



**Waterloo Wellington  
FLIGHT CENTRE**

# **SOP-DA40**

**Standard Operating Procedures – DA40**

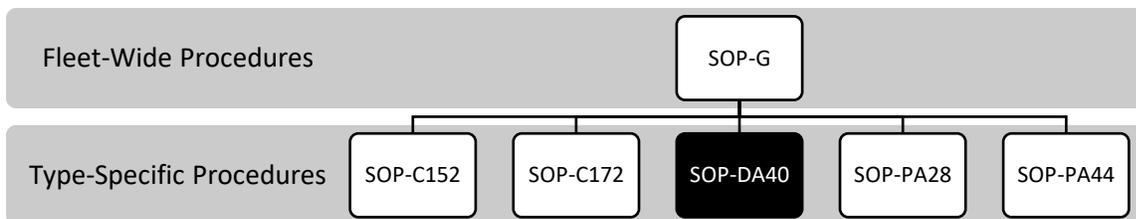
January 02, 2024

## SECTION 0 - FRONT MATTER

### 0.1 - INTRODUCTION

To ensure safety and regulatory compliance, flights must be conducted in accordance with regulations, ATC clearances, personal capability, aircraft operating limitations described in the applicable Pilot Operating Handbook, and WWFC's Flight Training Operations Manual. WWFC has attempted to ensure that the information contained here does not contradict anything listed in any of our fleet Pilot Operating Handbooks, but if there is any disagreement, **the Pilot Operating Handbook is the final authority.**

### 0.2 - SOP ORGANIZATION CHART



### 0.3 - VERSION INFORMATION

Version Date
January 02, 2024

Jan 2024 version

- Updated section 5.2 (page 16)
- Updated section 4 profiles (page 12-14)

## 0.4 - CONTENTS

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## 0.5 - ACRONYMS

Acronym	Definition
AFM	Aircraft Flight Manual
AGL	Above Ground Level
ASL	Above Sea Level
ATC	Air Traffic Control
DH	Decision Height
EFB	Electronic Flight Bag
FAF	Final Approach Fix
IFR	Instrument Flight Rules
KIAS	Knots Indicated Airspeed
KTAS	Knots True Airspeed
MAP	Missed Approach Point
MDA	Minimum Descent Altitude
MSA	Minimum Sector Altitude
PIC	Pilot in Command
POH	Pilot Operating Handbook
SID	Standard Instrument Departure
SOP	Standard Operating Procedure
TOC	Top-of-Climb

