside Check Auxiliary Tank Drain Drain Auxiliary Tank Filler Check/secure</p> <p align="center">— Left Wing —</p> <p>Entire Wing Surface Visual Inspection Vortex Generators Undamaged Tank Air Outlet Check Tank Drain Drain Openings on Lower Surface Check Stall Warning Device Check Tank filler Check and closed Pitot Probe Check Wing Tip Check Static dischargers Check Position Light & Strokes Check Aileron and Linkage Check Aileron Hinges and Safety Pin Check Foreign Objects in aileron paddle Check Flap and Linkage Check Flap hinges and safety pin Check Nacelle underside Check Step Check</p> <p align="center">— Fuselage, Left and Underside —</p> <p>Canopy Left Side Check Rear Cabin door & Window Check Fuselage Skin Check Antennas Check Fuselage Check for Contamination Static Source Check Blockage</p> <p align="center">— Empennage —</p> <p>Stabilizers and Control Surfaces Check Hinges Check Elevator/Rudder Trim Tabs Check Tail Skid Lower Fin Check Static Dischargers Check</p>	<p align="center">— Fuselage, Right and Underside —</p> <p>Fuselage Skin Check Rear Window Check Canopy Right Side Check Static Source Check Blockage</p> <p align="center">— Right Wing —</p> <p>Entire Wing Surface Visual Inspection Vortex Generators Undamaged Tank Air Outlet Check Tank Drain Drain Openings on Lower Surface Check Tank filler Check and closed Wing Tip Check Static dischargers Check Position Light & Strokes Check Aileron and Linkage Check Aileron Hinges and Safety Pin Check Foreign Objects in aileron paddle Check Flap and Linkage Check Nacelle underside Check Step Check Cabin Vent Air Inlet Check</p> <p align="center">— Right Engine —</p> <p>4 Air Inlets/ 2 Air Outlets Clear Engine Oil Level Check Gearbox Oil Check Cowling Check Gascolator Drain Venting Pipe Check Exhaust Pipe Check Propeller Check De-icing Boots Check Underside Check Auxiliary Tank Drain Drain Auxiliary Tank Filler Check</p> <p align="center">— Front Fuselage —</p> <p>L/R Front Baggage Doors Locked Nose Landing Gear Strut Check Down & Uplock Switches Check Tire Condition Check Slip Marks Check Gear Door Linkage Check Chocks Remove OAT Sensor Check EPU Connector Check</p>	<p align="center">— Before Start —</p> <p>Pre-flight Complete Flight Planning Complete Passengers Safety Briefing Rear Door Closed & Locked Front Canopy Closed & Locked Adjustable Backrests Upright and Locked Rudder Pedals Adjusted Seat Belts On & Secured Power Lever IDLE Parking Brake SET Avionics Master OFF Gear Selector DOWN Voter Switch AUTO Alternators ON Fuel Pump LH/RH OFF Electric Master ON Fuel Temp Check</p> <p align="center">— Engine Start —</p> <p>Strobe Lights ON Position Lights ON Engine Master(s) ON Annunciations “GLOW ON” Engine/System Page OK/Normal Annunciations “Glow Anc. Off” Start Key Engage, release when started Do not engage the starter for MORE THAN 10 SECONDS Let cool for 20 seconds after 6 attempts stop for 30 minutes. Annunciations/Engine Sys Page CHECK Annunciations/Starter OFF Annunciations Oil Pressure OK Circuit Breakers CHECK IDLE RPM CHECK 710+/- 30RPM Repeat with 2nd Engine</p> <p align="center">- STARTER MALFUNCTION -</p> <p>If the starter does not disengage from the engine after starting: Power Lever affected engine IDLE Engine Master affected engine OFF Electric Master OFF Terminate Flight</p>
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Fly Corps Aviation – Twin Star DA42NG- N426YP – Taxi, Landing, Takeoff Procedures

