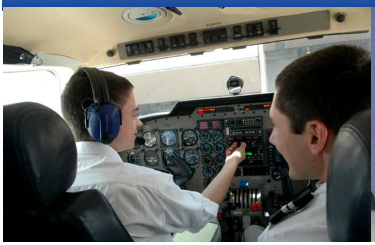

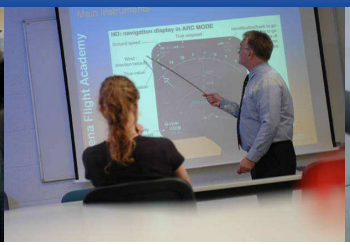


# DA42 TWINSTAR

## QUICK REFERENCE HANDBOOK

## REV 1.2.1

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# TABLE OF CONTENT





**WARNING!**

**This QRH is to be used for training purposes only within SATC/SFA. In case there is a discrepancy between the AFM/POH or this QRH, the AFM/POH will overrule the procedures, limitations, performance or systems described in this QRH.**

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PPT

Revised to be more accurate to match reality.

MAN

Cruise speed >5000' = 145KTAS.
1 engine out approach speed & setting.
Introduction of Flap retraction speed schedule.
Steep turn speed @120KIAS. Procedure adapted.
HACL V-list items revised (height, note about seat adjustments removed)
Introduction of Approach to stall procedure.
Clean Stall recovery speeds.

NORM PROC

Clarification of callouts (config changes, Loc & GS alive)
Standardisation of cockpit flows items to match checklist & flows. Added procedures to test De-ice system, Electrical trim & Autopilot.
Overview of flows: completely revised to match Norm Proc.
Normal Checlist: revised to match Norm Proc & Diamond checklist V14.1.

EMER PROC

Definition of Non normal work method.
Clarification of Emergency checklists layout (Warnings, Cautions, Recall items).
Checklists layout adapted.
Oil Temp emergency checklist corrected according to POH.
L/R Engine fire/ failure Emergency checklist replaced by Engine failure/ fire and shutdown Emergency checklist.
Cabin Smoke and Fire above 10000' : Only applicable to aircraft equipped with oxygen system.

PAT

Speeds, Settings & Body attitudes updated for visual patterns
Introduction of stabilized approach concept & configuration changes.
LDG Checklist performed earlier on instrument approaches.

W&B PERF

BEW and moments updated.
Loadsheet: Usable fuel 50USG max.
Introduction of CRUISING TAS graph.

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# PITCH POWER TABLE

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| SPEED | CONF | ALT/ENGINES | POWER | BODY ATTITUDE (°) |
|---|---|---|---|---|
| **TAKEOFF** | | | | |
| VR 75 KIAS | FLAPS UP | 2 engines | FULL | +9 |
| **CLIMB** | | | | |
| 90 KIAS | CLEAN | 2 engines | 100% | +9 |
| 105 KIAS | CLEAN | 2 engines | 90% | +6 |
| 80 KIAS | CLEAN | 2 engines | 100% | +13 |
| 82 KIAS | CLEAN | 1 engines | 100% | +6 |
| **LEVEL** | | | | |
| 65 KIAS | CLEAN | 2 engines | 40% | +10 |
| 105 KIAS | CLEAN | 2 engines | 50% | +4 |
| 120 KIAS | CLEAN | 2 engines | 60% | +1 |
| <5.000FT 140 KIAS | CLEAN | 2 engines | 70% | +0 |
| >5.000FT 145 KTAS | CLEAN | 2 engines | 70%–75% | +0 |
| 105 KIAS | CLEAN | 1 engine | 90% | +4 |
| 110 KIAS | APP FLAPS / GD | 2 engines | 65% | –1 |
| **DESCENT 500FPM** | | | | |
| 130 KIAS | CLEAN | 2 engines | 50% | –2 |
| 120 KIAS | CLEAN | 2 engines | 40% | –1 |
| 105 KIAS | CLEAN | 1 engine | 75% | +1 |

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# PITCH POWER



| SPEED | CONF | ALT/ENGINES | POWER | BODY ATTITUDE (°) |
|---|---|---|---|---|
| **TRAFFIC PATTERN—2 ENGINES** | | | | |
| 105 KIAS | CLEAN | DOWNWIND | 50% | +4 |
| 95 KIAS | APP FLAPS/GU | DOWNWIND | 50% | −1 |
| 90 KIAS | APP FLAPS/GD | BASELEG | 50% | −2 |
| 85 KIAS | LDG FLAPS/GD | FINAL | 50% | −4 |
| **FLAPLESS PATTERN—2 ENGINES** | | | | |
| 105 KIAS | CLEAN | DOWNWIND | 50% | +4 |
| 100 KIAS | CLEAN/GU | DOWNWIND | 45% | +5 |
| 95 KIAS | CLEAN/GD | BASELEG | 35% | −2 |
| 90 KIAS | CLEAN/GD | FINAL | 35% | −1 |
| **TRAFFIC PATTERN—1 ENGINE** | | | | |
| 105 KIAS | CLEAN | DOWNWIND | 90% | +4 |
| 95 KIAS | CLEAN/GD | BASELEG | 70% | −2 |
| 95 KIAS | APP FLAPS/GD | FINAL | 70% | −3 |
| 85 KIAS | LDG FLAPS/GD | SHORT FINAL | 80% | −4 |
| **IFR APPROACH** | | | | |
| 100 KIAS | APP FLAPS/GD | 2 engines | 55% | −4 |
| 100 KIAS | APP FLAPS/GD | 1 engine | 80% | −4 |

# MANEUVERS

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| SPEEDS | | |
|---|---|---|
| NORMAL CLIMB | 90 KIAS | < 1.000 FT AGL |
| NORMAL CLIMB | 105 KIAS | > 1.000 FT AGL |
| BEST RATE OF CLIMB | 79 KIAS CLEAN | VY |
| BEST ANGLE OF CLIMB | 79 KIAS CLEAN | VX |
| TO EXPEDITE CLIMB | 85 KIAS | FULL POWER |
| CLIMB 1 ENGINE | 82 KIAS | PITCH FOR THE BLUE LINE |
| NORMAL CRUISE | 140 KIAS | <5 .000 FT MSL |
| NORMAL CRUISE | 145 KTAS | > 5.000 FT MSL |
| CRUISE 1 ENGINE | 105 KIAS | 90—100% |
| VFR MANEUVERS | 105 KIAS | 50% |
| STEEP TURNS | 120 KIAS | 60% |
| MAX SPEED LIGHT TURBULENCE | 155 KIAS (Vno) | |
| MAX SPEED ROUGH AIR | 126-120 KIAS (Va) | |
| TO EXPEDITE DESCENT | (Gear Down) Maintain speed | 1.000 FPM |

| SPEEDS | | | | |
|---|---|---|---|---|
| IFR HOLDING<br>2 ENG | 120 KIAS | 60% POWER | CLEAN | FLAPS UP |
| IFR COURSE REVERSAL<br>2 ENG | 120 KIAS | 60% POWER | CLEAN | FLAPS UP |
| IFR APPROACH SPEED<br>2 ENG | 100 KIAS | 55% POWER | GEAR DOWN | FLAPS APP |
| IFR APPROACH SPEED<br>1 ENG | 100 KIAS | 80% POWER | GEAR DOWN | FLAPS APP |

## FLAPS SPEED SCHEDULE

| RETRACTION | | |
|---|---|---|
| FLAPS | AT SPEED | SELECT FLAPS |
| LDG | > 75 KIAS | APP |
| APP | > 85 KIAS | UP |

## SLOW FLIGHT

- DECELERATION

SPEED ..... 105 KIAS
POWER ..... REDUCE TO 20%
ALTITUDE..... MAINTAIN
BA .....GRADUALLY INCREASE TO + 10°
SPEED ..... 65 KIAS
POWER .....40%

Trim

- ACCELERATION

POWER .....FULL
ALTITUDE..... MAINTAIN
BA.....GRADUALLY DECREASE TO +4°
SPEED ..... 105 KIAS
POWER .....50%

Trim

## STEEP TURNS

SPEED ..... 120 KIAS
BANK ANGLE..... NORMAL ROLL RATE TO 45°
BA ..... INCREASE by 2° (BA +3°)
POWER .....INCREASE +5%
RUDDER ..... AS REQUIRED TO CENTER SIDE SLIP

Do not trim

HEADING .....15 ° BEFORE INITIAL HEADING
BANK ..... NORMAL ROLL RATE TO 0°
BA.....DECREASE TO +1°
POWER .....60%

Control the roll to repeat exercise in opposite direction.

RUDDER ..... AS REQUIRED TO CENTER SIDE SLIP

## STALLS

- BEFORE (EACH) STALL EXERCISE—VITAL ACTIONS
  - **H** HEIGHT.....ABOVE 2300 FT AGL
  - **A** AREA .....OUT OF CONTROLLED AIRSPACE
  - .....NOT ABOVE TOWNS OR AIRFIELDS
  - **C** COCKPIT.....NO LARGE LOOSE ARTICLES
  - ..... SEAT BELTS SECURED
  - .....ENGINE INSTRUMENTS IN LIMITS
  - **L** LOOKOUT..... 180° OR 2x90° CLEARING TURN(S)

## FULL STALL RECOVERY TECHNIQUE

VALID FOR ALL STALL EXERCISES

- AS THE NOSE STARTS TO DROP
  - 1—**BODY ATTITUDE**..... SLIGHTLY BELOW THE HORIZON
  - 2—**POWER** ..... FULL
- IF A WING SHOULD DROP
  - RUDDER .....OPPOSITE TO PREVENT YAW
  - SPEED.....CHECK > 75 KIAS
  - AILERONS.....USE TO LEVEL THE WINGS
- WHEN FLYING SPEED HAS BEEN REGAINED
  - 3—**RECOVERY**.....SEE BELOW ACCORDING TO THE TYPE OF STALL

## APPROACH TO STALL RECOVERY TECHNIQUE

VALID FOR ALL STALL EXERCISES

- AT THE 1st INDICATION OF THE STALL (BUFFET OR STALL WARNING)
  - 1—**BODY ATTITUDE**..... MAINTAIN
  - 2—**POWER** ..... FULL
- WHEN SPEED INCREASING
  - BODY ATTITUDE.....DECREASE TO MAINTAIN ALTITUDE
  - FLAPS.....RETRACT ON SCHEDULE

## STALL (CLEAN)

0° BANK—64 KIAS

IDLE—FORWARD CG—MAX WEIGHT

- ENTRY
  - SPEED ..... 105 KIAS
  - POWER ..... REDUCE TO IDLE
  - ALTITUDE ..... MAINTAIN
  - TRIM ..... DO NOT TRIM BELOW 75 KIAS

- RECOVERY
  - POWER ..... FULL
  - SPEED ..... ACCELERATING THROUGH 75 KIAS
  - BA ..... ROTATE TO +10°
  - SPEED ..... MAINTAIN 90 KIAS
  - ALTITUDE ..... CLIMB TO INITIAL ALTITUDE
  - HEADING ..... TURN BACK TO INITIAL HEADING

LEVEL OFF AT INITIAL ALTITUDE

- BA ..... GRADUALLY DECREASE TO +4°
- SPEED ..... 105 KIAS
- POWER ..... 50% RPM

## TAKEOFF STALL (POWER—ON / CLEAN)

NO AFM DATA ON EXACT STALL SPEED AVAILABLE
EXPECT ACTUAL STALL SPEED TO BE BELOW 50 KIAS (0° BANK)

- ENTRY
  - SPEED ..... 105 KIAS
  - POWER ..... 25%

  WHEN PASSING THROUGH 75 KIAS:
  - BA ..... RAISE TO +20°
  - POWER ..... FULL POWER or 65% (UP TO INSTRUCTOR)
  - TRIM ..... DO NOT TRIM BELOW 75 KIAS

- RECOVERY
  - POWER ..... FULL
  - SPEED ..... ACCELERATING THROUGH 75 KIAS
  - BA ..... ROTATE TO +10°
  - SPEED ..... MAINTAIN 90 KIAS
  - ALTITUDE ..... BACK TO INITIAL ALTITUDE
  - HEADING ..... TURN BACK TO INITIAL HEADING

  LEVEL OFF AT INITIAL ALTITUDE
  - SPEED ..... 105 KIAS
  - POWER ..... 50%

  Trim

# LANDING STALL (POWER—OFF / FLAPS LDG)

0° BANK—57 KIAS

IDLE—FORWARD CG—MAX WEIGHT

- ENTRY

SPEED ..... 105 KIAS
POWER ..... 50%

USE TRAFFIC PATTERN SEQUENCE TO ARRIVE AT FINAL CONFIGURATION (LDG FLAPS—85KIAS)

POWER ..... 40%
SPEED ..... 85 KIAS
FLIGHT PATH ..... ESTABLISH A STABILIZED DESCENT
TRIM ..... TRIM FOR 85 KIAS
POWER ..... IDLE TO SIMULATE A FLARE TO LAND

- RECOVERY

POWER ..... FULL
FLAPS ..... APPROACH
SPEED ..... 75 KIAS
BA ..... ROTATE TO +5°
ALTIMETER & VSI ..... POSITIVE CLIMB

"POSITIVE CLIMB"

GEAR ..... UP
SPEED ..... 85 KIAS
FLAPS ..... UP
SPEED ..... MAINTAIN 90 KIAS
ALTITUDE ..... CLIMB TO INITIAL ALTITUDE
HEADING ..... TURN BACK TO INITIAL HEADING

LEVEL OFF AT INITIAL ALTITUDE

BA ..... GRADUALLY DECREASE TO +4°
SPEED ..... 105 KIAS
POWER ..... 50%

Trim

## FLAPLESS PATTERN

SEE ALSO CHAPTER 'PATTERNS'

- SPEEDS
  ALL TARGET PATTERN SPEEDS ..... ADD 5 KNOTS

- KEYPOINTS
  - BODY ATTITUDES ..... WILL BE HIGHER THAN NORMAL (TRIM!!)
  - DOWNWIND ..... EXTEND SLIGHTLY (1/4 MILE)
  - SLOPE ..... FLY A NORMAL 3° SLOPE TO RWY
  - FLARE ..... APPLY REDUCED FLARE—DON'T FLOAT
  - GO—AROUND ..... " GO-AROUND, FLAPS UP"

## GO—AROUND

"GO—AROUND, FLAPS!"