# SECTION 1 - NORMAL CHECKLISTS

DA40	NORMAL PROCEDURES
<b>PREFLIGHT</b> <span style="float: right;"><b>F</b></span> <i>Refer to Pilot Briefing Card</i>	<b>AFTER START / TAXI</b> <span style="float: right;"><b>F&amp;R or R&amp;D</b></span>
<b>BEFORE START</b> <span style="float: right;"><b>R&amp;D</b></span> Preflight Inspection / Pax Brief..... COMPLETE Rudder Pedals.....ADJUSTED Brakes..... TEST and SET Safety Harnesses..... ON Baggage.....SECURE Rear Door..... CLOSED and LOCKED Front Canopy.....Position 1 or 2 Trim Wheel.....T/O Throttle..... IDLE RPM Control.....HIGH RPM Mixture Control..... FULL LEAN Quadrant Friction.....ADJUSTED Alternate Air.....CLOSED Alternate Static Valve.....CLOSED Avionics Master Switch..... OFF ESS BUS Switch..... OFF BAT (Battery) Switch..... ON Fuel Tank Selector..... FULLEST TANK Strobe Light (ACL)..... ON	Avionics Master Switch..... ON Electrical Equipment..... ON as req'd Flaps..... UP – T/O – LDG – T/O Flight Instruments..... SET as req'd Ammeter.....CHECK Fuel Tank Selector..... SWITCH TANKS Pitot Heat.....ON, check function w/ ammeter, OFF Lights.....set for taxi Idle RPM..... CHECK, 600-800 RPM <b>GIXL only</b> PFD..... NO AP ANNUNCIATIONS AP Disconnect Tone.....NOTE AUDIBLE Taxi Area..... CLEAR Parking Brake.....RELEASE Throttle.....APPLY SLOWLY Brakes.....CHECK Steering.....CHECK Flight Instruments.....CHECK (no red Xs)
<b>START</b> <span style="float: right;"><b>R&amp;D</b></span> <b>NORMAL START</b> <span style="background-color: red; color: white;">-IF ENGINE IS HOT (dipstick warm or hot).</span> Electric Fuel Pump.....ON, note noise Throttle..... 3 cm (1 ¼ in.) FWD from IDLE Mixture Control..... RICH for 1 sec then LEAN Electric Fuel Pump..... OFF Ignition Switch..... START Mixture..... ADVANCE to RICH when engine starts <span style="background-color: red; color: white;">-IF ENGINE IS FLOODED (hot start is unsuccessful).</span> Electric Fuel Pump..... OFF Mixture..... FULL LEAN Throttle..... MID-POSITION Ignition Switch..... START When engine starts: Throttle.....RETARD to IDLE Mixture..... ADVANCE to RICH <span style="background-color: blue; color: white;">-IF ENGINE IS COLD (dipstick cold to touch).</span> Electric Fuel Pump.....ON, note noise Throttle..... 3 cm (1 ¼ in.) FWD from IDLE Mixture Control..... RICH for 3-5 sec then LEAN Electric Fuel Pump..... OFF Throttle..... ½ in. FWD from IDLE Ignition Switch..... START Mixture..... ADVANCE to RICH when engine starts Oil Pressure..... CHECK green within 15 sec ALT (Alternator) Switch..... ON Ammeter..... CHECK Annunciator section of PFD..... CHECK <b>OTHER START PROCEDURES..... refer to POH</b>	<b>RUN UP / BEFORE TAKEOFF</b> <span style="float: right;"><b>R&amp;D</b></span> Parking Brake..... SET Canopy & Rear Door.....CLOSED and LOCKED Door Annunciator (DOOR OPEN).....OFF Fuel Tank Selector..... FULLEST TANK Engine Instruments..... GREEN Circuit Breakers.....IN Fuel Pressure Indicator..... CHECK (14-35 PSI) Mixture Control Lever..... RICH (below 5000') Flaps.....CHECK T/O Trim.....CHECK T/O Flight Controls.....FREE and CORRECT Throttle.....2000 RPM RPM Lever.....CYCLE (max drop 500 RPM) x3 Magnetos..... CHECK (drop ≤ 175 RPM/diff. ≤ 50 RPM) Circuit Breakers.....CHECK IN Ammeter.....CHECK <25 amps Voltmeter..... GREEN Throttle..... IDLE Throttle..... 1000 RPM Flight Controls.....FREE and CORRECT Flight Instruments.....CHECK and SET Fuel Quantity..... CHECK SUFFICIENT Alternate Air.....CHECK CLOSED Lights..... AS REQ'D Electric Fuel Pump.....ON Mixture..... RICH Brakes.....RELEASE
	<b>LINE CHECK</b> <span style="float: right;"><b>F</b></span> Time..... record Ice Protection..... as req'd Lights..... as req'd Transponder.....ALT Sock.....check winds

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## SECTION 2 - EMERGENCY PROCEDURES

### DA40

### EMERGENCY PROCEDURES – 1/2

#### ENGINE FAILURE DURING TAKEOFF

*If takeoff can be aborted:*

Land .....STRAIGHT AHEAD  
Brakes ..... AS REQ'D  
Fire Risk ..... REDUCE (fuel off, mixture lean  
ignition & master switch (ALT/BAT) off)

*If takeoff can no longer be aborted:*

Airspeed ..... 74 KIAS  
Land .....STRAIGHT AHEAD  
Cause Check..... PERFORM if time permits

#### ENGINE RUNNING ROUGHLY

Airspeed ..... 76 KIAS  
Cause Check ..... PERFORM  
*If problem does not clear itself and engine is not  
producing sufficient power, conduct emerg. landing.*

#### CAUSE CHECK

Electric Fuel Pump..... ON  
Fuel Tank Selector..... FULLEST TANK  
Engine Instruments .....CHECK  
Throttle.....CHECK  
RPM Control .....CHECK  
Mixture Control..... SET for smooth operation  
Alternate Air ..... OPEN  
Ignition Switch..... BOTH

#### ENGINE RESTART

Cause Check ..... COMPLETE  
*If propeller is windmilling:*  
Ignition Switch ..... BOTH  
*If engine does not start:*  
Mixture Control Lever ..... LEAN  
Mixture Control Lever .. slowly advance until start  
*If propeller is stopped:*  
Electrical Equipment..... OFF  
Avionics Master Switch ..... OFF  
Master Switch (BAT) ..... ON  
Ignition Switch ..... START  
*If it is not possible to start engine:*  
Emergency Landing ..... CONDUCT

#### GLIDING

Flaps ..... UP  
Airspeed ..... 76 KIAS  
RPM Control .....LOW RPM to maximize range