<p align="center">— Before Taxi —</p> <p>Avionics Master..... ON Electrical Equipment ON Flight Instruments and Avionics SET Flood Lightas required Pitot/Stall Warning Heat..... ON/Check Pitot/Stall Warning OFF Lightsas required Autopilot.....ON Autopilot Disconnect.....Verify Function Trim.....Set T/O</p>	<p align="center">— ECU Test —</p> <p><i>If L/R A/B FAIL indicators do not illuminate and extinguish during test sequence, there is a malfunction in the ECU. Terminate flight</i></p> <p>Engine/Gearbox oil temps must be in green Brakes..... Set/Held Power LeverIDLE Prop RPM..... Below 1000 Fuel Pumps..... OFF Voter Switch AUTO Temperatures..... IN GREEN ECU TestPress and Hold</p>	<p align="center">— Take Off (Normal) —</p> <p>Fuel Pumps LH/RH.....ON Transponder.....ALT Power Lever.....MAX Elevator.....neutral Rudder maintain control Nose Wheel Lift Off Vr min 76 KIAS Airspeed for initial Climb Vy 90 KIAS Landing Gear Apply Brakes then UP Fuel Pumps LH/RH..... OFF Alternate Air Open in rain/snow/moisture</p>	<p align="center">— Descent —</p> <p>Power Levelas required Air Speedas required Trimas required Annunciations.....Monitor</p>
<p align="center">— Taxi —</p> <p>Parking Break Release BreaksTEST Nose Wheel Steering Check Flight Instruments/Avionics Check Fuel Pumps LH/RH..... OFF Fuel Selector.....CROSSFEED</p> <p>The fuel Crossfeed function can be tested simultaneously with both engines. Proper function can be tested by running the engines for approx. 30 seconds with CROSSFEED selected. The operation of both engines with both FUEL SELECTORS in CROSSFEED position, other than for this test, is prohibited</p> <p>Fuel Selector.....ON</p>	<p align="center">Annunciations in sequence: ECU A/B Fail ON Propeller RPM Above 1800 Propeller RPM Decrease Propeller RPM Above 1800 Propeller RPM to Idle <i>Transfer to other ECU channel</i> Propeller RPM Above 1800 Propeller RPM Decrease Propeller RPM Above 1800 Propeller RPM to Idle ECU A/B Fail OFF</p>	<p align="center">— Short Field Take Off —</p> <p>Flaps..... APP Fuel Pumps LH/RH.....ON Transponder.....ALT Power Lever.....MAX Elevator.....neutral Rudder maintain control Nose Wheel Lift Off Vr min 71 KIAS Airspeed for initial Climb Vy 85 KIAS Landing Gear.....Apply Brakes then UP Fuel Pumps LH/RH OFF Alternate Air Open in rain/snow/moisture</p>	<p align="center">— Approach & Landing —</p> <p>Adjust Backrestsupright Safety Belts..... ON Controls..... free from obst. Landing Light..... ON Gear Warn Horn.....CHECK Fuel SelectorON Fuel Pumps LH/RH.....ON Landing Gear ...Down, 3 Green Parking Brake..... Released Trim As required Air Speed.....min 86 Flaps Up Flaps..... as required Power Lever..... as required Trim as required Final Approach Speed Flaps LDG.....min 84 KIAS</p>
<p align="center">— Before Take Off —</p> <p>Position Plane into wind Parking BrakeSET Adjustable Back Restsupright/locked Safety Belts..... ON Rear Door Closed/Locked Front CanopyClosed/Locked Front Baggage Doors.....VISUAL CLOSED Door Warning..... Verify no indication Annunciations/Engine Page.....NORMAL Circuit BreakersIN Elevator Trim Set T/O Directional Trimneutral Flaps UP Flight Controls.....Free/Clear Pitot HeatAs required Landing LightAs required</p>	<p>ECU Test Button.....Release <i>Check Engine during switch. Shake may occur</i> Voter Switch.....ECU A Voter Switch..... AUTO Voter Switch..... ECU B Voter Switch..... AUTO</p> <p>Running the engine with the Voter Switch on ECU A or ECU B, other than for this test or in an emergency is prohibited. The engine control system redundancy is only given with the Voter Switch set on AUTO.</p> <p>Power LeverMax 10 seconds Annunciationscheck normal Instrumentscheck normal RPMStabilize at 2250 to 2300 Load IndicationStabilizes 89-100% Power LevelIDLE</p>	<p align="center">— Initial Climb —</p> <p>Landing Light OFF Landing Gear Check Up Flaps..... Check Up Airspeed.....set/check</p> <p align="center">Best Rate 90 KIAS Cruise Climb 90 KIAS</p> <p>Power Lever92% TrimAs required Annunciations/Engine Page..... Monitor</p> <p align="center">— Cruise —</p> <p>Power Levelperformance as required Manufacture recommends 75% for cruise Trim as required Annunciations/Engine Page..... Monitor</p>	<p align="center">— Go Around —</p> <p>Power lever.....MAX FlapsAPP Air Speed 90 KIAS Landing GearUP FlapsUP Fuel Pumps LH/RH.....OFF</p> <p align="center">— After Landing —</p> <p>Power LevelIDLE Brakesas required Pitot HeatOFF Avionicsas required Lightsas required FlapsUP Fuel Pumps LH/RH.....OFF</p>