POWER ..... FULL
BA ..... ROTATE TO +9°
FLAPS ..... APP (EXCEPT IF FLAPLESS APPROACH)
ALTIMETER & VSI ..... POSITIVE CLIMB

"POSITIVE CLIMB"

GEAR ..... UP
SPEED ..... CHECK ABOVE 85 KIAS
FLAPS ..... UP
SPEED ..... MAINTAIN 90 KIAS
ATC ..... INFORM

"AFTER TAKEOFF CHECKLIST"

## EFFECTS OF ASYMMETRICAL POWER

- EACH DEMO ONCE

- STRAIGHT AND LEVEL FLIGHT
  - SPEED..... 105 KIAS
  - LEFT OR RIGHT THROTTLE .....REDUCE TO IDLE
  - AIRPLANE REACTION & PERFORMANCE ..... OBSERVE

- CLIMB
  - SPEED..... 90 KIAS
  - LEFT OR RIGHT THROTTLE .....REDUCE TO IDLE
  - AIRPLANE REACTION & PERFORMANCE ..... OBSERVE

- DESCENT
  - SPEED..... 120 KIAS
  - LEFT OR RIGHT THROTTLE .....REDUCE TO IDLE
  - AIRPLANE REACTION & PERFORMANCE ..... OBSERVE

- LEVEL TURN
  - SPEED..... 105 KIAS
  - OUTBOARD THROTTLE .....REDUCE TO IDLE
  - AIRPLANE REACTION & PERFORMANCE ..... OBSERVE
  - INBOARD THROTTLE .....REDUCE TO IDLE
  - AIRPLANE REACTION & PERFORMANCE ..... OBSERVE

- CLIMBING TURN
  - SPEED..... 90 KIAS
  - OUTBOARD THROTTLE .....REDUCE TO IDLE
  - AIRPLANE REACTION & PERFORMANCE ..... OBSERVE

  - SPEED..... 90 KIAS
  - INBOARD THROTTLE .....REDUCE TO IDLE
  - AIRPLANE REACTION & PERFORMANCE ..... OBSERVE

- DESCENDING TURN

  SPEED.....120 KIAS
  OUTBOARD THROTTLE ..... REDUCE TO IDLE
  AIRPLANE REACTION & PERFORMANCE ..... OBSERVE

  SPEED.....120 KIAS
  INBOARD THROTTLE..... REDUCE TO IDLE
  AIRPLANE REACTION & PERFORMANCE ..... OBSERVE

- ONE ENGINE FLIGHT

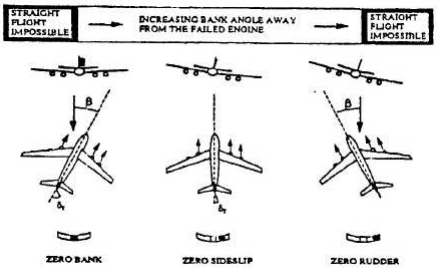
BA +4°
POWER GOOD ENGINE 100%
SIMULATED FEATHER POWER (20% = ABOVE GEAR HORN)
SET THROTTLE FOR 105 KIAS CLEAN (90—100%)

DEMONSTRATE: LEVEL FLIGHT–TURN–CLIMB–DESCENT

EMPHASIZE:

THROTTLE AND FOOT TOGETHER
THROTTLE TRAVEL DOUBLES
THE SIDE SLIP INDICATOR SHOULD BE +1/2 WIDTH OUT ON THE SIDE OF THE GOOD ENGINE
**BANK ANGLE 3–5° TOWARDS THE GOOD ENGINE**

- Demonstrate:




1—Zero bank (bad)

2—Zero rudder (bad)

3—Zero sideslip (good)

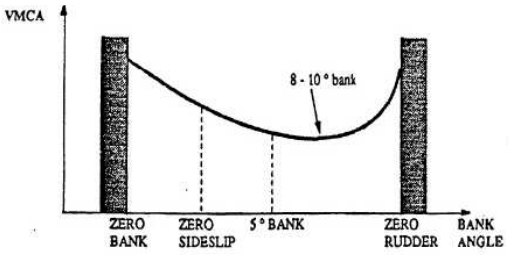
- Demonstrate:

1—Optimum performance = max performance climb at blue line speed

- Show that max climb rate is obtained with 2 to 3 degrees of bank into the good engine

2—Optimum control = Vmca demo

- Show that lowest VMCA is obtained with 8–10 degrees of bank into good engine



## VMCA DEMONSTRATION

- BEFORE (EACH) DEMONSTRATION—VITAL ACTIONS
  - H HEIGHT.....ABOVE 4000 FT AGL
  - A AREA .....OUT OF CONTROLLED AIRSPACE
  - .....NOT ABOVE TOWNS OR AIRFIELDS
  - C COCKPIT.....NO LARGE LOOSE ARTICLES
  - .....SEATS AND SEAT BELTS SECURES
  - .....ENGINE INSTRUMENTS IN LIMITS
  - L LOOKOUT..... 180° OR 2x90° CLEARING TURN(S)

- SEQUENCE
  - SPEED.....105 KIAS
  - POWER .....FULL GOOD ENGINE–IDLE DEAD ENGINE
  - BANK..... 5° INTO THE GOOD ENGINE
  - BA .....SLOWLY INCREASE (SPEED DECR 1KT/ SEC)
  - RUDDER PRESSURE... GRADUALLY INCREASE TO MAINTAIN HEADING

  WHEN ROLL OFF, STALL HORN OR LOSS OF DIRECTIONAL CONTROL OCCURS (RUDDER MAXIMUM):

  - POWER .....REDUCE ON GOOD ENGINE TO KEEP CONTROL
  - RUDDER PRESSURE..... RELAX
  - BA ..... DECREASE

  WHEN DIRECTIONAL CONTROL IS REGAINED:

  - POWER .....FULL GOOD ENGINE–IDLE DEAD ENGINE
  - SPEED.....82 KIAS
  - BANK..... MAX 5° INTO THE GOOD ENGINE
  - TURN ..... TO ORIGINAL HEADING

  NOTE AIRPLANE PERFORMANCE

## REAL ENGINE SHUTDOWN & RESTART IN FLIGHT

- STAY WITHIN 10 NM OF A SUITABLE AIRPORT FOR THE DA42
- REMAIN AT OR ABOVE 4.000FT AGL
- PERFOM THE 'ENGINE FAILURE/ FIRE AND SHUTDOWN CHECKLIST' IN **READ & DO**
- WITH 1 PROPELLER FEATHERED: STRAIGHT AND LEVEL TURNS (BCAA REQUIREMENT!)
- PERFORM THE 'ENGINE RESTART CHECKLIST' (UNFEATHERING PROCEDURE) IN **READ & DO**
- **RESTART BELOW 6.000 FT AGL—SPEED 80-120 KIAS.**
- **DO NOT SWITCH OFF THE ALTERNATORS AND FUEL SELECTORS (SIMULATE THESE ACTIONS WITHOUT ACTUALLY DOING THEM)**

## TOUCH & GO

- DURING THE TOUCH AND GO ROLL:

  FLAPS ..... UP (BY THE INSTRUCTOR)

  - VERIFY WITH INSTRUCTOR PRIOR TO RETRACTING FLAPS

    "TAKEOFF, YOU HAVE CONTROL"

## GO—AROUND 1 ENGINE

"GO—AROUND, FLAPS UP !"

POWER ..... FULL
FLAPS ..... UP

GROUND CONTACT UNLIKELY

GEAR ..... UP
SPEED ..... BLUE LINE (APPROX. +6°)

"AFTER TAKEOFF CHECKLIST"

## SHORT FIELD TAKEOFF

APPROACH FLAPS

- TAKEOFF

  BRAKES ..... HOLD
  POWER ..... FULL
  ENGINE INSTRUMENTS ..... CHECK
  BRAKES ..... RELEASE
  SPEED ..... CHECK INCREASING—ROTATE AT 73 KIAS

- CLIMB

  ALTIMETER & VSI ..... POSITIVE CLIMB

  "POSITIVE CLIMB"

  GEAR ..... UP
  BA ..... +10°
  SPEED ..... MAINTAIN 79 KIAS

  WHEN CLEAR OF OBSTACLES (100 FT ABOVE OBSTACLE)

  BA ..... LOWER TO +5°
  SPEED ..... ACCELERATE TO 85 KIAS
  FLAPS ..... UP
  SPEED ..... CLIMB AT 90 KIAS

  "AFTER TAKEOFF CHECKLIST"

## SHORT FIELD LANDING

- FINAL TURN COMPLETED

  FLAPS ..... LDG
  SPEED ..... 80 KIAS

  WHEN CLEAR OF OBSTACLES

  BA ..... AIM FOR THRESHOLD
  POWER ..... ADJUST FOR 80 KIAS

  "SHORT FINAL CHECKLIST"

- TOUCHDOWN

  BRAKES ..... APPLY (GRADUALLY)

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# NORMAL

# PROC

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## INTRODUCTION

BEFORE EVERY FLIGHT DEPARTING FROM HOME BASE

1/ **COMPANY INFORMATION** ..... CHECK ON WEBSITE (BULLETINS—WARNINGS—LATEST DOCUMENTS)

2/ **WEATHER / NOTAMS / TFR'S** .....CHECK USE WEBSITE OR 1-800-WX-BRIEF BY PHONE

3/ **ATIS** ..... OBTAIN THROUGH RADIO AT DISPATCH

4/ **FLIGHT RELEASE FORM** .....PRINT & COMPLETE

5/ **AIRCRAFT TECHNICAL LOG**.....CHECK SQUAWKS

6/ **REQUIRED EQUIPMENT**.....CHECK

7/ **AIRCRAFT POUCH**..... OBTAIN FROM DISPATCH CHECK CONTENT (KEYS—FUEL CARD—LOGBOOK)

8/ **I-M-S-A-F-E CHECKLIST**.....CHECK

9/ **MISSION BRIEFING** .....CHECK

## NOTES

▶A black triangle (sideways) printed in front of a checklist or flow item, indicates optional equipment and must be read as "if installed…".

PROCEDURES FOR CHECKLISTS AND FLOWS

- Student in the left seat—Instructor in the right seat. Student will perform all flying duties, and scans and actions (flows), and all checklists, except the ones shown in the table as 'PM' – 'Pilot Monitoring'. The reader will announce the start of any checklist by calling out its title, and will read all items out loud (with sufficient pause between the items for verification and/or answer), and will announce the checklist completed by announcing its title + …"**COMPLETED**".
- 'PM' – 'Pilot Monitoring' will be the instructor. For single-pilot operations, all items listed in the table below under 'PM' will have to be performed by the 'PF'. All students must be proficient in operating the DA-42 in a single-pilot environment.
- All configuration changes must be announced aloud by the PF. E.g. "**Gear Up/Down, Flaps Up/ Approach/ Land".**
- During IFR approach procedures the following items must be called out:
  - **"Localiser Alive"**
  - **"Glideslope Alive"**
  - **"Needle Alive" (VOR/NDB/GPS approach)**
  - **"Outer Marker_____ft"**

| FLOW AND CHECKLIST HANDLING | | | | |
|---|---|---|---|---|
| | Flow | | Checklist | |
| Phase of Flight | Performed by | Loud or Silent | Performed by | Loud or Silent |
| Before Start | PF | Loud | PM | Loud |
| After Start | PF | Loud | PM | Loud |
| Before Takeoff | PF | Loud | PM | Loud |
| Line Up | PM | Silent | N/A | N/A |
| After Takeoff | PF | Silent | PF (by heart) | Loud |
| Descent / Approach | PF | Silent | PF (by heart) | Loud |
| Landing | PF | Silent | PF (by heart) | Loud |
| After Landing | PM | Silent | PM | Silent |
| Shutdown | PF | Loud | PM | Loud |

## APPROACHING THE AIRCRAFT

- Through flight = same day, same airplane, same crew.
- Through flight walk around = fuel, oil and tires only.
- All cockpit flows must be read **out loud**.

NEARBY OBSTACLES ..... CHECK
FLAP POSITION ..... NOTE

The flap position should be noted before boarding the airplane.

SURFACES ..... CLEAR

Check that all movable surfaces are clear and can be moved without hitting obstacles.

ANTENNAS ..... CHECK

Check presence and condition of following antennas: COM, NAV, transponder, ELT.

## PRELIMINARY INSPECTION

**Be careful not to use the top of the instrument panel as a support when entering or exiting the aircraft. Use the dedicated handle behind the glareshield for support.**

Verify that the canopy is clean and undamaged. Check for cracks and major scratches. Check locking mechanism. To avoid scratching the paint or damaging the wing, do not sit or put any equipment on the wing. Do not use the top of the instrument panel as a shelf for equipment at any time. Make sure not to touch the canopy with hands, equipment or charts.

IGNITION KEY .....CHECK OFF & KEY REMOVED
FRONT CANOPY & REAR DOOR ..... CHECK
FIRE EXTINGUISHER ..... CHECK SECURE/ CONDITION

UPPER SWITCH PANEL ..... ALL SWITCHES OFF
ECU SWITCHES ..... AUTO
ALTERNATOR SWITCHES ..... ON

LOWER SWITCH PANEL ..... ALL SWITCHES OFF

Check pitot heat off, both engine masters off, start key pulled out, electric master off and avionics master off.

GEAR SELECTOR..... DOWN

To prevent inadvertent gear retraction when the battery master switch is turned on and the squat switch located on the left main gear fails.

PARKING BRAKE .....SET

To set the parking brake: set parking brake on, then pump the brake pedals to build up pressure in the brake cylinder.

ELECTRIC MASTER SWITCH ..... ON

When switching on the electric master switch, the electrically driven hydraulic gear pump may activate for 5 to 20 seconds in order to restore system pressure. Should the pump operate continuously or intermittently, this indicates a malfunction in the landing gear system.

FUEL GAUGES ..... CHECK QUANTITY
FLAPS ..... LDG
ELECTRIC MASTER SWITCH ..... OFF
TRIMS ..... NEUTRAL

Check full control travel of rudder trim and elevator trim, then, in preparation for the walk around, set in neutral position.

SUNSCREENS, PITOT COVER, STALL WARNING COVER, TIE DOWN, CHOCKS ..... REMOVED

Put sunscreens (if available) in their dedicated bag. Put pitot cover in the flight gear bag. If the aircraft's own tie-down ropes and wheel clocks were used, put in the flight gear bag.

TOW BAR ..... PROPERLY STOWED

REQUIRED EQIUIPMENT ..... ON BOARD

The following equipment must be on board:

- Aircraft pouch containing: aircraft flight time log book, emergency sick sacs, fuel card & keys.
- Bag containing sunscreens for the windows (if available) .
- Flight gear bag containing: fuel tester, flip-up training glasses, flash light, wheel chocks, pitot cover, 3 tie-down ropes, first aid kit.
- Fire extinguisher.
- Rescue hammer.
- EASA/FAA approved airplane flight manual (POH).
- JAA/FAA required documents: certificate of airworthiness, airplane registration.
- Alternate fuel measuring device
- G1000 User manual

FRONT BAGGAGE DOORS .....SECURE

The door must be locked with the key before the flight to prevent opening in flight.

## WALK AROUND

Walkaround is clockwise around the aircraft.

### LEFT WING

STEP ..... CHECK
NACELLE UNDERSIDE FUEL COOLER AIR IN & OUTLET ....CHECK/CLEAR

WING FLAPS ..... CHECK
FLAP AND LINKAGE ..... CHECK
FLAP HINGES AND SAFETY PIN..... CHECK

AILERON ..... CHECK
AILERON AND LINKAGE ..... CHECK
FOREIGN OBJECTS IN AILERON PADDLE..... CHECK
STATIC DISCHARGERS ..... CHECK
WING TIP..... CHECK
POSITION LIGHT, STROBE LIGHT (ACL)..... CHECK
TIE-DOWN .....CHECK/CLEAR
MAIN FUEL TANK FILLER.....CHECK/CLOSE
PITOT PROBE..... CHECK

Check pitot probe is clean, orifices clear, cover removed and no deformation.

STALL WARNING DEVICE..... CHECK
TANK AIR OUTLET..... CHECK
WING SURFACE..... CHECK
TANK DRAIN/TANK AIR INLET .....CHECK/DRAIN

Check for water and sediment (drain until no water or sediment comes out).

OPENINGS ON LOWER SURFACE ..... CHECK

Check for foreign objects and for traces of fuel (if tank is full, fuel may spill over through the tank vent).

## LEFT ENGINE NACELLE

3 AIR INLETS/2 AIR OUTLETS ..... CLEAR
ENGINE OIL LEVEL .....CHECK

Check oil level through inspection hole in upper cowling. Normal oil quantity is 5.5 quarts. Minimum is 4.8 quarts, maximum is 6.3 quarts. Do not refill when oil quantity is above 5.5 quarts. When oil quantity is at 5 quarts, add 1 full oil can (1quart). Maximum oil consumption is 0.1 quart/hour.

GEARBOX OIL LEVEL .....CHECK

Check oil level through inspection hole in lower cowling.

COWLING.....CHECK

PROPELLER & SPINNER .....CHECK

Check no detrimental nicks, cracks or dents in propeller blades, and no traces of oil (leak in the CSU). Check blades no excessive play in CSU.

**WARNING**

Even in the OFF position, an engine may fire. Always treat a propeller as potentially dangerous. Do not take position underneath a propeller at any time. Never push/pull the propeller to move the aircraft. Never move the propeller by hand.

EXHAUST .....CHECK

**WARNING**

The exhaust can cause burns when hot.

VENTING PIPE ..... CHECK FOR BLOCKAGE

GASCOLATOR/AIR INLET.....DRAIN / CLEAR

Check for water and sediment (drain until no water or sediment comes out). Do not pour the drained fuel back into the tank.