#### EMERGENCY LANDING

Suitable Landing Area .....SELECT  
Airspeed ..... 76 KIAS  
ATC ..... ADVISE if time allows  
Fuel Tank Selector .....OFF  
*When landing area can be safely reached:*  
Flaps ..... LDG  
Safety Harnesses..... TIGHTEN  
*If time permits:*  
Ignition Switch .....OFF  
Master Switch (ALT/BAT) .....OFF  
Touchdown .... AT LOWEST POSSIBLE AIRSPEED

#### ABNORMAL OIL PRESSURE

*Low Oil Pressure (below green sector) and oil  
temperature is normal:*

Oil Pressure .....MONITOR  
Oil and Cylinder Head Temperatures ..... MONITOR

*Low Oil Pressure (below green sector) and oil temp  
or CHT is rising and/or OIL PRES LO annunciator:*

Engine Power.....REDUCE to min req'd  
Land ..... AS SOON AS POSSIBLE  
Emergency Landing .....ANTICIPATE

*Low Oil Pressure trending towards zero combined  
with vibration, loss of oil, unusual noise or smoke:*

Engine.....SHUT DOWN  
Emergency Landing .....CONDUCT

*High Oil Pressure is indicated with normal oil  
temperature, probable fault lies in the oil pressure  
indication:*

Aircraft.....HAVE SERVICED

#### HIGH OIL TEMPERATURE

*High Oil Temperature is indicated with normal CHT  
and EGT:*

Aircraft.....HAVE SERVICED

*High Oil Temperature is indicated with high CHT or  
high EGT:*

Oil Pressure ..... CHECK  
*If pressure is normal:*

Mixture..... ENRICH as req'd  
Power .....REDUCE  
Land ..... if issue does not resolve

*If pressure is low, refer to Low Oil Pressure  
procedures.*

#### HIGH CYLINDER HEAD TEMP.

*Cylinder Head Temperature in yellow sector or  
above:*

Mixture .....CHECK, enrich if req'd  
Oil Temperature ..... CHECK

*If oil pressure is normal:*

Power .....REDUCE  
Land ..... if issue does not resolve  
Emergency Landing .....ANTICIPATE

*If oil temp is also high, and oil pressure is low, refer  
to Low Oil Pressure procedures.*

**DA40 EMERGENCY PROCEDURES – 1/2**

**HIGH PROP RPM**

*RPM moves on its own into yellow sector, or is in red sector:*  
 Quadrant Friction.....CHECK  
 Oil Pressure.....CHECK  
*If oil pressure is low:*  
 Prop RPM..... CONTROL with THROTTLE  
 Low Oil Pressure procedures ..... REFER  
*If oil pressure is normal:*  
 RPM Lever ..... set LOW RPM  
*If RPM drop audible:*  
 Indication is faulty. Aircraft must be serviced.  
*If RPM does not drop audibly:*  
 Prop RPM ..... CONTROL with THROTTLE

**LOW PROP RPM**

Electric Fuel Pump..... ON  
 Fuel Tank Selector.....CHECK  
 Quadrant Friction.....CHECK

**LOSS OF RPM**

Electric Fuel Pump..... ON  
 Fuel Tank Selector.....CHECK  
 Quadrant Friction.....CHECK  
 RPM Lever ..... HIGH RPM  
*Listen for rise in RPM.*  
*If no audible rise, governor system is likely defective, in which case the RPM can be regulated within certain limits using the throttle.*  
 Land..... AS SOON AS POSSIBLE  
 Emergency Landing..... ANTICIPATE  
*If indication does not change but RPM audibly rises, RPM indication is defective. Ignore erroneous indication and have aircraft serviced.*

**HIGH FUEL FLOW**

*Fuel Flow in red sector:*  
 Fuel Pressure.....check for FUEL PRESS LO msg  
*If FUEL PRESSURE LO is annunciated, a leak is possible.*  
 Land..... AT NEAREST SUITABLE AIRFIELD  
*If there is no FUEL PRESSURE LO message, likely cause is defective fuel flow indication.*  
 Aircraft ..... HAVE SERVICED

**LOW FUEL PRESSURE**

Electric Fuel Pump..... ON  
*If fuel pressure remains low:*  
 Fuel Flow.....CHECK  
*If high, a leak is possible.*  
 Land..... AT NEAREST SUITABLE AIRFIELD  
*If normal, defective fuel pressure indication.*  
 Aircraft ..... HAVE SERVICED  
*If fuel pressure returns to normal:*  
 Electric Fuel Pump ..... KEEP ON