Fly Corps Aviation – Twin Star DA42NG- N426YP – Shut Down and Performance Information

— Shut Down —	— V Speeds —		— INFO —	
<p>Parking Brake.....set Power LeverUp to 10% load 1 min Engine/System..... Check ELT Check Off Avionics Master OFF Electrical Consumers..... OFF Engine Master OFF Strobes..... OFF Electric Master OFF</p> <p>Before Shut-down the engine must run for 1 minute with power at 10% to avoid heat damage of the turbo charger.</p> <p>DO NOT SHUT DOWN ENGINE WITH FUEL SELECTOR VALVE</p> <p style="text-align: center;">— Post Flight Inspection —</p> <p>Squawks Record Park Plane..... as required Pitot Probe..... Cover</p> <p style="text-align: center;">Engines – Austro E4-C</p> <p>WARNING indication – means that the non-observation of the corresponding procedure leads to an immediate or important degradation of flight safety</p> <p>CAUTION indication– means that the non-observation of the corresponding procedure leads to a minor or to a more less long-term degradation in flight safety.</p> <p style="text-align: center;">No intentional shut down below 3000AGL or 10,000 MSL.</p>	Airspeed		KIAS	
	VA	Maneuvering Speed	119-122	<p>Maximum Landing Weight4407lbs Maximum Take Off Weight.....4407lbs Max Load Nose Baggage..... 66lbs Max Load in Cabin Baggage 100lbs Max Operating Altitude FL180 Useable Fuel Mains2x25gal Useable Fuel Aux..... 2x13gal Service Ceiling 18,000 ft MAX Restart Alt 10,000MSL MAX fuel Imbalance5gal/side Restart AirspeedBelow 100 KIAS Take off over 50’ OBS3214 ft Take off ground roll1968 ft Landing over 50’ OBS.....2230 ft Landing ground roll1345 ft *86° F and no wind used for calculations*</p> <p>Normal Category Approved Maneuvers:</p> <ul style="list-style-type: none"> - Normal flight maneuvers - Stalling (no dynamic stalls) - Lazy Eights, Chandelles, and steep turns less than 60 bank
	VFE (APP)	Max Flap Extend. Flaps Approach	133	
	VFE (LDG)	Max Flap Extend. Flaps Landing	113	
	VLOE	Landing Gear Extension	188	
	VLOR	Landing Gear Retraction	152	
	VLE	Max Landing Gear Speed	188	
	VMCA	Minimum Control Airspeed	71	
	VNO	Max Structural Cruising Speed	151	
	VNE	Never exceed speed	188	
	VYSE	Best Single Engine Climb	85	
	VY	Best Rate of Climb	90-92	
	VX	Best Angle of Climb	77	
	Vr	Rotation Speed	76	
	Cruise Climb	90-92		
VREF	Approach Speed (APP flaps)	84-88		
VREF	Landing Speed (LDG flaps)	84-86		
	Max Emergency Gear Extension	152		



Fly Corps Aviation – Twin Star DA42NG- N426YP – One Engine Inoperative Procedures

— Engine Demonstration/Restart —

Maximum Altitude10,000' MSL
 Minimum Altitude3,000' MSL

When demonstrating handling qualities with one engine inoperative the left engine is the critical engine.