NACELLE UNDERSIDE..... CHECK

Check for excessive contamination particularly by oil, fuel and other fluids.

▶AUXILIARY TANK FILLER.....CHECK/CLOSE
▶AUXILIARY TANK VENT OUTLET..... CHECK
▶AUXILIARY TANK DRAIN.....CHECK/DRAIN

Check for water and sediment (drain until no water or sediment comes out).

LEFT MAIN LANDING GEAR

LANDING GEAR STRUT & LOCK..... CHECK

Check visually and verify strut height is sufficient. Typical visible length of bare piston is at least 4cm/1.6".

DOWN & UPLOCK SWITCHES (3X)..... CHECK
WEAR, TREAD DEPTH OF TIRE..... CHECK

Tires should be taken out of service when they have one or more flat spots. Generally, a single flat spot or skid burn does not expose the carcass body and the tire may remain in service, unless severe unbalance is reported by the crew. Small cuts are acceptable, if they do not protrude into the tire carcass. Cuts in the side wall are not acceptable. Shallow chevron-shaped cuts across the tread of a tire pose no problem; they are caused by landing on a grooved concrete runway. As long as the tread does not wear down into the body plies of the carcass, the basic strength of the tire is not affected. To provide traction during wet runway operation, operators should replace their tires when the tread reaches 1 / 32 inch = 0.79 mm.

WHEEL & BRAKES/HYDRAULIC BRAKE LINE..... CHECK

When checking the brakes: verify that there is even wear on the disc, no scratches, no grease, and no leaks near the brake line.

SLIP MARKS .....CHECK
LANDING GEAR DOORS.....CHECK
CHOCKS ..... REMOVE

FRONT FUSELAGE AND NOSE LANDING GEAR

FRONT CANOPY, LEFT & RIGHT SIDE .....CHECK
LEFT AND RIGHT FRONT BAGGAGE DOOR ..... CHECK/CLOSE & LOCK
NOSE LANDING GEAR STRUT, LOCK & CENTERING DEVICE .....CHECK

Check visually and verify strut height is sufficient. Typical visible length of bare piston is at least 5cm / 5.9".

DOWN & UPLOCK SWITCHES .....CHECK
WEAR, TREAD & DEPTH OF TIRE .....CHECK

Tires should be taken out of service when they have one or more flat spots. Generally, a single flat spot or skid burn does not expose the carcass body and the tire may remain in service, unless severe unbalance is reported by the crew. Small cuts are acceptable, if they do not protrude into the tire carcass. Cuts in the side wall are not acceptable. Shallow chevron-shaped cuts across the tread of a tire pose no problem; they are caused by landing on a grooved concrete runway. As long as the tread does not wear down into the body plies of the carcass, the basic strength of the tire is not affected. To provide traction during wet runway operation, operators should replace their tires when the tread reaches 1 / 32 inch = 0.79 mm.

SLIP MARKS .....CHECK
CHOCKS ..... REMOVE
LANDING GEAR DOOR & LINKAGE .....CHECK
EPU CONNECTOR.....CHECK
TOW BAR ..... REMOVE

RIGHT MAIN LANDING GEAR

LANDING GEAR STRUT & LOCK..... CHECK

Check visually and verify strut height is sufficient. Typical visible length of bare piston is at least 4cm/1.6".

DOWN & UPLOCK SWITCHES (3X)..... CHECK
WEAR, TREAD DEPTH OF TIRE..... CHECK

Tires should be taken out of service when they have one or more flat spots. Generally, a single flat spot or skid burn does not expose the carcass body and the tire may remain in service, unless severe unbalance is reported by the crew. Small cuts are acceptable, if they do not protrude into the tire carcass. Cuts in the side wall are not acceptable. Shallow chevron-shaped cuts across the tread of a tire pose no problem; they are caused by landing on a grooved concrete runway. As long as the tread does not wear down into the body plies of the carcass, the basic strength of the tire is not affected. To provide traction during wet runway operation, operators should replace their tires when the tread reaches 1 / 32 inch = 0.79 mm.

WHEEL & BRAKES/HYDRAULIC BRAKE LINE..... CHECK

When checking the brakes: verify that there is even wear on the disc, no scratches, no grease, and no leaks near the brake line.

SLIP MARKS..... CHECK
LANDING GEAR DOORS ..... CHECK
CHOCKS..... REMOVE

RIGHT ENGINE NACELLE

3 AIR INLETS/2 AIR OUTLETS..... CLEAR
ENGINE OIL LEVEL ..... CHECK/CLEAR

Check oil level through inspection hole in upper cowling. Normal oil quantity is 5.5 quarts. Minimum is 4.8 quarts, maximum is 6.3 quarts. Do not refill when oil quantity is above 5.5 quart. When oil quantity is at 5 quarts, add 1 full oil can (1 quart). Maximum oil consumption is 0.1 quart/hour.

GEARBOX OIL LEVEL.....CHECK

Check oil level through inspection hole in lower cowling.

COWLING.....CHECK

PROPELLER & SPINNER .....CHECK

Check no detrimental nicks, cracks or dents in propeller blades, and no traces of oil (leak in the CSU). Check blades no excessive play in CSU.

**WARNING**

Even in the OFF position, an engine may fire. Always treat a propeller as potentially dangerous. Do not take position underneath a propeller at any time. Never push/pull the propeller to move the aircraft. Never move the propeller by hand.

EXHAUST .....CHECK

**WARNING**

The exhaust can cause burns when hot.

VENTING PIPE .....CHECK FOR BLOCKAGE

GASCOLATOR/AIR INLET.....DRAIN / CLEAR

Check for water and sediment (drain until no water or sediment comes out). Do not pour the drained fuel back into the tank.

NACELLE UNDERSIDE .....CHECK

Check for excessive contamination particularly by oil, fuel and other fluids.

▶AUXILIARY TANK FILLER..... CHECK/CLOSE
▶AUXILIARY TANK VENT OUTLET .....CHECK
▶AUXILIARY TANK DRAIN..... CHECK/DRAIN

Check for water and sediment (drain until no water or sediment comes out).

RIGHT WING

CABIN VENT AIR INLET ..... CHECK/CLEAR
TANK DRAIN/TANK AIR INLET ..... CHECK/DRAIN

Check for water and sediment (drain until no water or sediment comes out).

TANK AIR OUTLET ..... CHECK
OPENINGS ON LOWER SURFACE ..... CHECK

Check for foreign objects and for traces of fuel (if tank is full, fuel may spill over through the tank vent).

ENTIRE WING SURFACE ..... CHECK
MAIN FUEL TANK FILLER ..... CHECK/CLOSE
WING TIP ..... CHECK
STATIC DISCHARGERS ..... CHECK
POSITION LIGHT, STROBE LIGHT (ACL) ..... CHECK
TIE-DOWN ..... CHECK/CLEAR
AILERON & LINKAGE ..... CHECK
FOREIGN OBJECTS IN AILERON PADDLE ..... CHECK
FLAP AND LINKAGE ..... CHECK
FLAP HINGES & SAFETY PIN ..... CHECK
NACELLE UNDERSIDE FUEL COOLER AIR IN- & OUTLET ..CHECK/CLEAR
STEP ..... CHECK

FUSELAGE, RIGHT SIDE, UNDERSIDE

AFT CANOPY ..... CHECK
FUSELAGE SKIN ..... CHECK
ANTENNAS UPPER SIDE ..... CHECK
STATIC PORT ..... CHECK

EMPANNAGE

STABILIZERS & CONTROL SURFACES, ELEVATOR TIPS.....CHECK
HINGES.....CHECK
ELEVATOR TRIM TAB.....CHECK
RUDDER TRIM TAB.....CHECK
TIE-DOWN.....CHECK/CLEAR
TAIL SKID AND LOWER FIN.....CHECK
STATIC DISCHARGERS.....CHECK

FUSELAGE, LEFT SIDE, UNDERSIDE

STATIC PORT.....CHECK
FUSELAGE SKIN.....CHECK
FUSELAGE UNDERSIDE.....CHECK

Check for contamination with hydraulic fluid.

ANTENNAS UNDERSIDE.....CHECK
AFT CANOPY.....CHECK

MISCELLANEOUS

BATTERY MASTER SWITCH.....ON

For night flight only:

INTERIOR LIGHTING ..... ON AND CHECK
EXTERIOR LIGHTING ..... ON AND CHECK
ALL LIGHTING SWITCHES .....OFF

For IMC flight only:

PITOT HEAT .....ON
PITOT HEAT ANNUNCIATOR ..... EXTINGUISHED
PITOT TUBE.....CHECK WARM
PITOT HEAT .....OFF

For flight in known icing conditions only:

DEICE FLUID..... CHECK QUANTITY

The minimum de-icing fluid quantity for dispatch is 22 liters (5.8 US gal) or indication of ¾ full on G1000.

This minimum allows at least 90 minutes of ice protection with NORM selected. The pilot must ensure adequate fluid quantity before each flight.
Maximum system operating times with full de-icing fluid:
NORM mode .....2 hrs. 30 min.
HIGH mode..... 1 hr
MAX mode.....30 min

Do not operate the main pumps with an empty de-icing fluid tank. If priming is required use the windshield de-icing.

ICE LIGHT.....ON
ICE LIGHTS ..... CHECK
ICE LIGHT.....OFF

BATTERY MASTER SWITCH.....OFF

## COCKPIT PREPARATION

**Before entering the cockpit check Towbar removed, Nose baggage doors closed and locked and Rear door closed and secured.**

RUDDER PEDALS .....ADJUSTED & LOCKED

The rudder pedals may only be adjusted on the ground. The pedals are unlocked by pulling the black handle which is located behind the rear attachment. Forward adjustment: while keeping the handle pulled, push the pedals forward with your feet to the desired position. Release the handle and allow the pedals to lock in place. Rearward adjustment: using the unlocking handle, pull the pedals back to the desired position. Release the handle and allow the pedals to lock in place. Verify that the pedals are locked by applying pressure to try to move them.

The instructor should advise the student of the correct position. The rudder pedals must be adjusted as far as possible with full deflection of the rudder still possible. This will enable more force to be applied on the pedal from the lower back and leg, and more accurate inputs. If required a cushion can be put behind the back,

FLIGHT CONTROLS .....PROPER OPERATION

Check the flight controls for proper operation: "Stick left, left aileron up, right aileron down, stick right, right aileron up, left aileron down. Stick aft, elevator up, stick forward, elevator down. Left pedal, right pedal."

Aileron and elevator deflections can be visually checked from the pilot's seat. Do not push the rudder pedals too hard against system resistance.

SEATBELTS.....LOCKED

Use of all available seat belts and/or harnesses per seat is mandatory. Seat belts of empty seats will be fastened and crossed over the seat bottom to prevent control interference or passenger injury during flight in turbulent air. Fasten belts before closing canopy. Do not unlock seat belts during flight or taxi at any time.

REAR DOOR ..... CLOSED & SECURED
FRONT CANOPY ..... POSITION 1 OR 2

When operating the canopy, pilots/operators must ensure that there are no obstructions between the canopy and the mating frame, for example seat belts, clothing, etc. When operating the locking handle, DO NOT apply undue force. A slight downward pressure on the canopy may be required to ease the handle operation.

FRONT BAGGAGE DOORS ..... CLOSED

Visually check that the front baggage doors are closed.

AVIONICS MASTER SWITCH ..... OFF
ELECTRIC MASTER SWITCH ..... ON
ENGINE MASTER SWITCHES ..... OFF

When switching on the electric master switch, the electrically driven hydraulic gear pump may activate for 5 to 20 seconds in order to restore system pressure. Should the pump operate continuously or intermittently, this indicates a malfunction in the landing gear system.

IGNITION KEY ..... READY & OFF
PITOT HEAT ..... OFF
ALTERNATE STATIC ..... OFF
ALTERNATORS ..... CHECK ON
ECU SWAP ..... CHECK AUTOMATIC

INSTRUMENT PANEL

DIMMER CONTROL ..... SET

Use the rotary buttons to adjust instrument lighting and flood light. Day flight: OFF. Night flight: as required (avoid setting the lights too bright).

LIGHT SWITCHES ..... OFF
EMERGENCY SWITCH ..... CHECK OFF & GUARDED

STANDBY INSTRUMENTS ..... CHECKED
MAGNETIC COMPASS .....CHECK

Check magnetic compass for normal reading, no bubbles in the fluid and no leaks. Deviation chart present.

DEVIATION CARD .....CHECK
ELT..... ARMED

▶DE-ICING SYSTEM.....CHECK

ANNUN-TEST .....ON

The ANNUN-TEST mode activates the DEICE LVL LO caution immediately if the de-ice fluid quantity is low (below 10 liters) and the DEIC PRES LO caution after 120 seconds.

DEICE PRES HI .....VERIFY NOT ILLUMINATED
DE-ICE .....HIGH
DEIC PRES LO ..... EXTINGUISHES (AFTER 20S)

If the ambient temperature is above 10 °C (50 °F) the system pressure may not get high enough to disable the DEIC PRES LOW warning.

DE-ICE .....OFF
ANNUN-TEST .....OFF

CIRCUIT BREAKERS.....IN

If a circuit breaker needs resetting, check why it has tripped or been pulled.

G1000 ..... ACKNOWLEDGE

Wait until power-up completed. Press ENT on MFD to acknowledge. Note: the engine instruments are not available on the MFD until acknowledged. Push the DISPLAY BACKUP button on the audio panel to activate the G1000 reversionary (backup) mode. Push the SYSTEM softkey on the MFD to activate the engine/system page.

FUEL TEMPERATURE ..... CHECK

Limitation:
Diesel Fuel: Engine start not below -5°C, Take Off not below +5°C.
JET A1 fuel: Engine start and Take Off not below -30°C.
Make sure which fuel grade is being used (see Section 7.9.5 of the AFM). If it is not possible to determine the fuel grade, the diesel fuel temperature limitations must be observed.

FUEL QUANTITY ..... CHECK
FUEL CALCULATOR..... SET
TOTAL TIME IN SERVICE ..... NOTE

Write down the G1000 total time in service.

G1000 .....BACKUP OR REV. MODE

Set Engine page on PFD and System page on MFD.

GEAR WARNING/FIRE DETECTOR ..... CHECK

The gear warning system is combined with the engine fire detection system, push the gear warning/fire detector test button and verify you hear the aural alert and observe the warning on the PFD screen. If the aural alert or the warning does not appear, maintenance action is required.

MANUAL GEAR EXTENSION HANDLE .....CHECK PUSHED IN
ALTERNATE AIR..... CHECK CLOSED

CENTER CONSOLE

FLAPS.....CHECK LDG
RUDDER TRIM .....CHECK & SET
PARKING BRAKE ..... SET
DEFROSTER SWITCH .....OFF
HEATER SWITCH.....OFF
VARIABLE ELEVATOR BACKSTOP..... CHECK

Pull the stick fully aft. While holding the stick at the backstop, check the flaps in the landing position (LDG) and set both power levers MAX. The stick must move slightly forward during power lever forward movement. Set power levers to IDLE. The stick must regain full movement during power lever rearward movement. Select flaps UP. For details: see Chapter 7 of the AFM.

**WARNING**

**The proper function of the variable elevator backstop is required for the safety of the flight, as else handling qualities during power-on stalls are degraded significantly.**

FLAPS ..... UP
FUEL SELECTORS ..... ON
ELEVATOR TRIM ..... SET FOR TAKEOFF
THROTTLE FRICTION ..... ADJUST
AVIONICS MASTER SWITCH ..... ON
ATIS ..... COPY
VFR OR IFR CLEARANCE ..... COPY
AVIONICS MASTER SWITHCH ..... OFF
BRIEFING ..... PERFORM

Briefing must contain:

- Pilot flying
- Type of takeoff (normal or short field) and % load.
- Vr and Vclimb
- Engine failure procedure
- VFR and IFR departure procedure (routing)
- Initial climb instructions +safety altitude (VFR or IFR) (altitude)

Example:

"I fly normal takeoff, 100%, flaps up, Vr 75, Vclimb 90.
Engine failure below 85 knots, abort on the remaining runway and advise ATC.
Engine failure above 85 knots and above obstacles, fly the blue line, brief the escape route (ER).
E.g. VMC: visual pattern or IMC: ER to MSA then return for IFR approach.