**DEFECTIVE ENGINE CONTROLS**

**Defective Mixture Control Cable**  
 Altitude ..... MAINTAIN to nearest airfield  
*Test engine response to higher power; roughness and loss of power can result from lean mixture. Plan approach accordingly, go-around may be impossible.*  
**Defective Throttle Control Cable**  
*If power available is sufficient to continue flight, divert to nearest suitable airfield and:*  
 Engine Power ..... CONTROL with RPM lever  
 Engine ..... SHUT DOWN on FINAL  
*If power available is insufficient to continue flight:*  
 Emergency Landing ..... CONDUCT  
**Defective RPM Lever Control Cable**  
*If power available is sufficient to continue flight, divert to nearest suitable airfield and:*  
 Normal Landing ..... PERFORM  
*Note: Go-around may not be possible.*  
*If power available is insufficient to continue flight:*  
 Emergency Landing ..... CONDUCT

**ENGINE FIRE ON GROUND**

Fuel Tank Selector ..... OFF  
 Cabin Heat ..... OFF  
 Brakes ..... APPLY  
 Throttle ..... MAX PWR  
 Master Switch (ALT/BAT) ..... OFF  
*When engine has stopped:*  
 Ignition Switch ..... OFF  
 Canopy ..... OPEN  
 Airplane ..... EVACUATE

**ENGINE FIRE DURING TAKEOFF**

*If takeoff can still be aborted:*  
 Takeoff ..... ABORT  
 Appropriate Fire on Ground Checklist ..... ACTION  
*If takeoff cannot be aborted:*  
 Cabin Heat ..... OFF  
 Engine Fire in Flight Checklist ..... ACTION

**ENGINE FIRE IN FLIGHT**

Cabin Heat ..... OFF  
 Emergency Landing Site ..... SELECT  
*When landing area can be safely reached:*  
 Fuel Tank Selector ..... OFF  
 Throttle ..... MAX PWR  
 Electric Fuel Pump ..... OFF  
 Master Switch (ALT/BAT) ..... ON  
 Emergency Window(s) ..... OPEN if req'd  
 Emergency Landing ..... CONDUCT

**DA40**

**EMERGENCY PROCEDURES – 2/2**

**ELECTRICAL FIRE ON GROUND**

Master Switch (ALT/BAT) ..... OFF

*If engine is running:*

Throttle ..... IDLE

Mixture Control Lever ..... LEAN – shut off engine

*When engine has stopped:*

Ignition Switch ..... OFF

Canopy ..... OPEN

Airplane ..... EVACUATE

**ELECTRICAL FIRE IN FLIGHT**

Flashlight (at night) ..... LOCATE

HORIZON EMERGENCY Switch ..... ON

Master Switch (ALT/BAT) ..... OFF

Cabin Heat ..... OFF

Emergency Window ..... OPEN as req'd

Land ..... AT NEAREST SUITABLE AIRFIELD

*If electronic or avionics equipment is necessary for continued flight:*

BAT (battery) Switch ..... ON

ESS BUS Switch ..... ON

*If smoke or fumes decrease:*

Land ..... AS SOON AS POSSIBLE

*If smoke or fumes persist (fault is on ESS BUS):*

ALT (alternator) Switch ..... ON

ESS BUS Switch ..... OFF

BATT and ESS TIE circuit breakers ..... PULL

Standby Instruments ..... USE

Land ..... AS SOON AS POSSIBLE

*Equipment available when on Essential Bus only or on Main and Avionics Bus only is depicted on the circuit breaker panel and in the POH.*

**COMPLETE ELECTRICAL FAILURE**

Circuit Breakers ..... PULL and RESET

*If fault persists:*

HORIZON EMERGENCY Switch ..... ON

Power ..... SET based on lever position and noise

Land ..... AT NEAREST SUITABLE AIRFIELD

**ALTERNATOR FAILURE**

Circuit Breakers ..... CHECK IN

ALT (alternator) Switch ..... OFF, then ON

*If alternator does not come back online:*

ESS BUS Switch ..... ON

Non-essential electrical load ..... SWITCH OFF

Land ..... WITHIN 30 MINUTES

*If PFD attitude information is lost prior to landing:*

HORIZON EMERGENCY Switch ..... ON

*Equipment available when on Essential Bus only is depicted on the circuit breaker panel and in the POH.*