— One Engine Inoperative Procedures —

WARNING

In certain combinations of airplane weight, configuration, ambient conditions, speed and pilot skill, negative climb performance may result.

Refer to POH Chapter 5 - PERFORMANCE for one engine inoperative performance data. In any event the sudden application of power during one-engine inoperative operation makes the control of the airplane more difficult.

Detecting the Inoperative Engine

One engine inoperative means an asymmetric loss of thrust, resulting in uncommanded yaw and roll in direction of the so-called "dead" engine (with coordinated controls). To handle this situation it is vital to maintain directional control by mainly rudder and additional aileron input. The following mnemonic can help to identify the failed engine:

"Dead foot - dead engine"

This means that, once directional control is re-established, the pilot can feel the control force on the foot pushing the rudder-pedal on the side of the operative engine, while the foot on the side of the failed engine feels no force. Further, the engine instruments can help to analyze the situation.

— Engine Troubleshooting —

Fly the Airplane - Control Flight Attitude First

If both ECU A(B) cautions appear simultaneous

If indicated LOAD remains unchanged, perceived thrust is reduced, and engine noise level changes:

Power Lever.....IDLE 1 second
 Power Lever.....Slowly increase to 1975 RPM

If engine shows power loss during Power Lever increase:

Power Lever.....IDLE 1 second
 Power Level.....Slowly increase, stop prior to loss

Do not increase Power Lever any further

Otherwise:

Circuit breakerscheck/reset
 Voter SwitchSwap between ECU A/B
 If swap restores engine power land asap
 If problem not solved switch back to automatic.
 Fuel SelectorCheck on/Crossfeed if required
 Alternate AirOpen

Land at next suitable airfield

Depending on situation restart may be possible prior to securing the engine:

CAUTION

Maximum immediate restart altitude 15,000 MSL
 If restart is not immediate then 10,000 MSL

— ENGINE SECURING PROCEDURE —

Inoperative EngineID/VERIFY
 Engine Master inoperative engineOFF

Do not shut down with fuel selector valve

Alternator inoperative engineOFF
 Fuel pump.....CHECK OFF
 Fuel Selector Inoperative EngineOFF

— RESTART (Starter)- IN FLIGHT —

Airspeedbelow 100 KIAS
 Power Lever affected EngineIDLE
 Fuel Selector affected engineON
 Alternate Airas required
 AlternatorON
 Engine Master affected engineON
 Starter affected EngineEngage when prop stationary

DO NOT ENGAGE STARTER IF PROPELLER IS WIDMILLING

Once started, set power level to a moderate level until oil pressure reaches green range.
 Circuit BreakersCheck

— Windmilling Restart —

Airspeed125-145 KIAS
 Power Lever affected EngineIDLE
 Fuel Selector affected engineON
 Alternate Airas required
 AlternatorON
 Engine Master affected engineON
 Once started set power level a moderate level until oil pressure reaches green range.
 Circuit BreakersCheck



Fly Corps Aviation – Twin Star DA42NG- N426YP – Emergency Procedures – ENGINE OUT