VFR departure procedure. E.g. right crosswind departure, climb to 3500ft, MSA 4500ft" or,
IFR departure procedure. E.g. at 2000' turn R hdg 120, intercept IWA R-030.
Questions?

"BEFORE START CHECKLIST"

## ENGINE START

Starting with the external power source: perform procedure in read -and do with DA42 AFM (Abnormal Operating Procedures 4B.7).

**CAUTION**
If diesel fuel or a blend of diesel/Jet A-1 is used, or if the fuel grade is unknown, the engine must not be started if the fuel temperature indication prior to operation is below -5°C (+23°F).

STROBE LIGHTS (DAY) OR POSITION LIGHTS (NIGHT) ..... ON
ENGINE MASTER SWITCH ..... ON

It is recommended to start the LH engine (pilot side) first. If required by operational reasons, the RH engine can also be started first.

ENGINE GLOW ..... CHECK ON

Verify the L/R engine glow annunciation is displayed on the PFD.

ENGINE INDICATIONS ..... CHECK

Check that the engine indications are being powered (Red X disappear).

ENGINE GLOW ..... CHECK OFF
PROPELLER AREA ..... CLEAR

Check the area around the airplane. Open the window momentarily and shout "Props clear".

BRAKES ..... HOLD
IGNITION KEY ..... START

Turn the start key left or right as required to start the appropriate engine, and release when the engine has started. Do not overheat the starter motor. Do not operate the starter motor for more than 10 seconds. After 1 start cycle, apply a cooling period of 20 seconds. After 6 consecutive start cycles, apply a cooling period of 30 minutes.

STARTER ANNUNCIATION ..... OFF

If the 'L/R STARTER' annunciation does not extinguish after the engine has started and the START KEY has been released, set the ENGINE MASTER OFF.

RPM .....CHECK
OIL PRESSURE .....CHECK

If the oil pressure has not moved from the red range within 3 seconds after starting, set the ENGINE MASTER OFF. When starting a cold engine, the oil pressure can be as high as 6.5 bar for a maximum of 20 seconds.

ANNUNCIATIONS/ENGINE/SYSTEM PAGE.....CHECK

Check volts and AMP load. Set idle power and verify the RPM is 900 +/- 20. Leave power at idle for 2 minutes. Thereafter, set 1400 RPM until oil temperature above 50°C and coolant temperature above 60°C.

REPEAT FOR OTHER ENGINE

**CAUTION**

With one engine running, before switching on the engine master for the second engine, check engine glow for the running engine is extinguished. Failure to do so, may result in engine glow being operated on 2 engines simultaneously, which will overload the electrical system and will subsequently require a mantenance intervention.

AVIONICS MASTER SWITCH.....ON

"AFTER START CHECKLIST"

**BEFORE TAXI**

PITOT HEAT ..... CHECK

Switch pitot heat ON. Verify the amber PITOT HT OFF and STALL HT OFF annunciations disappear from the PFD. Note an increase in AMP output. Switch pitot heat OFF.

G1000 SETUP ..... COMPLETE

**I – F – R – B**

- Initialize: Aux Page 4

Check units (e.g. hPa or mbar)

Check database: WGS 84

Check CDI Selected AUTO / ILS CDI capture MANUAL

- Flightplan: go to FPL

Check Dep AD correct (if not enter Dep AD)

Load DP (softkey)

Enter waypoints

Load Apr (press softkey then enter AD of arrival)

- Radios :

Tune : fcy

Identify: if possible on ground

Set: Nav 1: HSI /Nav 2: BRG/ ADF: BRG/ DME: NAV1/2.

- Bugs (speed bugs, QNH 3x, Altitude bugs 2x)

Use the VFR and IFR (real or simulated) clearance (each item chronologically) as a guideline to set radios and navaids. COM1: ground frequency. COM1 will be the only radio used for ATC communications during the whole flight. COM2 will be the radio dedicated to ATIS and company communications during the whole flight. NAV1: first VOR required by clearance, set first radial on HSI. NAV2: second VOR required by clearance, set BRG 2 (optional). NAV1 and NAV2 will be used as follows: at all times VOR (or LOC) in use on NAV1, next VOR on NAV2, DME and ADF: as required by clearance.
At least 1 frequency must be set to enable a quick return to the departure airport in case of an emergency.

AUTOPILOT .....TEST

1. Engage AP (feel resistance on stick)
2. Set hdg bug on top
3. Select HDG/ALT
4. Turn HDG bug (left/right) – monitor stick moving (to the left/right)
5. Press CWS button and check free movement of stick
6. Release CWS button, stick goes to the left again
7. Disengage AP by using red disconnect button

ELECTRIC TRIM .....TEST

1. Push both trim split buttons FWD, monitor elev trim moving FWD,
2. ..... Press red button on stick, check elev trim movement stops,
3. Repeat steps 1 & 2 in AFT direction,
4. Move left split trim button FWD and AFT, check elev trim not moving,
5. Repeat step 4 with right split trim button,

ECU..... TEST

The following test sequence will be executed for both engines simultaneously. The whole test procedure must be completed without any error. If any error occurs, do not fly, even if the engine appears to run smoothly after the test procedure.

ECU test procedure:

Set POWER LEVER IDLE. Press and hold the ECU TEST BUTTON(S) and observe following sequence:

- ECU A/B FAIL LIGHTS..... ON
- PROPELLER RPM..... INCREASE
- ECU A/B FAIL LIGHTS..... OFF
- ECU B FAIL LIGHT ..... ON
- PROPELLER RPM..... DECREASE/INCREASE
- ECU B FAIL LIGHT ..... OFF
- ECU A FAIL LIGHT..... ON
- PROPELLER RPM..... DECREASE/INCREASE
- ECU A FAIL LIGHT..... OFF
- PROPELLER RPM..... DECREASE TO IDLE

Test sequence completed. Release the ECU TEST BUTTON(S).

**CAUTION**

If the 'L/R ECU A/B FAIL' do not illuminate and extinguish during the test sequence, there is a malfunction in the engine control system.

ECU SWAP ..... CHECK

Set ECU swap to ECU B. A light shake of the engine may occur, but check that other than this, the engine keeps running without a change. Set ECU swap back to AUTOMATIC.

**CAUTION**

Running the engine with the ECU swap on ECU B, other than for this test or in an emergency is prohibited. The engines control system redundancy is only given with the ECU swap set to AUTOMATIC.

## "BEFORE TAXI CHECKLIST"

### TAXI

TAXI LIGHT ..... ON
FUEL SELECTORS ..... CROSSFEED

Select both FUEL SELECTOR to CROSSFEED for 30 seconds.

AREA ..... FREE

Check the area around the airplane. Call out **"Left is free, free right?"** Instructor will reply **"Right is free".** In case of solo flights, the call out will be **"Left is free, right is free"** after having verified both sides. Then release the parking brake.

BRAKES ..... CHECK

Perform brake check immediately after the aircraft starts rolling. Apply light and even pressure on both pedals. It is not necessary to bring the aircraft to a complete stop. As soon as it becomes apparent that normal brake pressure is available, release the brakes again. Ask the pilot in the right seat to perform a brake check as follows **"Brakes check, you have controls, check your brakes".** The right seat pilot will reply **"I have controls"** and perform the brake check, then he will announce **"Brakes, checked you have controls".** Pilot flying (left seat pilot) will reply **"I have controls"** and continue taxi.

Taxi turns can be made using rudder pedal motion only. Brakes are only needed to reduce the taxi speed or when maneuvering in tight spaces. On the ground and in flight, the pilot's feet should be in an almost horizontal position–heels on the floor, toes on the lower part of the rudder pedals–sliding the feet up on the rudder pedals only when required to apply brakes.

Differential power (more power on the engine on the outside of the turn, less on the inside engine) may be used during turns on the ground.

FLIGHT INSTRUMENTS ..... CHECK

In a left turn: **"Turning left** (=> check turn coordinator going left), **skidding right** (=> check side slip going right), **HDG and compass decreasing** (=> check numbers on DG and magnetic compass decreasing), **horizon level** (=> check attitude indicator level)".

In a right turn: **"Turning right, skidding left, HDG and compass increasing, horizon level"**.

The checks need to be done only once, in a left turn or a right turn, outside congested area.

FUEL SELECTORS ..... ON

## BEFORE TAKEOFF

CONTROLS ..... FREE
CIRCUIT BREAKERS ..... IN
FLAPS ..... AS REQUIRED

Normal takeoff FLAPS UP (CRUISE), short field takeoff FLAPS T/O.

G1000 ..... REV. MODE

Set Engine page on PFD and System page on MFD.

TRIMS ..... SET
FUEL SELECTORS ..... ON

SHORT BRIEFING ..... PERFORM

The short briefing will include:

- Type of takeoff (normal or short or soft)
- Initial heading and altitude
- The instructor answers "Confirmed" or amends as necessary.

Example VFR:

"Normal takeoff, heading 120°, 3.500FT, confirmed? – "Confirmed".

FRONT CANOPY ..... CLOSED & LOCKED
DOOR WARNING ..... CHECK OFF

## "BEFORE TAKEOFF CHECKLIST"

### LINE-UP

When ATC clearance (if required) received and acknowledged to line up, FIRST release the parking brake and start to roll to the runway, THEN perform the following actions (while taxiing). Fast taxi turns immediately prior to takeoff should be avoided to prevent unporting fuel feed lines. On request of PF "Line-up items", the starred * items may be performed by the PM.

APPROACH ..... FREE

Visually clear the final approach area before entering the runway and call out: "Approach free".

*LANDING LIGHT ..... ON
*TAXI LIGHT ..... OFF
*STROBE LIGHTS ..... ON
ALTIMETER .....CHECK (3X)

Read threshold elevation from Jeppesen or other airport chart and call out: "Threshold elevation _____feet". This may be done while taxiing out of the run-up area. Altimeter reading should not differ more than 60 feet from threshold elevation at sea level and 80 feet at 5000 feet pressure altitude.

COMPASS SYSTEM..... RUNWAY HEADING

This is a runway + compass system check. Read runway heading from chart, takeoff data (QFU) and call out: "Runway heading _____ degrees". Check HSI and magnetic compass. Maximum difference allowed between published runway heading and any compass system is 6°. If a large discrepancy exists, do not take off, but investigate the cause first (wrong runway, compass system malfunction).

*PITOT HEAT .....AS REQUIRED

Switch pitot heat ON. Verify the amber PITOT HT OFF and STALL HT OFF annunciations disappear from the PFD.

## TAKE-OFF

Before applying engine power for takeoff, top the timer and call out: "Takeoff, I have control". The instructor will confirm: "You have control".
When the aircraft is lined up, perform the available takeoff power check.

BRAKES ..... HOLD
POWER LEVERS ..... FULLY FORWARD
PARAMETERS ..... CHECK

Check:

- ANNUNCIATIONS ..... CHECK
- RPM ..... STABILIZES 2240 TO 2300 RPM
- LOAD ..... STABILIZES 90 TO 100%

Call out: "Power checked".

Note:

1. Under high temperature/high altitude conditions, load indications below 90% are possible. If the engine does not stabilize at the target RPM of 2240 to 2300 RPM, do not continue takeoff.
2. An engine is warm for takeoff when the throttle can be opened fully without engine faltering (backfiring or skipping) and without a reduction in engine oil pressure. It is important to check takeoff power early in the takeoff run or power application. Any sign of rough engine operation or sluggish acceleration is good cause for discontinuing the takeoff.
3. Takeoffs are made with full throttle.

When speed tape comes alive. Call out: "Speed checked"
At rotation speed: "75 knots rotate"

## AFTER TAKEOFF

"POSITIVE CLIMB"

GEAR ..... UP

Apply brakes to stop the spinning of the main wheels before entering the wheel well, then select lever up. Retract the gear when no more runway is available for an emergency re-landing.

FLAPS ..... UP

After gear is up and at a safe altitude and speed.

Perform following actions at 1.000 FT AGL.

ENGINE INSTRUMENTS .....CHECK
LANDING LIGHT .....AS REQUIRED
TRANSPONDER ..... CODE & ALT
MAP PAGE..... SWITCH

When out of the traffic pattern and congested area, switch off the landing lights. Do not switch off the landing lights when remaining in the traffic pattern or transiting controlled airspace.

"AFTER TAKEOFF CHECKLIST"

## CRUISE

Cruise checklist should be performed every 15 minutes.

FUEL STATUS .....CHECK
ENGINE INDICATIONS / SYSTEM PAGE .....CHECK

## DESCENT-APPROACH

When the altimeter setting for the destination airport is set:

LANDING LIGHT ..... ON
ALTIMETERS ..... SET (3X)

Set local altimeter setting for the destination airport. Complete answer to this checklist item is: "_____(altimeter setting) set".

ANNUNCIATIONS / ENGINE / SYSTEM PAGE ..... CHECKED
GEAR WARNING HORN ..... CHECKED
FUEL SELECTORS ..... ON
DE-ICING SYSTEM ..... CONSIDER

"DESCENT-APPROACH CHECKLIST"

## LANDING

Turning base:

LANDING GEAR ..... DOWN-3 GREENS
BRAKES ..... CHECKED

After checking the brakes, make sure to slide your feet back to the normal position (heels on floor, toes on lower part of the pedals).

PARKING BRAKE ..... OFF
FLAPS ..... AS REQUIRED

"LANDING CHECKLIST"

## SHORT FINAL

LANDING GEAR ..... DOWN-3 GREENS

## TOUCHDOWN

Maintain desired approach flight path with BA. Maintain desired airspeed with power. Reduce power to idle during the flare before the main wheels touch the runway. This gives the gear warning horn a chance to blow if the gear is not locked down. After ground contact, hold the nose wheel off as long as possible. Braking–if needed–is most effective when back pressure is applied to the control wheel, putting most of the aircraft weight on the main wheels. When the headwind component exceeds 15 knots, or when the crosswind component exceeds 10 knots, as well as in gusty wind conditions, the approach will be flown at a slightly higher than normal speed (+5 KIAS) with APPROACH FLAPS.

## AFTER LANDING

Runway vacated, aircraft stopped behind hold short line. On request of PF "After landing items", the starred * items may be performed by the PM.

*LANDING LIGHT ..... OFF
*TAXI LIGHT ..... ON
*PITOT HEAT ..... OFF
TIMER ..... START–ENGINE IDLE

Engines have to run at idle power for 2 minutes before shut down. Taxi with idle power if possible.

TRANSPONDER ..... CODE & GROUND
*FLAPS ..... UP

"AFTER LANDING CHECKLIST "

If the starred items were performed by the PM, he/she will read the AFTER LANDING checklist silently and announce "AFTER LANDING CHECKLIST COMPLETED" to the PF.

## SHUTDOWN

TAXI LIGHT ..... OFF

TOTAL TIME IN SERVICE ..... NOTE

Write down the G1000 total time in service from the FUEL page.

TIME .....CHECK 2 MINUTES IN IDLE
AVIONICS MASTER SWITCH.....OFF
ENGINE MASTER SWITCHES.....OFF
STROBE LIGHT.....OFF
ELECTRIC MASTER SWITCH .....OFF
IGNITION KEY.....OUT
PARKING BRAKE ..... AS REQUIRED

Never taxi the aircraft facing fuel pumps with engines running, park parallel to pumps. Stop with plenty of space, then pull the aircraft forward into the fueling position. Do not set parking brake unless on a slope.

PILOT OVERHEAD READING LIGHT .....OFF

"SHUTDOWN CHECKLIST"

MOORING

PARKING BRAKE .....RELEASE

Push aircraft backward or pull aircraft forward into parking space using the tow bar for steering. Do not turn the nose gear beyond its steering radius in either direction as this will result in damage to the nose gear and steering mechanism.