**OVERVOLTAGE**

*If voltage over 32V is indicated:*

ESS BUS Switch ..... ON

Master Switch (ALT) ..... OFF

Master Switch (BAT) ..... LEAVE ON

Non-essential electrical load ..... SWITCH OFF

Land ..... AT NEAREST SUITABLE AIRFIELD

**LOW VOLTAGE CAUTION**

*On the ground:*

Engine speed ..... 1200 RPM

Electrical Equipment ..... OFF

Ammeter and Voltmeter ..... CHECK

*If caution message remains or ammeter reads zero, discontinue flight.*

*In flight:*

Electrical Equipment ..... OFF

Ammeter and Voltmeter ..... CHECK

*If caution message remains or ammeter reads zero:*

Alternator Failure Checklist ..... ACTION

**LANDING WITH FLAT MAIN TIRE**

ATC ..... ADVISE

Approach ..... edge of runway on INTACT TIRE side

Land ..... ON INTACT TIRE FIRST

Directional Control ..... MAINTAIN with rudder and augment with brake

**LANDING WITH DEFECTIVE BRAKES**

*If risk of runway excursion exists and sufficient time remains:*

Fuel Tank Selector ..... OFF

Mixture Control Lever ..... LEAN – shut off engine

Ignition Switch ..... OFF

Master Switch (ALT/BAT) ..... OFF

**STARTER MALFUNCTION**

*If the starter remains engaged after starting:*

Throttle ..... IDLE

Mixture Control Lever ..... LEAN – shut off engine

Ignition Switch ..... OFF

Master Switch (ALT/BAT) ..... OFF

**CARBON MONOXIDE DETECTED**

*If annunciator illuminates in flight:*

CO Detector ..... TEST/RESET

*If annunciator continues or detector card changes colour:*

Cabin Heat ..... OFF

Ventilation ..... OPEN

Emergency Window(s) ..... OPEN

Forward Canopy ..... OPEN to cooling gap

**DA40 EMERGENCY PROCEDURES – 2/2**

**UNINTENTIONAL SPIN RECOVERY**  
*Immediately and Simultaneously:*  
Throttle ..... IDLE  
Rudder ..... FULL DEFLECTION OPPOSITE SPIN  
Elevator ..... FULLY FORWARD  
Ailerons ..... NEUTRAL  
Flaps ..... UP  
*When rotation has stopped:*  
Rudder ..... NEUTRAL  
Elevator ..... PULL CAREFULLY  
Normal Flight Attitude ..... RESUME

**DOOR OPEN WARNING**  
Airspeed ..... REDUCE IMMEDIATELY  
Canopy ..... CHECK VISUALLY  
Rear Passenger Door ..... CHECK VISUALLY  
*If either door is unlocked:*  
Airspeed ..... BELOW 140 KIAS  
Land ..... AT NEXT SUITABLE AIRFIELD  
**WARNING:** Do not attempt to lock rear door; safety latch may disengage, potentially resulting in separation of door from airplane. If door has been lost, the airplane can be safely flown to next suitable airfield.

**AVIONICS FAILURES**  
**PFD or MFD Display Failure**  
DISPLAY BACKUP Button ..... RESET (once)  
*If system returns to normal, continue with button in.*  
*If system remains in reversionary mode:*  
DISPLAY BACKUP Button ..... PUSH (out)  
**AHRS Failure**  
Standby Instruments ..... USE  
Course Pointer ..... ADJUST using digital window  
**ADC Failure**  
Standby Instruments ..... USE  
Land ..... AS SOON AS PRACTICAL  
**Erroneous or Loss of Engine and Fuel Displays**  
Power ..... SET based on lever position and noise  
Other indications of engine health ..... MONITOR  
*Use other system information, such as annunciator messages, ENGINE SYSTEM page, and AUX – TRIP PLANNING to safely complete the flight.*

**FLIGHT INTO ICING CONDITIONS**  
Icing Area ..... LEAVE by turning back or changing alt  
Pitot Heat ..... ON  
Cabin Heat ..... ON  
Air Distribution Lever ..... UP  
RPM ..... INCREASE to prevent ice build-up  
Alternate Air ..... OPEN  
Emergency Window(s) ..... OPEN if req'd  
ATC ..... ADVISE if emergency expected  
**If PITOT FAIL annunciates:**  
Alternate Static Valve ..... OPEN  
Emergency Window(s) ..... CLOSE

**EMERGENCY EXIT**  
**If aircraft is upright**  
Normal Exits ..... USE  
Hazards (such as engine fire) ..... AVOID  
**If aircraft is overturned**  
Rear Door Emergency Release ..... PULL to release  
Emergency Axe ..... EMPLOY if required

**ABNORMALS**

**FLAP FAILURES**  
**Failure in Position Indication or Function**  
Flap position ..... CHECK visually  
Airspeed ..... maintain in WHITE sector  
Flap Switch ..... check all settings for function  
**Landing with Flaps UP or T/O**  
Airspeed ..... 76 KIAS  
Land ..... in relatively flat attitude, with power