<p style="text-align: center; color: red;">ENGINE FAILURE DURING GROUND ROLL</p> <p>ABORT TAKE OFF Power levelIDLE/BOTH Rudder..... Maintain Control Breaks As required Risk of fire can be reduced: Engine Master.....BOTH OFF Fuel Selector.....BOTH OFF Electric Master.....OFF</p> <p style="text-align: center; color: red;">ENGINE FAILURE AFTER ROTATION</p> <p>If landing gear is still extended and remaining runway/surface is adequate – ABORT T/O & LAND</p> <p><i>If Insufficient Runway Remains for a Safe Stop:</i> Power LeverMAX Rudder..... Maintain Directional Control Airspeed Pitch for Vyse 85 KIAS Landing Gear UP Flaps.....UP Identify & Verify Inoperative Engine Secure Inoperative Engine Land as soon as safe and practical</p> <p style="text-align: center; color: red;">ENGINE FAILURE DURING INITIAL CLIMB</p> <p>Rudder..... Maintain Directional Control Airspeed Pitch for Vyse 85 KIAS Power LeverMAX Landing Gear UP Flaps.....UP Establish zero slide slip condition Identify & Verify Inoperative Engine Secure Inoperative Engine Land as soon as safe and practical.</p> <p style="text-align: center; color: red;">ENGINE FAILURE DURING FLIGHT</p> <p>Rudder..... Maintain Directional Control Airspeed.....As Required/ Above Vmca 71 KIAS Power Lever as required to maintain directional control Establish zero slip condition Identify & Verify Inoperative Engine Secure Inoperative Engine Land as soon as safe and practical.</p>	<p style="text-align: center; color: red;">FLIGHT WITH ONE ENGINE INOPERATIVE</p> <p>Even if a positive flight performance can be established with one engine inoperative, land as soon as possible at next suitable airfield/airport.</p> <p>Airspeed..... above Vmca – 71 KIAS Remaining Engine Monitor Fuel QuantityMonitor Fuel Selector remaining engine.....Crossfeed or ON Land as soon as practical</p> <p>If the FUEL SELECTOR is set on CROSSFEED, the engine will be supplied with fuel from the main tank on the opposite side. This will extend range and helps to keep the wings laterally balanced</p> <p style="text-align: center; color: red;">LANDING WITH ONE ENGINE INOPERATIVE</p> <p>Adjustable Backrestsup & secured Safety Harnessessecured Landing LightON Gear Warning HornCHECK</p> <p>Operative Engine: Fuel Pump.....ON Fuel SelectorON</p> <p>Inoperative Engine Verify Secured <i>Airspeed As Required until “Field is Made”</i></p> <p style="text-align: center; color: red;">“Field Made”</p> <p>Airspeedas required to operate Gear Landing GearDown and verify 3 GREEN Trimas required Airspeedreduce as required Flapsas required</p> <p>Final Approach Speed Max Weight VREF - Flaps UP 86 KIAS VREF - Flaps APP 84 KIAS VREF - Flaps LDG 84 KIAS</p> <p>Power leveras required Trimas required</p> <p style="text-align: center;">Perform Normal Touchdown and ground roll</p>	<p style="text-align: center; color: red;">GO AROUND ONE ENGINE INOPERATIVE</p> <p style="text-align: center; color: red;">Not recommended below 800 AGL</p> <p>Power leverMAX RudderMaintain Control Air SpeedVyse 85 KIAS Landing Gear.....UP FlapsUP</p> <p style="text-align: center; color: red;">BOTH ENGINES OUT LANDING</p> <p>Engine Maser.....Both OFF Alternator Switches.....Both OFF Fuel Pumps.....Both OFF Fuel Selector.....Both OFF Seat Belts..... ON/Secured Flaps.....as required AirspeedMin. 84 KIAS Landing Gear..... down and confirm 3 green Power Lever.....Both IDLE Electric MasterOFF Touch Down..... Lowest practical speed</p> <p style="text-align: center; color: red;">ENGINE SECURING PROCEDURE</p> <p>Inoperative EngineID/VERIFY Engine Master inoperative engineOFF Do not shut down with fuel selector valve Alternator inoperative engine OFF Fuel Selector Inoperative EngineOFF</p>
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Fly Corps Aviation – Twin Star DA42NG- N426YP – Emergency Procedures – System Failures