TOW BAR ..... STOW PROPERLY
SUNSCREENS, STALL WARINING COVER, PITOT COVER, TIE-DOWN, CHOCKS..... INSTALL

Tie-down ropes are required when the aircraft is left unattended longer than for a normal crew change. If no tie-down ropes are available on ramp, use the aircraft tie-down ropes (in flight gear bag). Secure tie-down ropes to the wing tie-down rings and to the tail skid at approximately 45° angles to the ground. Use bowline

knots, square knots or locked slip knots. Do not use plain slip knots.

Parking brake is required when aircraft is not tied down, but with the crew around. Do not set parking brake when the brakes are overheated!

Wheel chocks are required when the aircraft is not tied down and left unattended. If no wheel chocks available at the FBO, use the aircraft's own wheel chocks (in flight gear bag).

SEAT BELTS.....LOCK

Seat belts of all seats will be fastened.

PERSONAL BELONGINGS AND TRASH..... REMOVE
CANOPY AND DOORS .....CLOSE & SECURE

Lock with key.

If required: fill in strip in aircraft squawk book and report problem to dispatch and maintenance.

If required: fill in ASR.

Fill out aircraft logbook.

Return aircraft key to dispatch.

If required: close flight plan.

*FLOWS ARE INTENDED TO PROVIDE A LOGICAL SEQUENCE IN WHICH THE ITEMS CAN BE DONE AND SHOULD BE FOLLOWED BY A CHECK-LIST AT ALL TIMES, EXCEPT FOR THE WALKAROUND.*

## PRE—FLIGHT PREPARATION FLOW

ALL PERTINENT INFORMATION CONCERNING FLIGHT ..... CHECK
FLIGHT RELEASE FORM .....COMPLETE
AIRPLANE SQUAWK BOOK ..... CHECK
EQUIPMENT REQUIRED FOR FLIGHT..... CHECK
AIRCRAFT KEYS AND POUCH..... CHECK
I-M-S-A-F-E CHECKLIST ..... CHECK
MISSION BRIEFING ..... CHECK

## WALKAROUND FLOW

### APPROACHING THE AIRCRAFT

NEARBY OBSTACLES ..... CHECK
FLAP POSITION..... NOTE
SURFACES ..... CLEAR
ANTENNAS..... CHECK

### PRELIMINARY INSPECTION

IGNITION KEY.....CHECK OFF & KEY REMOVED
FRONT CANOPY & REAR DOOR ..... CHECK
FIRE EXTINGUISHER ..... CHECK SECURE / CONDITION
UPPER SWITCH PANEL .....ALL SWITCHES OFF
ECU SWITCHES .....AUTO
ALTERNATOR SWITCHES ..... ON
LOWER SWITCH PANEL .....ALL SWITCHES OFF
GEAR SELECTOR..... DOWN
PARKING BRAKE .....SET
ELECTRIC MASTER SWITCH..... ON
FUEL GAUGES.....CHECK QUANTITY
FLAPS.....LDG
ELECTRIC MASTER SWITCH..... OFF
TRIM .....NEUTRAL
SUNSCREENS, PITOT COVER, STALL WARNING COVER & TIE-DOWN .....REMOVED
CHOCKS.....REMOVED
TOWBAR..... PROPERLY STOWED
REQUIRED EQUIPMENT ..... ON BOARD
FRONT BAGGAGE DOORS..... SECURE

## LEFT WING

STEP ..... CHECK
NACELLE UNDERSIDE FUEL COOLER AIR IN & OUTLET ..... CHECK / CLEAR
WING FLAPS ..... CHECK
FLAP AND LINKAGE ..... CHECK
FLAP HINGES & SAFETY PIN ..... CHECK
AILERON ..... CHECK
AILERON AND LINKAGE ..... CHECK
FOREIGN OBJECTS IN AILERON PADDLE ..... CHECK
STATIC DISCHARGERS ..... CHECK
WING TIP ..... CHECK
POSITION LIGHT / STROBE LIGHT ..... CHECK
TIE DOWN ..... CHECK / CLEAR
MAIN FUEL TANK FILLER ..... CHECK / CLOSE
PITOT PROBE ..... CHECK
STALL WARNING DEVICE ..... CHECK
FUEL TANK AIR OUTLET ..... CHECK
WING SURFACE ..... CHECK
TANK DRAIN / TANK AIR INLET ..... CHECK
OPENINGS ON LOWER SURFACE ..... CHECK

## LEFT ENGINE NACELLE

3 AIR INLETS/2 AIR OUTLETS ..... CLEAR
ENGINE OIL LEVEL ..... CHECK
GEARBOX OIL LEVEL ..... CHECK
COWLING ..... CHECK
PROPELLER & SPINNER ..... CHECK
EXHAUST ..... CHECK
VENTING PIPE ..... CHECK FOR BLOCKAGE
GASCOLATOR/AIR INLET ..... DRAIN/CLEAR
NACELLE UNDERSIDE ..... CHECK
▶AUXILIARY TANK FILLER ..... CHECK/CLOSE
▶AUXILIARY TANK VENT OUTLET ..... CHECK
▶AUXILIARY TANK DRAIN ..... CHECK/DRAIN

## LEFT MAIN LANDING GEAR

LANDING GEAR STRUT & LOCK ..... CHECK
DOWN & UPLOCK SWITCHES (3X) ..... CHECK
WEAR, TREAD & DEPTH OF TIRE ..... CHECK
WHEEL BRAKES / HYDRAULIC BRAKE LINE ..... CHECK
SLIP MARKS ..... CHECK
LANDING GEAR DOORS ..... CHECK

CHOCKS ..... REMOVE

FRONT FUSELAGE / NOSE LANDING GEAR

FRONT CANOPY LEFT & RIGHT SIDE ..... CHECK
LEFT & RIGHT FRONT BAGGAGE DOORS ..... CHECK / CLOSE & LOCK
NOSE LDG GEAR STRUT, LOCK & CENTERING DEVICE ..... CHECK
DOWN & UPLOCK SWITCHES ..... CHECK
WEAR, TREAD & DEPTH OF TIRE ..... CHECK
SLIP MARKS ..... CHECK
CHOCKS ..... REMOVE
LANDING GEAR & LINKAGE ..... CHECK
OAT SENSOR ..... CHECK
EPU CONNECTOR ..... CHECK
TOWBAR ..... CHECK REMOVED

RIGHT MAIN LANDING GEAR

LANDING GEAR STRUT & LOCK ..... CHECK
DOWN & UPLOCK SWITCHES (3X) ..... CHECK
WEAR, TREAD & DEPTH OF TIRE ..... CHECK
WHEEL BRAKES / HYDRAULIC BRAKE LINE ..... CHECK
SLIP MARKS ..... CHECK
LANDING GEAR DOORS ..... CHECK
CHOCKS ..... REMOVE

RIGHT ENGINE NACELLE

3 AIR INLETS/2 AIR OUTLETS ..... CLEAR
ENGINE OIL LEVEL ..... CHECK
GEARBOX OIL LEVEL ..... CHECK
COWLING ..... CHECK
PROPELLER & SPINNER ..... CHECK
EXHAUST ..... CHECK
VENTING PIPE ..... CHECK
GASCOLATOR/AIR INLET ..... DRAIN/CLEAR
NACELLE UNDERSIDE ..... CHECK
▶AUXILIARY TANK FILLER ..... CHECK/CLOSE
▶AUXILIARY TANK VENT OUTLET ..... CHECK
▶AUXILIARY TANK DRAIN ..... CHECK/DRAIN

RIGHT WING

CABIN VENT AIR INLET ..... CHECK/CLEAR
TANK DRAIN/TANK AIR INLET ..... CHECK/DRAIN

TANK AIR OUTLET.....CHECK
OPENINGS ON LOWER SURFACE.....CHECK
ENTIRE WING SURFACE.....CHECK
MAIN FUEL TANK FILLER.....CHECK/CLOSE
WING TIP.....CHECK
STATIC DISCHARGERS.....CHECK
POSITION LIGHT, STROBE LIGHT.....CHECK
TIE-DOWN.....CHECK/CLEAR
AILERON & LINKAGE.....CHECK
FOREIGN OBJECTS IN AILERON PADDLE.....CHECK
FLAP AND LINKAGE.....CHECK
FLAP HINGES & SAFETY PIN.....CHECK
NACELLE UNDERSIDE FUEL COOLER AIR IN- & OUTLET.....CHECK/CLEAR
STEP.....CHECK

FUSELAGE RIGHT SIDE / UNDERSIDE

AFT CANOPY.....CHECK
FUSELAGE SKIN.....CHECK
ANTENNAS UPPER SIDE.....CHECK
STATIC PORT.....CHECK

EMPANNAGE

STABILIZERS & CONTROL SURFACES/ELEVATOR TIPS.....CHECK
HINGES.....CHECK
ELEVATOR TRIM TAB.....CHECK
RUDDER TRIM TAB.....CHECK
TIE DOWN.....CHECK/CLEAR
TAIL SKID & LOWER FIN.....CHECK
STATIC DISCHARGERS.....CHECK

FUSELAGE LEFT SIDE / UNDERSIDE

STATIC PORT.....CHECK
FUSELAGE SKIN.....CHECK
FUSELAGE UNDERSIDE.....CHECK FOR CONTAMINATION
ANTENNAS UNDERSIDE.....CHECK
AFT CANOPY.....CHECK

MISCELLANEOUS

FOR NIGHT FLIGHT ONLY:
INTERIOR LIGHTING.....ON & CHECK
EXTERIOR LIGHTING.....ON & CHECK
ALL LIGHTING SWITCHES.....OFF

FOR FLIGHT IN IMC ONLY:

PITOT HEAT.....ON
PITOT HEAT ANNUNCIATOR.....EXTINGUISHED
PITOT TUBE.....CHECK WARM
PITOT HEAT.....OFF

FOR FLIGHT IN KNOWN ICING CONDITIONS ONLY:

DE-ICING FLUID.....CHECK QTY
ICE LIGHT.....ON & CHECK
ICE LIGHT.....OFF

## COCKPIT PREPARATION FLOW

RUDDER PEDALS.....ADJUSTED & LOCKED
FLIGHT CONTROLS.....PROPER OPERATION
SEATBELTS.....LOCKED
REAR DOOR.....CLOSED & SECURED
FRONT CANOPY.....POSITION 1 OR 2
FRONT BAGGAGE DOORS.....CLOSED & LOCKED
AVIONICS MASTER SWITCH.....OFF
ELECTRIC MASTER SWITCH.....ON
ENGINE MASTER SWITCHES.....OFF
IGNITION KEY.....READY & OFF
PITOT HEAT.....OFF
ALTERNATE STATIC.....CLOSED
ALTERNATORS.....CHECK ON
ECU SWAP.....CHECK AUTOMATIC
DIMMER CONTROL.....SET
LIGHT SWITCHES.....OFF
EMERGENCY SWITCH.....CHECK OFF & GUARDED
STANDBY INSTRUMENTS.....CHECK
MAGNETIC COMPASS.....CHECK
DEVIATION CARD.....CHECK
ELT.....ARMED
▶DE-ICING SYSTEM.....CHECK
CIRCUIT BREAKERS.....IN
G1000.....ACKNOWLEDGE
FUEL TEMPERATURE.....CHECK
FUEL QUANTITY.....CHECK
FUEL CALCULATOR.....SET
TOTAL TIME IN SERVICE (HOBBS).....NOTE
G1000.....BACKUP OR REV MODE
GEAR WARNING/FIRE DETECTOR.....CHECK

MANUAL GEAR EXTENSION HANDLE.....CHECK PUSHED IN
ALTERNATE AIR.....CHECK CLOSED
FLAPS.....CHECK LDG
RUDDER TRIM.....CHECK/SET
PARKING BRAKE.....SET
DEFROSTER SWITCH.....OFF
HEATER SWITCH.....OFF
VARIABLE ELEVATOR BACKSTOP.....CHECK
FLAPS.....UP
FUEL SELECTORS.....ON
ELEVATOR TRIM.....SET FOR T/O
THROTTLE FRICTION .....ADJUST
AVIONICS MASTER SWITCH.....ON
ATIS/VFR OR IFR CLEARANCE.....COPY
AVIONICS MASTER SWITCH.....OFF
BRIEFING.....PERFORM

**"BEFORE START CHECKLIST"**

## ENGINE START FLOW

STROBE LIGHTS (DAY) OR POSITION LIGHTS (NIGHT).....ON
ENGINE MASTER SWITCH (L).....ON
ENGINE GLOW.....ON
ENGINE INDICATIONS.....CHECK
ENGINE GLOW.....CHECK OFF
PROPELLER AREA.....CLEAR
BRAKES ..... HOLD
IGNITION KEY.....START
STARTER ANNUNCIATION.....OFF
RPM.....CHECK
OIL PRESSURE .....CHECK
ANNUNCIATIONS/ ENGINE/ SYSTEM PAGE.....CHECK

**REPEAT FOR OTHER ENGINE**

AVIONICS MASTER SWITCH.....ON

**"AFTER START CHECKLIST"**

## BEFORE TAXI FLOW

PITOT HEAT.....CHECK
G1000 SET UP (I-F-R-B).....COMPLETE
AUTO PILOT.....TEST

ELECTRICAL TRIM.....TEST
ECU .....TEST
ECU SWAP.....CHECKED/AUTO

**"BEFORE TAXI CHECKLIST"**

## TAXI FLOW

TAXI LIGHT.....ON
FUEL SELECTORS.....CROSSFEED
AREA.....FREE
PARKING BRAKE.....RELEASE
BRAKES.....CHECK
FLIGHT INSTRUMENTS.....CHECK
FUEL SELECTORS.....ON

## BEFORE TAKEOFF FLOW

CONTROLS.....FREE
CIRCUIT BREAKERS.....IN
FLAPS.....AS REQUIRED
G1000.....REV. MODE
TRIMS.....SET
FUEL SELECTORS.....ON
SHORT BRIEFING.....PERFORM
FRONT CANOPY.....CLOSED & LOCKED
DOOR WARNING.....CHECK OFF

**"BEFORE TAKEOFF CHECKLIST"**

## LINE UP FLOW

**MAYBE PERFORMED BY PM ON REQUEST OF PF*

APPROACH.....FREE
*LANDING LIGHT..... ON
*TAXI LIGHT..... OFF
*STROBE LIGHTS ..... ON
ALTIMETER..... CHECK (3X)
COMPASS SYSTEM ..... CHECK
*PITOT HEAT ..... AS REQUIRED

## TAKEOFF FLOW

BRAKES.....HOLD
POWER LEVERS .....FULLY FORWARD
PARAMETERS..... CHECK

## AFTER TAKEOFF FLOW

GEAR.....UP
FLAPS.....UP
ENGINE INSTRUMENTS.....CHECK
LANDING LIGHT.....AS REQUIRED
TRANSPONDER.....CODE & ALT
MAP PAGE.....SWITCH

"AFTER TAKEOFF CHECKLIST"

## CRUISE FLOW

FUEL STATUS.....CHECK
ENGINE INDICATIONS / SYSTEM PAGE .....CHECK

## DESCENT / APPROACH FLOW

LANDING LIGHT.....ON
ALTIMETERS.....SET(3X)
ANNUNCIATIONS/ ENGINE/ SYSTEM PAGE.....CHECKED
GEAR WARNING HORN.....CHECKED
FUEL SELECTORS.....ON
DE-ICING SYSTEM..... CONSIDER

"DESCENT / APPROACH CHECKLIST"

## LANDING FLOW

LANDING GEAR.....DOWN-3 GREENS
BRAKES.....CHECKED
PARKING BRAKE.....OFF
FLAPS.....AS REQUIRED

"LANDING CHECKLIST"