**GFC700 FAILURES (GIXL ONLY)**  
**AP or Electric Trim Runaway or Autopilot Out of Trim (Yellow ↑ELE or ↓ELE on PFD)**  
AP DISC Switch ..... DEPRESS and HOLD  
Aircraft Attitude ..... MAINTAIN/REGAIN  
Pitch Trim ..... RETRIM if required  
AP Circuit Breaker ..... PULL  
AP DISC Switch ..... RELEASE  
**AP Disconnect**  
AP DISC Switch ..... DEPRESS and RELEASE  
Pitch Trim ..... RETRIM if required  
**AP Overspeed Recovery (Yellow MAXSPD on PFD)**  
Throttle ..... REDUCE  
*When airspeed <165 KIAS*  
Autopilot ..... RESELECT VERTICAL MODE  
**Loss of Navigation Information (Yellow VOR/VAPP/GPS or LOC on PFD)**  
*If on instrument approach at time of failure:*  
Missed Approach ..... EXECUTE as req'd  
Autopilot ..... HDG mode  
Nav Source ..... SELECT valid source  
Autopilot ..... SELECT appropriate mode  
**Flashing Yellow Mode Annunciation**  
*If on instrument approach at time of failure:*  
Missed Approach ..... EXECUTE as req'd  
Autopilot ..... SELECT another mode  
**Failure of the Preflight Test (Red-boxed PFT on PFD)**  
AFCS Circuit Breaker ..... PULL

**RUDDER PEDAL RUNAWAY (GIXL ONLY)**  
Circuit Breaker (below adjust. Switch) ..... PULL

# SECTION 3 - PILOT BRIEFING CARD

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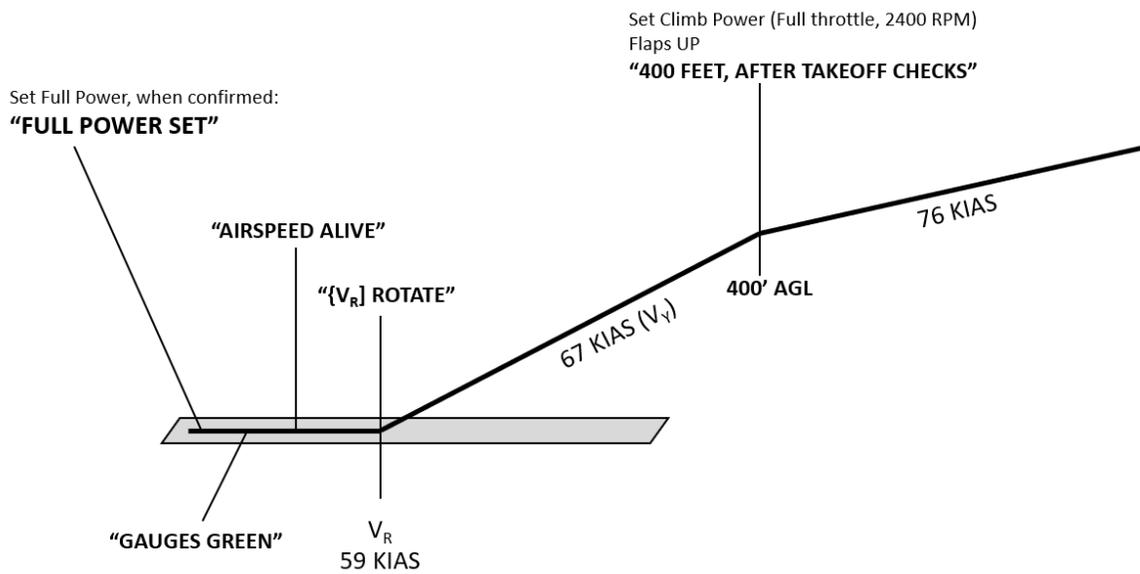
**Speeds – all KIAS**

V <sub>S</sub> 52	V <sub>G</sub> 76	2 <sup>nd</sup> Stage Climb 76 (flaps UP)
V <sub>SO</sub> 49	V <sub>FE</sub> 108 (T/O) / 91 (LDG only)	V <sub>APP</sub> 80
V <sub>A</sub> (2646) 111 / (2284) 94	V <sub>R</sub> 59	V <sub>REF</sub> 73 (flaps LDG <sup>o</sup> )
V <sub>TURB</sub> = V <sub>A</sub>	V <sub>Y</sub> 67 (flaps T/O)	
V <sub>NO</sub> 129	V <sub>X</sub> not published	MDXW 20
V <sub>NE</sub> 178		