<p style="text-align: center; color: red;">— LANDING GEAR SYSTEM FAILURES —</p> <p style="text-align: center; color: red;">LANDING GEAR UNSAFE WARNING</p> <p>Landing Gear unsafe warning light illuminates if landing gear is neither in the final up or down & locked position. Illumination of this light is normal during transit.</p> <p>If the light remains on for longer than 20 seconds during landing gear retraction/extension: Airspeedbelow 156 KIAS Gear SelectorRecycle</p> <p>If landing gear cannot be extended to the down and locked position or red lights do not extinguish then continue with manual gear extension.</p> <p style="text-align: center; color: red;">MANUAL GEAR EXTENSION</p> <p>Gear indicator lightsTest Electric Master.....CHECK ON Bus VoltageCHECK Circuit BreakerCHECK Gear SelectorDOWN Manual Gear Extension Handle..... PULL OUT</p> <p>The landing gear should be extended by gravity and relief of hydraulic pressure from the system. If one or more gear indicator lights do not indicate down and locked reduce airspeed to 110 KIAS and apply a moderate yawing and pitching to bring the landing gear into the locked position.</p> <p>Gear Indicator LightsCheck 3 green Circuit Breaker Landing Gearsecure</p>	<p style="text-align: center; color: red;">GEAR UP LANDING</p> <p>Approachwith power at normal settings Power lever.....IDLE at touchdown</p> <p>If time allows: Engine Master.....Both OFF Fuel Pumps.....Check OFF Fuel SelectorBoth OFF TouchdownContact surface with min speed On Ground.....maintain directional control w/ rudder Electric masterOFF</p> <p style="text-align: center; color: red;">— ELECTRICAL SYSTEM FAILURES —</p> <p style="text-align: center; color: red;">COMPLETE FAILURE OF ELECTRICAL SYSTEM</p> <p>Circuit BreakersCheck Emergency Switch ON Flood light..... as required Power ...set based on lever position and engine noise Prepare landing with flaps in given position Land on nearest suitable airfield</p> <p style="text-align: center; color: red;">WARNING</p> <p style="text-align: center; color: red;">Engine stoppage may occur, depending on the failure mode. Backup batteries are installed for the ECU's to provide electrical power solely to the ECU and their systems for at least 30 min</p> <p style="text-align: center; color: red;">Back up artificial horizon and flood light should have power for 1.5 hours.</p> <p style="text-align: center; color: red;">HIGH CURRENT</p> <p>If high current is indicated on G1000: Circuit breakers..... Check Reduce electrical load Land nearest suitable airfield</p>	<p style="text-align: center; color: red;">— SMOKE & FIRE —</p> <p style="text-align: center; color: red;">ENGINE FIRE ON GROUND</p> <p>Engine Master.....Both OFF Fuel Selector.....Both OFF Electric Master.....OFF Canopy.....OPEN Airplane evacuate immediately</p> <p style="text-align: center; color: red;">ENGINE FIRE ON TAKE OFF</p> <p>Cabin heat & defrost.....OFF Canopy.....Unlatch Proceeded to engine failure on takeoff check list.</p> <p style="text-align: center; color: red;">ENGINE FIRE IN FLIGHT</p> <p>Cabin heat & defrost.....OFF Proceed to engine failures in flight procedures</p> <p style="text-align: center; color: red;">ELECTRICAL FIRE ON GROUND</p> <p>Electric Master OFF If Engine is running: Power lever.....Both IDLE Engine Master.....Both OFF Fuel Selector.....Both OFF</p> <p>When engine has stopped Canopy Open Aircraft..... Evacuate Immediately</p> <p style="text-align: center; color: red;">ELECTRICAL FIRE IN FLIGHT</p> <p>Emergency SwitchON Avionics Master OFF Electrical MasterOFF Cabin Heat & Defrost..... OFF Emergency Windows OPEN Land at next suitable airfield</p> <p style="text-align: center; color: red;">**REFER TO AFM FOR OTHER EMERGENCIES**</p>
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