## SHORT FINAL FLOW

LANDING GEAR.....DOWN-3 GREENS

## AFTER LANDING FLOW

**MAYBE PERFORMED BY PM ON REQUEST OF PF*

*LANDING LIGHT.....OFF

*TAXI LIGHT.....ON
*PITOT HEAT.....OFF
TIMER.....START-ENGINE IDLE
TRANSPONDER.....CODE & GROUND
*FLAPS.....UP

**"AFTER LANDING CHECKLIST"**

## ENGINE SHUTDOWN FLOW

TAXI LIGHT.....OFF
TOTAL TIME IN SERVICE (FUEL PAGE).....NOTE
TIME.....CHECK 2 MINUTES IDLE
AVIONICS MASTER SWITCH.....OFF
ENGINE MASTER SWITCHES.....OFF
STROBE LIGHTS.....OFF
ELECTRIC MASTER SWITCH.....OFF
IGNITION KEY.....OUT
PARKING BRAKE.....AS REQUIRED
PILOT OVERHEAD READING LIGHT.....OFF

**"SHUTDOWN CHECKLIST"**

## MOORING FLOW

PARKING BRAKE.....RELEASE
TOW BAR.....STOW PROPERLY
SUNSCREENS, STALL WARNING COVER, TIE DOWNS, PITOT COVER.....INSTALL
SEAT BELTS.....LOCK
PERSONAL ITEMS.....REMOVE
CANOPY.....CLOSE AND LOCK

INTENTIONALLY LEFT BLANK

## BEFORE START CHECKLIST

| | |
|---|---|
| WALK AROUND | COMPLETED |
| RUDDER PEDALS | ADJUSTED AND LOCKED |
| SEAT BELTS | LOCKED |
| PARKING BRAKE | SET |
| GEAR WARNING/FIRE DETECTOR | CHECKED |
| AVIONICS MASTER SWITCH | OFF |
| ELECTRIC MASTER SWITCH | ON |
| ALTERNATORS | ON |
| ECU SWAP | AUTO |
| CIRCUIT BREAKERS | IN |
| FLAPS | AS REQUIRED |
| G1000 | ACKNOWLEDGED |
| FUEL QUANTITY | CHECKED |
| FUEL TEMPERATURE | CHECKED |
| ALTERNATE AIR | CLOSED |
| THROTTLE | IDLE |
| VARIABLE ELEVATOR BACKSTOP | CHECKED |
| FUEL SELECTORS | ON |
| TRIMS | SET |

## AFTER START CHECKLIST

| | |
|---|---|
| OIL PRESSURE (2X) | CHECKED |
| ANNUNCIATORS/ENGINE/SYSTEM PAGE | CHECKED |

## BEFORE TAXI CHECKLIST

| | |
|---|---|
| PITOT HEAT | CHECKED |
| G1000 SET UP | COMPLETED |
| AUTO PILOT TEST | COMPLETED |
| ELECTRICAL TRIM TEST | COMPLETED |
| ECU | TESTED |
| ECU SWAP | CHECKED / AUTO |

## BEFORE TAKEOFF CHECKLIST

| | |
|---|---|
| FLIGHT INSTRUMENTS | CHECKED |
| ENGINE INSTRUMENTS | CHECKED |
| ALTERNATORS | ON |
| ECU SWAP | AUTO |
| FLAPS | AS REQUIRED |
| FUEL SELECTORS | ON |
| TRIMS | SET |
| FLIGHT CONTROLS | FREE |
| CANOPY & DOORS | CLOSED & SECURED |

## AFTER TAKEOFF CHECKLIST

GEAR.....UP-NO LIGHTS
FLAPS ..... UP
ENGINE INSTRUMENTS.....CHECKED
LANDING LIGHT ..... AS REQUIRED

## DESCENT APPROACH CHECKLIST

- These items only when remaining in the pattern

LANDING LIGHT .....ON
ALTIMETERS ..... _____SET(3X)
- ANNUNCIATIONS/ENGINE/SYSTEM PAGE .....CHECKED
- GEAR WARNING HORN.....CHECKED

FUEL SELECTORS .....ON
▶DE-ICING SYSTEM ..... CONSIDER

## LANDING CHECKLIST

LANDING GEAR ..... DOWN-3 GREENS
BRAKES.....CHECKED
PARKING BRAKE ..... OFF
FLAPS ..... AS REQUIRED

## AFTER LANDING CHECKLIST

LANDING LIGHT ..... OFF
TAXI LIGHT .....ON
PITOT HEAT ..... OFF
TIMER.....STARTED
TRANSPONDER..... CODE & GROUND
FLAPS ..... UP

## SHUTDOWN CHECKLIST

PILOT OVERHEAD READING LIGHT ..... CHECK OFF
LIGHTS..... OFF
AVIONIC MASTER SWITCH ..... OFF
ENGINE MASTER SWITCHES ..... OFF
ELECTRIC MASTER SWITCH ..... OFF
IGNITION KEY .....OUT
PARKING BRAKE..... AS REQUIRED

INTENTIONALLY LEFT BLANK

# EMER

# PROC

INTENTIONALLY LEFT BLANK

# NON NORMAL WORKMETHOD

1. **Announce** the failure or read the G1000 annunciation.
   E.g. "Engine failure" or "Hi oil temp".
2. Perform **Recall items** (by memory) if applicable. When completed: "Recall items completed".
3. Brief the **Short term plan** to PM. Aircraft vertical & lateral flight path (altitude & heading) during the checklist reading (1-2min).
4. Perform the **Emergency checklist** (confirm recall items completed correctly) Announce: "_____V-list completed".
5. Perform the **Normal checklist** (if applicable).
6. **Longterm plan**: Collect all necessary info to make a decision (Wx, Notams, Fuel remaining, ….).
7. Annouce **Decision** to: PM, ATC, Passengers.

## CHECKLIST TITLE

The title of the checklist refers to the type of failure. **G1000 annunciated** failures are between filled boxes. **Unannunciated** failures are not.

Warnings and Emergencies are RED.

Cautions and Abnormals are AMBER.

G1000 WARNINGS

OTHER EMER PROC

G1000 CAUTIONS

OTHER ABNORMAL PROC

## RECALL ITEMS

Some emergency checklist require an immediate response/ action from the pilot. The recall items must be performed quickly without hesitation but without rushing either.

Recall items are identified in by a dashed line box around the critical items.

Other checklists that are not boxed must be performed in read and do.

# G1000 WARNINGS

| Warning | Page | Description |
|---|---|---|
| L/R OIL PRES | 4.7 | Oil pressure low (< 1 bar) |
| L/R OIL TEMP | 4.7 | Oil temp hight (> 140°C) |
| L/R GBOX TEMP | 4.8 | Gearbox temp high (> 120°C) |
| L/R FUEL TEMP | 4.8 | Fuel temp high (>75°C) |
| L/R STARTER | 4.8 | Starter not disengaging |
| L/R ENG TEMP | 4.9 | Coolant temp high (> 105°C) |
| L/ENG FIRE | 4.10<br>4.11 | Engine fail/fire during takeoff<br>Engine fail/fire in flight<br>Engine fire on ground |
| L/R ALTN AMPS | 4.15 | High current (> 60A) |
| DOOR OPEN | 4.22 | Unlocked door(s)<br>Front/Rear Canopy/Bag doors not closed and locked |

# OTHER EMER PROC

## G1000 CAUTIONS

| Warning | Page | Description |
|---|---|---|
| L/R ECU A FAIL | 4.23 | ECU A failed |
| L/R ECU B FAIL | 4.23 | ECU B failed |
| L/R COOL LVL | 4.23 | Engine coolant level low |
| L/R ALTN FAIL | 4.24 | Alternator failed |
| L/R VOLTS LOW | 4.24 | Bus voltage too low |
| PITOT FAIL | 4.25 | Pitot heating system failed |
| PITOT HT OFF | 4.25 | Pitot heating system OFF |
| STALL HT FAIL | 4.25 | Stall warning heating failed |
| STALL HT OFF | 4.25 | Stall warning heating OFF |
| DEICE LVL LO | 4.26 | De-icing fluid level low |
| DEIC PRES LO | 4.26 | De-icing pressure low |
| DEIC PRES HI | 4.26 | De-icing pressure high |
| L/R FUEL LOW | 4.27 | Main tank fuel quantity low |
| STICK LIMIT | 4.27 | Stick limiting system failed |

## OTHER ABNORMAL PROC

| Situation | Page |
|---|---|
| BOTH ALTN FAIL | 4.24 |
| HYD PUMP FAIL OR CONT OPS | 4.29 |

# ENGINE IND OUTSIDE GRN RANGE

| Situation | Description/Action |
|---|---|
| **COOLANT TEMP HI** | Refer to EMER 'L/R ENG TEMP' |
| **COOLANT TEMP LO (during low power descent from altitude, consider increasing power)** | • Check G1000 for LOW COOLANT LVL caution light<br>• If LOW COOLANT LVS caution light ON:<br>  ◦ Reduce power on affected engine<br>  ◦ Expect loss of coolant fluid<br>  ◦ Expect ENG FAIL, LAND ASAP |
| **OIL TEMP HI** | Refer to EMER 'L/R OIL TEMP' |
| **OIL TEMP LO** | • Increase power<br>• Reduce airspeed |
| **OIL PRES HI** | • Check oil temp and coolant temp<br>• If within green range:<br>  ◦ Oil pressure indication may be faulty, monitor temp<br>• If outside green range:<br>  ◦ Reduce power on affected engine<br>  ◦ Expect ENG FAIL, LAND ASAP |
| **OIL PRES LO** | Refer to EMER 'L/R OIL PRES' |
| **FUEL TEMP HI** | Refer to EMER ' L/R FUEL TEMP' |
| **FUEL TEMP LO** | • Increase power<br>• Reduce airspeed<br>  ◦ If not recovered: expect ENG FAIL, LAND ASAP |
| **VOLTS LO** | • On ground:<br>  ◦ Check circuit breakers & increase RPM<br>  ◦ If not solved: terminate flight<br>• In flight:<br>  ◦ Check circuit breakers<br>  ◦ Reduce ELEC load<br>  ◦ If not solved: Refer to ABN 'L/R ALTN FAIL |
| **RPM HI** | • Reduce power<br>• Keep RPM in green range<br>  ◦ If not solved: Refer to EMER 'RPM OVERSPEED' |

## L/R OIL PRESS

POWER AFFECTED ENGINE ..... REDUCE

- Be prepared for a loss of oil and engine failure.

LAND ASAP

## L/R OIL TEMP

OIL PRESSURE ..... CHECK

- If oil pressure is too low

  POWER AFFECTED ENGINE ..... REDUCE

  - Be prepared for a loss of oil and engine failure.

  LAND ASAP

- If oil pressure is in green range

  POWER AFFECTED ENGINE ..... REDUCE
  AIRSPEED ..... INCREASE

  - If oil temperature not returning to green range

    - Be prepared for a loss of oil and engine failure.

    LAND ASAP

  - If oil temperature returning to green range

    - Continue normal operations.

## L/R GBOX TEMP

POWER AFFECTED ENGINE ..... REDUCE
AIRSPEED ..... INCREASE

- If not returning to green range
  - Be prepared for a loss of oil and engine failure.

  LAND ASAP

- If returning to green range
  - Continue normal operations.

## L/R FUEL TEMP

POWER AFFECTED ENGINE ..... REDUCE
AIRSPEED ..... INCREASE

- If not returning to green range

LAND ASAP

## L/R STARTER

POWER AFFECTED ENGINE ..... IDLE
ENGINE MASTER AFFECTED ENGINE ..... OFF
ELECTRIC MASTER ..... OFF

# L/R ENGINE TEMP

G1000 LOW COOL LVL CAUTION.....CHECK

- If LOW COOL LVL caution light OFF
  - During climb

POWER AFFECTED ENGINE.....REDUCE BY ~ 10%
AIRSPEED ..... INCREASE BY ~ 10 KIAS
TIMER..... START

- If coolant temp not returning to green range within 60 seconds

POWER AFFECTED ENGINE.....REDUCE FURTHER
AIRSPEED ..... INCREASE

- Consider level off or descent according to MEA/MSA

  - During cruise

POWER AFFECTED ENGINE..... REDUCE (as required)
AIRSPEED .....INCREASE (as required)

This requires to increase power on the other engine (check temperature!) or start a descent according to MEA/MSA.

- If coolant temperature not returning to green range

- Be prepared for a loss of oil and engine failure

## LAND ASAP

- If LOW COOL LVL caution light ON

POWER AFFECTED ENGINE..... REDUCE

- Expect loss of coolant fluid. Be prepared for an engine failure.

# L/R ENGINE FIRE/FAILURE AND SHUTDOWN

**DURING TAKEOFF**

PERFORM A REJECTED TAKEOFF OR EMERGENCY RE-LANDING

POWER LEVERS ..... IDLE
BRAKES ..... APPLY
ATC ..... INFORM

•If necessary:

ENGINE MASTER (BOTH) ..... OFF
FUEL SELECTORS (BOTH) ..... OFF
ELECTRICAL MASTER ..... OFF

•In case of fire:

CABIN HEAT AND DEFROST ..... OFF

CONTINUED ON NEXT PAGE

# L/R ENGINE FIRE/FAILURE AND SHUTDOWN

**IN FLIGHT (AIRSPEED ABOVE 68 KIAS)**

POWER LEVERS ..... MAX
AIRPLANE CONTROL.....MAINTAIN
3-5° bank into good engine
Ball ½ delfected into good engine
Speed Vyse 82KIAS
GEAR ..... UP
FLAPS..... UP
IDENTIFY.....DEAD FOOT = DEAD ENGINE
Announce: **"Engine 1/2 failed"**
THROTTLE ENGINE # ..... RETARD
Verify No yaw; sound change

•*IF CONDITIONS PERMIT (A/C under control, V > 82KIAS, above MSA)*

ENGINE TROUBLESHOOTING..... PERFORM
**WARNING**: Never in case FIRE
Refer to page 4.

•*IF CONDITIONS DO **NOT** PERMIT.*

ENGINE MASTER SWITCH # .....OFF
After confirmation from PF

ALTERNATOR # .....OFF
FUEL SELECTOR #.....OFF
X-FEED .....CONSIDER
Max imbalance 5USG

•In case of fire:

CABIN HEAT AND DEFROST .....OFF

LAND ASAP

# ENGINE TROUBLESHOOTING

POWER LEVER (AFFECTED ENGINE) ..... IDLE

- If in icing conditions:

  ALTERNATE AIR ..... OPEN

FUEL QUANTITY ..... CHECK
FUEL SELECTOR (AFFECTED ENGINE) ....ON OR X-FEED (AS REQUIRED)
ECU SWAP (AFFECTED ENGINE) ..... ECU B

- If unsuccessful:

  ECU SWAP (AFFECTED ENGINE) ..... AUTO
  CIRCUIT BREAKERS ..... CHECK/RESET

  - If unsuccessful:

    AIRSPEED ..... MIN 82 KIAS-VYSE
    LANDING GEAR ..... UP
    FLAPS ..... UP
    ENGINE MASTER (AFFECTED ENGINE) ..... OFF
    ALTERNATOR (AFFECTED ENGINE) ..... OFF
    FULE SELECTOR (AFFECTED ENGINE) ..... OFF

LAND ASAP

# OSCILLATING RPM

POWER LEVER (AFFECTED ENGINE)..... CHANGE

- If unsuccessful:

  ECU SWAP (AFFECTED ENGINE)..... ECU B

- If unsuccessful:

  ECU SWAP (AFFECTED ENGINE)..... AUTO

**LAND ASAP**

## RPM OVERSPEED

POWER LEVER (AFFECTEDENGINE) ..... REDUCE

- If unsuccessful:

  ECU SWAP (AFFECTED ENGINE) ..... ECU B

- If unsuccessful:

  ECU SWAP (AFFECTED ENGINE) ..... AUTO

LAND ASAP

- Be prepared for a loss of oil and engine failure

## ENGINE RESTART

AIRSPEED ..... 80–120 KIAS
PRESSURE ALTITUDE ..... MAX 6000FT
POWER LEVER (AFFECTED ENGINE) ..... IDLE
FUEL SELECTOR (AFFECTED ENGINE) ..... ON
ALTERNATE AIR ..... AS REQUIRED
ENGINE MASTER (AFFECTED ENGINE) ..... ON
STARTER ..... ENGAGE IF NECESSARY

- If engine starts:

  POWER (AFFECTED ENGINE) ..... MODERATE
  ENGINE INSTRUMENTS ..... CHECK GREEN RANGE
  ALTERNATOR (AFFECTED ENGINE) ..... ON

## L/R ALTN AMPS

CIRCUIT BREAKERS ..... CHECK
ELECTRICAL LOAD ..... REDUCE

**LAND ASAP**

## COMPLETE ELECTRICAL FAILURE

CIRCUIT BREAKERS ..... CHECK

- If unsuccessful:

  EMERGENCY SWITCH ..... ON
  FLOOD LIGHT ..... ON
  POWER ..... SET ACC. TO LEVER POSITION OR NOISE
  FLAPS ..... VERIFY POSITION

**LAND ASAP**

Landing gear may slowly extend.