## SECTION 4 - PROFILES

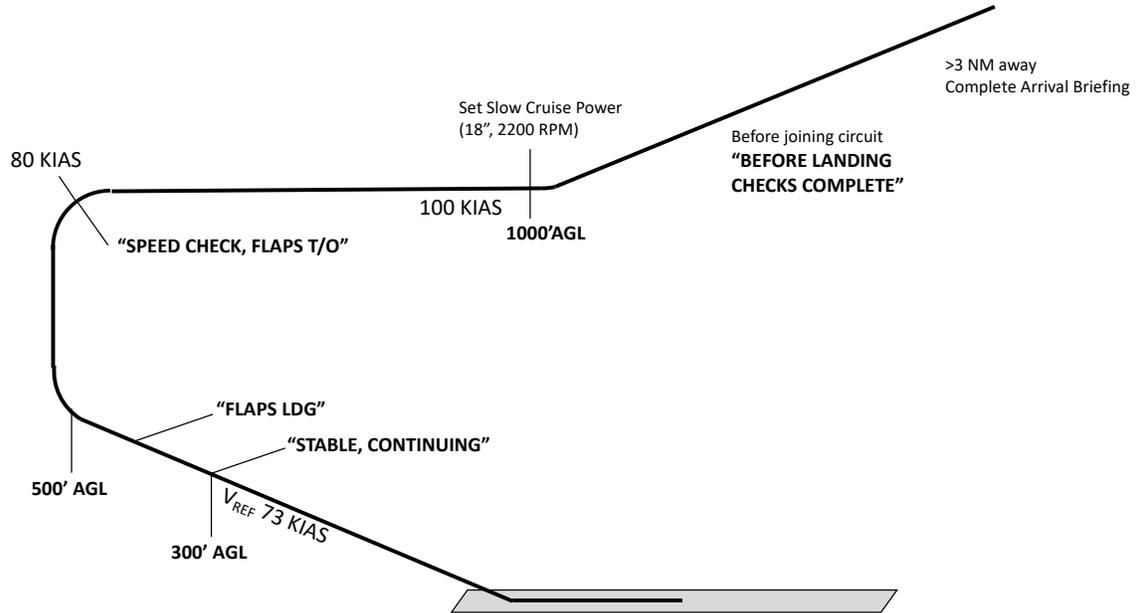
### 4.1 - NORMAL TAKEOFF

#### DA40 – Normal Takeoff



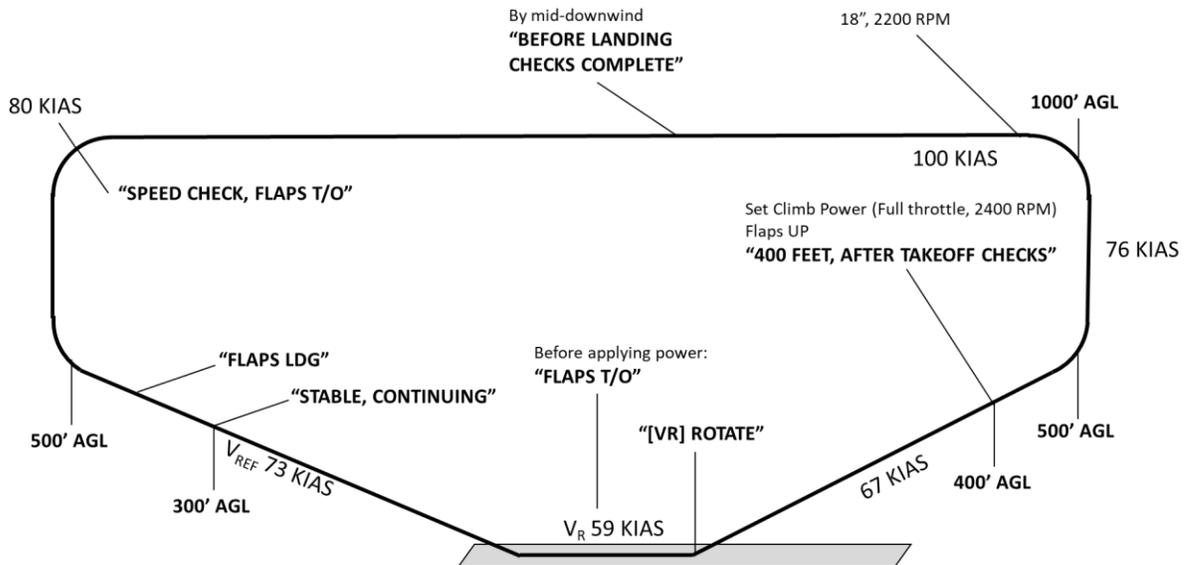
## 4.2 - NORMAL LANDING

### DA40 – Normal Landing



## 4.3 - NORMAL CIRCUIT

### DA40 – Normal Circuit



## SECTION 5 - TECHNIQUES & CONSIDERATIONS

*This section is reserved to address type-specific techniques and essential pilot considerations. The guidance here is intended to supplement the procedures provided by the Aircraft Manufacturer in the POH.*

### 5.1 - PREFLIGHT INSPECTION / BEFORE START

- (1) **Walkaround.** Note the temperature of the engine during the external check. If it is hot to the touch, plan to omit the priming step of the Warm Start procedure.

### 5.2 - ENGINE START

- (1) **G1000 Engine Page.** Always start with the engine page selected on the MFD. This provides more detailed indications of various parameters.
- (2) **Preparation for engine start.** It is important that you are fully prepared for engine start before you begin the procedure. The keys should be in the ignition, the propeller area checked clear, etc., so that once initiated the start procedure is not interrupted. Review the checklist ahead of time to minimize delays between the steps of the start procedure.
- (3) **Hot Engine Starting.** A hot engine does not require priming – Diamond includes slight priming in the Warm Start procedure (and thus, it is on WWFC’s checklist), but this should be omitted where the engine is hot. Ambient temperature is irrelevant – the actual temperature of the engine is the determining factor.
- (4) **High Fuel Pressure.** If the aircraft recently flew and the engine is still hot, the fuel pressure may be high (red annunciation). If the pressure rises past 35 PSI, the G1000 will indicate a red “X” in place of a numeric readout. This pressure should be relieved by “cracking” the mixture. Do not prime an engine that has had the fuel pressure relieved before start – it is hot, and it does not need additional fuel.
- (5) **Starter Disengagement.** The starter may be held for 10 seconds per start attempt; don’t rush to release it as soon as the engine begins to “catch”. Premature disengagement of the starter combined with aggressively ramming the mixture to full rich can cause the engine to flood and the start attempt to fail. When the engine begins to start, continue to hold the key in “Start” and advance the mixture over about 2 seconds (don’t slam it forward).
- (6) **Unsuccessful Warm/Hot Start.** If the engine was primed and the start attempt is unsuccessful, attempt a flooded start.

### 5.3 - TAXI / RUN UP

- (1) **Hard Start Battery Discharge.** If multiple attempts are required to start the engine, it is possible the battery has been significantly discharged. The charging system in the aircraft will seek to recharge the battery once high-power settings are applied, which can cause the 25A Cross-Bus Tie circuit breaker (CB) to trip. If you have had difficulty starting the engine, it is a good idea to check the charging rate at full power during the runup (ensure you choose a suitable location). Ensure the charging rate is less than 23 amps before departure (remain on the ground allowing it to recharge otherwise).
- (2) **As per the POH, before take-off, the engine must run on each tank at 1500 RPM for 60 seconds.**

## 5.4 - TAKEOFF / DEPARTURE

- (1) **Autopilot Engagement.** Activation of the autopilot (i.e., mode selection) should take place no earlier than when the aircraft is established in an enroute climb on a constant heading.

## 5.5 - CRUISE

- (1) **Cruise Power Selection.** Cruise at or below 75% power using the performance tables in the POH.
- (2) **Fuel Balance.** Use a timer to manage fuel imbalance; limits are 10 USG for short range DA40s (FAMO) and 8 USG for long range (GIXL, FJUM).
- (3) **Electric Fuel Pump Use.** Per the POH, the electric pump should normally be turned off during cruise unless changing fuel tanks.

## 5.6 - ARRIVAL / LANDING

- (1) **Autopilot Disengagement.** Unless flying an instrument approach procedure, cancel all autopilot modes before passing below 1000' AGL.

## 5.7 - SHUTDOWN

- (1) **High Fuel Pressure.** Post-shutdown fuel pressure increases caused by fuel vapour can damage the fuel control unit (FCU). After shutting down the engine, keep the G1000 on for two-three minutes to observe the fuel pressure indicated on the Engine Page. If the fuel pressure climbs towards the red line, crack the mixture slightly (1/2") to relieve the pressure. Immediately returning the mixture control to cutoff will just cause the pressure to rise again, so the control may be left very slightly cracked open.
- (2) **Quick Turn Around.** Restarting the engine after a short duration stop is often challenging due to vapour lock. Refer to the Hot Start section for guidance.