- For landing:

  MANUAL LANDING GEAR EXTENSION ..... APPLY

# ENGINE FIRE ON GROUND

POWER LEVERS (BOTH)..... IDLE
ENGINE MASTERS (BOTH)..... OFF
FUEL SELECTORS (BOTH)..... OFF
ATC ..... INFORM–CONSIDER MAYDAY CALL
ELECTRIC MASTER ..... OFF

- When engine and aircraft stopped:

  CANOPY ..... OPEN
  AIRCRAFT..... EVACUATE

## CABIN SMOKE ABOVE 10.000FT

► OXYGEN SYSTEM INSTALLED (OPTIONAL)

OXYGEN..... CHECK ON
EMERGENCY DESCENT..... INITIATE

- When passing 10.000ft:

OXYGEN ..... OFF

LAND ASAP

## CABIN FIRE ABOVE 10.000FT

► OXYGEN SYSTEM INSTALLED (OPTIONAL)

OXYGEN.....OFF
EMERGENCY DESCENT..... INITIATE

LAND ASAP

## ELECTRICAL FIRE IN FLIGHT

EMERGENCY SWITCH ..... ON
ATC ..... INFORM–CONSIDER MAYDAY CALL
AVIONIC MASTER ..... OFF
ELECTRIC MASTER ..... OFF
CABIN HEAT & DEFROST ..... OFF
EMERGENCY WINDOWS ..... OPEN (AS NECESSARY)
CANOPY (BELOW 120 KIAS) ..... UNLATCH (IF NECESSARY)

LAND ASAP

## ELECTRICAL FIRE ON GROUND

ATC ..... INFORM–CONSIDER MAYDAY CALL
ELECTRIC MASTER ..... OFF
POWER LEVERS (BOTH) ..... IDLE
ENGINE MASTERS (BOTH) ..... OFF
FUEL SELECTORS (BOTH) ..... OFF

- When engine and aircraft stopped:

  CANOPY ..... OPEN
  AIRCRAFT ..... EVACUATE

## UNINTENTIONAL FLIGHT INTO ICING

PITOT HEAT ..... ON
CABIN HEAT & DEFROST..... ON
POWER ..... INCREASE
*DE-ICE SYSTEMS..... USE AS APPROPRIATE
ALTERNATE AIR.....OPEN (AS REQUIRED)
EMERGENCY WINDOWS.....OPEN (AS REQUIRED)

- If pitot heat fails:

  ALTERNATE STATIC VALVE..... OPEN
  EMERGENCY WINDOWS .....CLOSE

## ICE PROTECTION FAILURE

AIRSPEED ..... MIM 121 KIAS
FLAPS .....MAX APP

- For approach with residual ice:

  FLAPS .....APP
  APPROACH SPEED .....MIM 82 KIAS
  LANDING DISTANCE (ACTUAL) ..... X 1.4

# LDG WITH DEFECTIVE MAIN TIRE

ATC ..... INFORM

- For landing:

  TOUCHDOWN ..... L OR R OF CENTERLINE (SIDE OF GOOD TIRE)
  WING ..... KEEP LOW (SIDE OF GOOD TIRE)
  DIRECTIONAL CONTROL ..... MAINTAIN WITH BRAKES

# LDG WITH DEFECTIVE BRAKES

- After touchdown (if necessary):

  ENGINE MASTERS (BOTH) ..... OFF
  FUEL SELECTORS (BOTH) ..... OFF
  ELECTRIC MASTER ..... OFF

# LDG GEAR UNSAFE WARNING

- If on for more than 20 seconds:

  AIRSPEED ..... MAX 156 KIAS

- In cold temperature:

  AIRSPEED ..... MAX 110 KIAS
  LANDING GEAR ..... RECYCLE

- If landing gear EXTENSION unsuccessful: perform MANUAL GEAR EXTENSION
- If landing gear RETRACTION unsuccessful: consider flight with landing gear down

## MANUAL GEAR EXTENSION

AIRSPEED ..... MAX 156 KIAS
GEAR INDICATOR LIGHTS ..... TEST
ELECTRIC MASTER ..... CHECK ON
BUS VOLTAGE ..... CHECK NORMAL
GEAR SELECTOR ..... DOWN
MANUAL EXTENSION HANDLE ..... PULL

- If necessary:

  AIRSPEED ..... MAS 110 KIAS
  YAW ..... APPLY MODERATELY

GEAR INDICATOR LIGHTS ..... CHECK 3 GREENS

## GEAR UP LANDING

- **LANDING GEAR COMPLETELY RETRACTED**

ATC ..... INFORM
APPROACH ..... NORMAL

- Just before touchdown:

  POWER LEVERS (BOTH) ..... IDLE

- After touchdown:

  ENGINE MASTERS (BOTH) ..... OFF
  FUEL SELECTORS (BOTH) ..... OFF
  ELECTRIC MASTER ..... OFF

## EMERGENCY DESCENT

FLAPS ..... UP
LANDING GEAR ..... DOWN
POWER LEVERS (BOTH) ..... IDLE
AIRSPEED ..... AS REQUIRED
LIGHTS ..... ON
ATC ..... INFORM
Level off FL100 (10.000ft) or MEA/MSA, whichever is higher.

## SUSPICION CARBON MONOXIDE

CABIN HEAT & DEFROST ..... OFF
VENTILATION (6 OUTLETS) ..... OPEN
EMERGENCY WINDOWS ..... OPEN
CANOPY (BELOW 120 KIAS) ..... UNLATCH (IF NECESSARY)
Push up and lock in the cooling gap position.

## DOOR OPEN

AIRSPEED ..... REDUCE
CANOPY, REAR DOOR & FRONT BAGGAGE DOORS ..... CHECK

- If unable to latch canopy or rear door, or if front baggage doors verified open (visually):

**LAND ASAP**

Never unlatch the rear door in flight.

## L/R ECU A (OR B) FAIL

ON GROUND
TERMINATE FLIGHT PREPARATION

IN FLIGHT

In case of ECU A fail the system automatically switches to ECU B.

ECU TEST BUTTON..... PRESS FOR MORE THAN 2 SECONDS

- If ECU A (B) CAUTION MESSAGE re-appears and cannot be reset:

LAND ASAP

- If ECU A (B) CAUTION MESSAGE can be reset:

FLIGHT..... CONTINUE

Maintenance action required after landing.

## L/R COOL LVL

ENGINE INSTRUMENTS/ANNUNCIATIONS .....MONITOR
COOLANT TEMPERATURE..... CHECK

Continue with 'ENGINE INSTRUMENT INDICATIONS OUTSIDE GREEN RANGE-COOLANT TEMPERATURE'.

## L/R ALTN FAIL

ALTN (affected side) ..... OFF
BUS VOLTAGE ..... MONITOR
ELECTRICAL LOAD ..... REDUCE

- If both ALTN failed:

  BOTH ALTN FAIL CHECKLIST ..... PERFORM

## BOTH ALTN FAIL

AVIONICS MASTER ..... OFF
LH/RH ALTN ..... OFF
TRANSPONDER ..... STANDBY
LANDING GEAR ..... DOWN

- When landing gear down & locked:

  MANUAL GEAR EXTENSION HANDLE ..... PULL

STALL/PITOT HEAT ..... OFF
ALL LIGHTS ..... OFF

Expect battery power to last for 30 minutes
Expect engine stoppage after this time.

LAND ASAP

## L/R VOLTS LOW

Possible reasons are:

- Fault in ELEC PWR supply
- RPM too low.

Continue with 'ENGINE INSTRUMENT INDICATIONS OUTSIDE GREEN RANGE-VOLTS LOW'.

## PITOT FAIL/PITOT HT OFF

PITOT HEAT ..... CHECK ON

- If PITOT HEAT cannot be recovered:

Avoid icing conditions.

- If icing conditions cannot be avoided:

Expect failure of the pitot-static system.

ALTN STATIC VALVE ..... OPEN

Leave area with icing conditions (see EMER UNINTENTIONAL FLIGHT INTO ICING.)

## STALL HT FAIL/STALL HT OFF

PITOT HEAT ..... CHECK ON

- If STALL HEAT cannot be recovered:

Avoid icing conditions.

- If icing conditions cannot be avoided:

Expect loss of aural stall warning.

Leave area with icing conditions (see EMER UNINTENTIONAL FLIGHT INTO ICING).

## DE-ICE LVL LO

Maximum duration of ice protection:

- NORMAL mode: 45 min.
- HIGH mode: 22 min.

Leave area with icing conditions accordingly.

## DE-ICE PRES LO

DE-ICE ..... HIGH

- If DE-ICE PRES LO light still ON:

  PUMP1 / PUMP 2 ..... SELECT OTHER PUMP
  If necessary prime pump by activating windshield pump.

- If DE-ICE PRES LO light still ON:

  ALTERNATE SWITCH ..... ACTIVATE

- If DE-ICE PRES LO light still ON:

  EMER ICE PROTECTION FAILURE CHKLST ..... APPLY

- If DE-ICE PRES LO OFF:

  FLIGHT ..... CONTINUE
  De-icing fluid flow: 30 liters / hour

  ICE PROTECTION SYSTEM OPERATION ..... MONITOR
  DE-ICING FLUID LEVEL ..... CHECK PERIODICALLY

## DE-ICE PRES HI

Possible reduced system performance.
Filter cartridge to be replaced at next scheduled maintenance.

# L/R FUEL LOW

FUEL QUANTITY..... CHECK

- If LH and RH quantities show a remarkable difference:

Expect fuel leak on side with lower indication.

FUEL SELECTOR (SIDE WITH LOW FUEL INDIC)..... X-FEED

# STICK LIMIT

1 OR 2 POWER LEVERS SET FOR MORE THAN 20% LOAD

Elevator variable backstop is INOPERATIVE.
Aviod STALL in any condition.

2 POWER LEVERS SET FOR LESS THAT 20% LOAD

Elevator variable backstop is ALWAYS ACTIVE.
Reduced ELEV capacity (travel).

MIM VREF ..... 76/78 KIAS

# HYD PUMP FAIL OR CONTINUOUS OPERATION

GEAR INDICATOR LIGHTS..... CHECK

Prepare for manual landing gear extension.

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# PATTERNS

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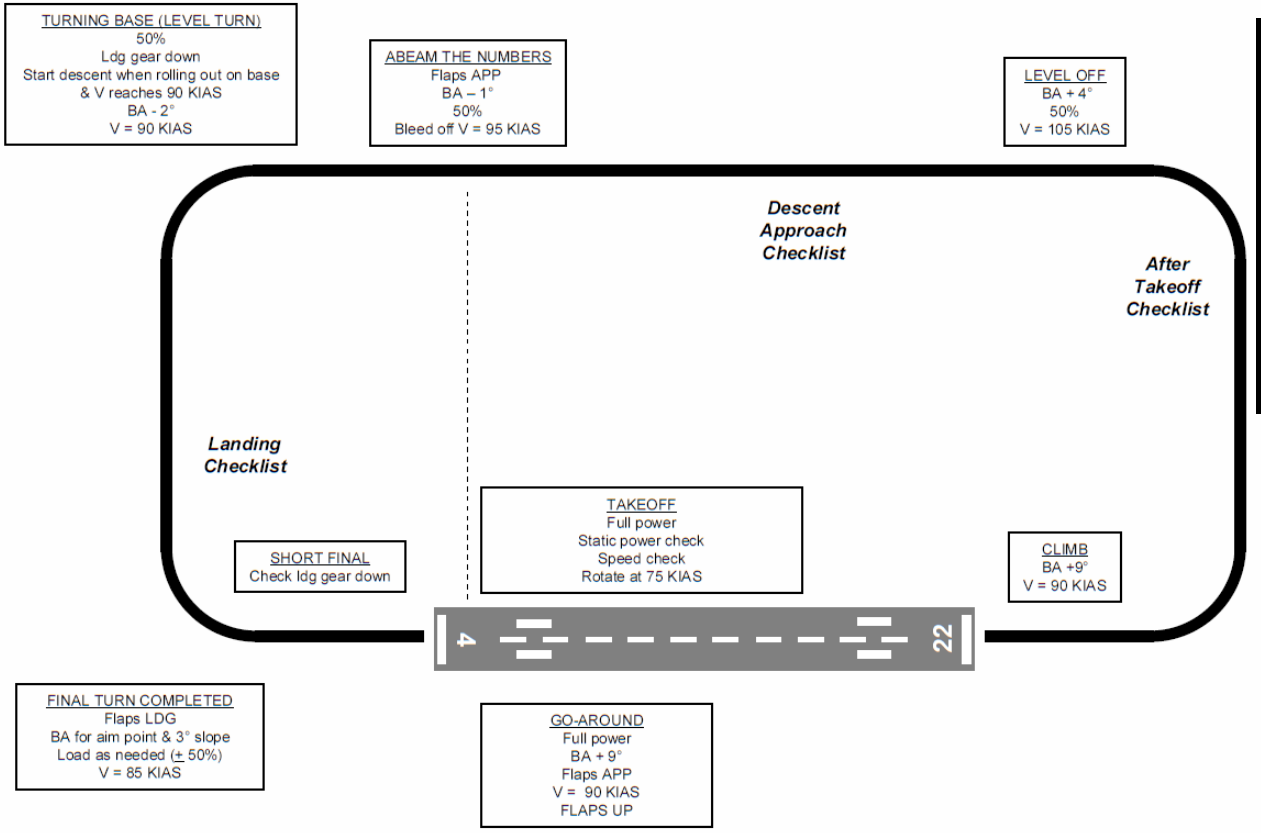
# PATTERNS




TURNING BASE (LEVEL TURN)
50%
Ldg gear down
Start descent when rolling out on base
& V reaches 90 KIAS
BA - 2°
V = 90 KIAS
ABEAM THE NUMBERS
Flaps APP
BA – 1°
50%
Bleed off V = 95 KIAS
LEVEL OFF
BA + 4°
50%
V = 105 KIAS
Descent
Approach
Checklist
After
Takeoff
Checklist
Landing
Checklist
TAKEOFF
Full power
Static power check
Speed check
Rotate at 75 KIAS
SHORT FINAL
Check ldg gear down
CLIMB
BA +9°
V = 90 KIAS
4
22
FINAL TURN COMPLETED
Flaps LDG
BA for aim point & 3° slope
Load as needed (± 50%)
V = 85 KIAS
GO-AROUND
Full power
BA + 9°
Flaps APP
V = 90 KIAS
FLAPS UP

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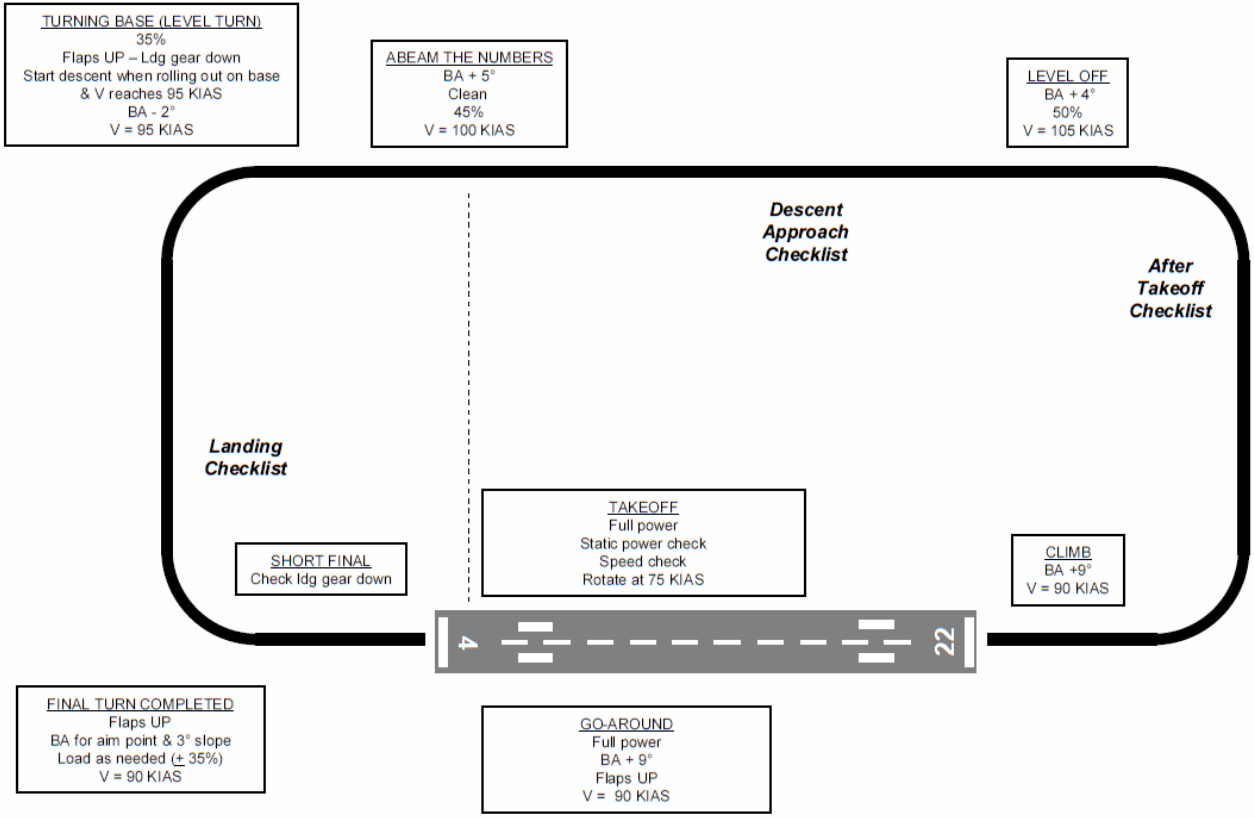
# PATTERNS



## 1 ENGINE

FLAPLESS


TURNING BASE (LEVEL TURN)
35%
Flaps UP – Ldg gear down
Start descent when rolling out on base
& V reaches 95 KIAS
BA - 2°
V = 95 KIAS
ABEAM THE NUMBERS
BA + 5°
Clean
45%
V = 100 KIAS
LEVEL OFF
BA + 4°
50%
V = 105 KIAS
Descent
Approach
Checklist
After
Takeoff
Checklist
Landing
Checklist
TAKEOFF
Full power
Static power check
Speed check
Rotate at 75 KIAS
SHORT FINAL
Check ldg gear down
CLIMB
BA +9°
V = 90 KIAS
4
22
FINAL TURN COMPLETED
Flaps UP
BA for aim point & 3° slope
Load as needed (± 35%)
V = 90 KIAS
GO-AROUND
Full power
BA + 9°
Flaps UP
V = 90 KIAS

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## STABILIZED APPROACH CONCEPT

- Configuration changes on short final (<500ft AGL) are not recommended to respect the stabilized approach concept. Exception is made if landing distance is a factor. If visual contact with the runway is established prior 500ft AGL LDG flaps may be selected, otherwise a flaps APP landing is recommended if sufficient rwy length is available.

- When becoming visual on an ILS approach, you must remain established on the Glide Slope (don't dive below the profile) until crossing the THR. For a Non-precision approach you must remain on the PAPI or if no PAPI installed fly a constant flight path to the aiming marks (blocks). Diving below the profile is only allowed if landing distance becomes a factor. This must be clearly briefed in advance.

## ALTITUDE BUG AND ALTITUDE WARNING

Altitude bug: gives a visual indication on the G1000 PFD.

Altitude warning: gives an aural warning when approaching (1000ft) the selected altitude on the AP.

When established on GS or leaving the FAF altitude. Set Altitude bug on DA/MDA (rounded up 100ft) and the AP altitude on the go around altitude. This will give a visual warning when reaching the minima and an aural warning when approaching the level off altitude in the go around.

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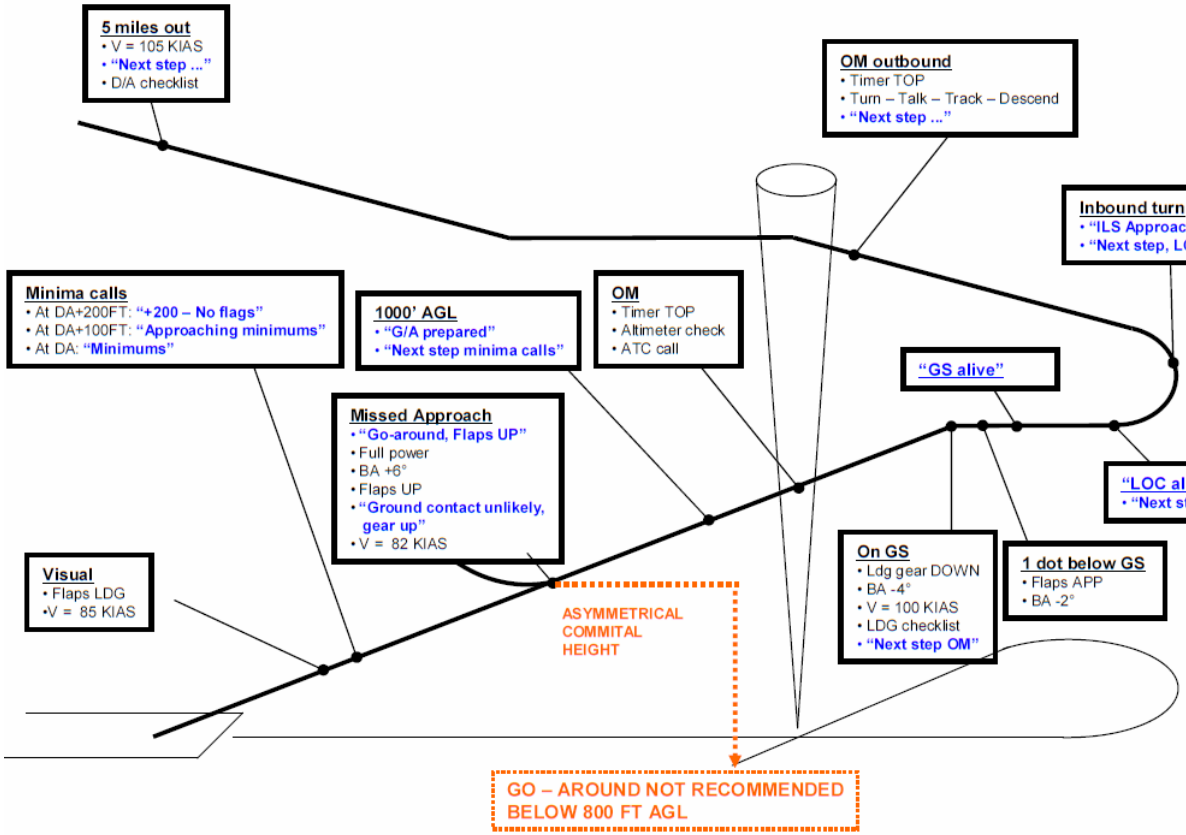
# PATTERNS



## PREC APP 2 ENG




CONFIGURATION CHANGES BELOW 500 FT AGL ARE NOT RECOMMENDED EXEPT IF LANDING DISTANCE IS A FACTOR

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PATTERNS

QRH DA42
REV 1.2 — 5.7

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# PATTERNS



## NON PREC APP 2 ENG

# NON PREC APP 1 ENG

**Inbound turn to FAF**
- "... Approach"
- "Next step, Needle alive"

**On final and on descent profile**
- Flaps APP
- Ldg gear DOWN
- V = 100 KIAS
- LDG checklist
- "Next step, ..."

**Outbound leg**
- Timer TOP
- Turn – Talk – Track – Descend
- "Next step ..."

**FAF**
- Timer TOP
- ATC call
- Check descent rate
- "Next step ..."

**Established**
- "G/A prepared"
- "Next step minima calls"

**Missed Approach**
- "Go-around, Flaps UP"
- Full power
- BA +6°
- Flaps UP
- "Ground contact unlikely, gear up"
- V = 82 KIAS

ASYMMETRICAL COMMITAL HEIGHT

LEVEL FLIGHT NOT POSSIBLE IN ALL WEIGHT / ALT / TEMP CONDITIONS

GO – AROUND NOT RECOMMENDED BELOW 800 FT AGL

**5 miles out**
- V = 105 KIAS
- "Next step ..."
- D/A checklist
- HQCB

**Minima calls**
- At DA+200FT: "+200 – No flags"
- At DA+100FT: "Approaching minimums"
- At DA: "Minimums"

**Visual**
- Flaps LDG
- V = 85 KIAS

# PATTERNS



## CIRCLING APP 2 ENG

# LIMITATIONS

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## AIRSPEED LIMITATIONS

| Speed Definition | Limitation | | Indicator Marking |
|---|---|---|---|
| Never Exceed Speed (Vne) | 194 KIAS | 194 KCAS | Red radial line |
| Maximum Structural Cruising Speed (Vno) | 155 KIAS | 155 KCAS | End of green arc |
| Design Maneuvering | | | |
| Above 3.400 lbs. | 126 KIAS | 126 KCAS | |
| Below 3.400 lbs. | 120 KIAS | 120 KCAS | |
| Maximum Gear Operating Speed | | | |
| Extension | 194 KIAS | | |
| Retraction | 156 KIAS | | |
| Maximum Flaps Extended Speed | 111 KIAS | 111 KCAS | End of white arc |
| 1 Engine Inoperative Best Rate of Climb Speed | 82 KIAS | 82 KCAS | Blue radial line |
| Air Minimum Control Speed | 68 KIAS | 68 KCAS | Red radial line |

## POWERPLANT LIMITATIONS

| Definition | Limitation | Indicator Marking |
|---|---|---|
| Rotational Speed | MAX 2300/2500 RPM | Red line |
| Fuel Temp | MAX 75°C<br>MIN -30°C | |
| Oil Temperature | MAX 140°C | Red line |
| Oil Pressure | MIN 1.0 BAR MAX 6.5 BAR | Red line |
| Fuel Grade | JET A-1 NO ADDITIVES | |

## WEIGHT LIMITATIONS

| | |
|---|---|
| Max Ramp Weight | 3.935 lbs |
| Max Takeoff Weight | 3.935 lbs |
| Max Landing Weight | 3.748 lbs |

| WEIGHT LIMITATIONS | |
|---|---|
| **Max Weights in Baggage Compartments** | |
| **Forward (nose)** | 66 lbs |
| **Aft (cockpit baggage compartment)** | 100 lbs |
| **Max Zero Fuel Weight** | 3.638 lbs |

| MANEUVER LIMITS |
|---|
| All intentional acrobatic maneuvers (including spinning) are prohibited. Avoid abrupt maneuvers. |

| FLIGHT MANEUVERING LOAD FACTORS | |
|---|---|
| **Positive Load Factor** | |
| **Flaps Up** | Max 3.8G |
| **Flaps Down** | Max 2.0G |
| **Negative Load Factor** | No inverted maneuvers approved |

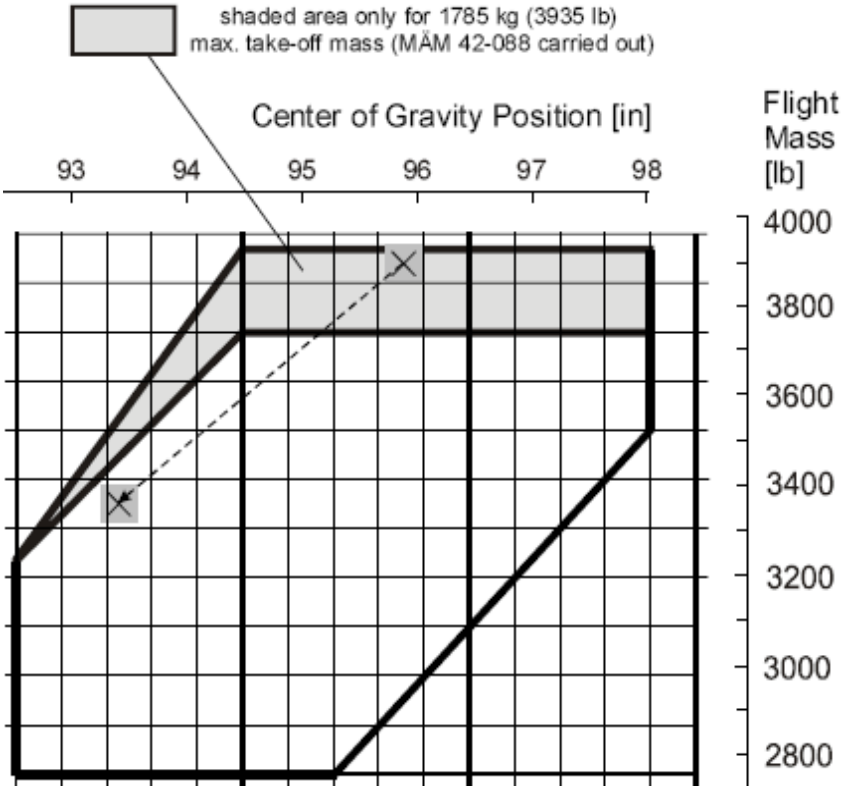
| FUEL LIMITATIONS | |
|---|---|
| Total Fuel Capacity | 52 U.S. Gallons |
| Unusable Fuel | 2 U.S. Gallons |
| Usable Fuel | 50 U.S. Gallons |

| X-WIND LIMITATION |
|---|
| Maximum demonstrated crosswind component = 20 kts |

# WEIGHT & BALANCE

| ITEM | ARM (IN) | WEIGHT (LBS) | MOMENT (IN-LBS) |
|---|---|---|---|
| BEW | | | |
| PILOT & FRONT PASSENGER | 90.6 | | |
| AFT PASSENGERS | 128.0 | | |
| NOSE BAG COMP (MAX 66 LBS) | 23.6 | | |
| COCKPIT BAG COMP (MAX 100 LBS) | 153.1 | | |
| BAG EXTENSION (MAX 40 LBS) | 178.7 | | |
| DE-ICING FLUID (1.1 KG/LTR OR 9.2 LBS/USG) | 39.4 | | |
| ZFW (MAX 3638 LBS) | | | |
| FUEL IN MAIN TKS (50 USG MAX—7.01 LBS/USG) | 103.5 | | |
| RW | | | |
| FUEL ALLOWANCE (START-TAXI) | 103.5 | 8 | 828 |
| TOW (MAX 3935 LBS) | | | |
| TRIP FUEL | 103.5 | | |
| LW (MAX 3748LBS) | | | |

Always check aircraft POH for latest weight & moments.




| AIRCRAFT | WEIGHT (LBS) | MOMENT (IN-LBS) |
|---|---|---|
| **N4129M** | 2844.80 | 270648.70 |
| **N4130M** | 2836.00 | 269154.80 |
| **N4197D** | **2833.10** | **270104.81** |
| **N449TS** (AUX TANKS + DE-ICE) | **2867.30** | **271666.30** |
| **OO—SFI** (DE-ICE) | 2837.00 | 269175.00 |
| **OO—SFA** | 2870.00 | 275347.80 |

I N T E N T I O N A L L Y  L E F T  B L A N K

# PERFO

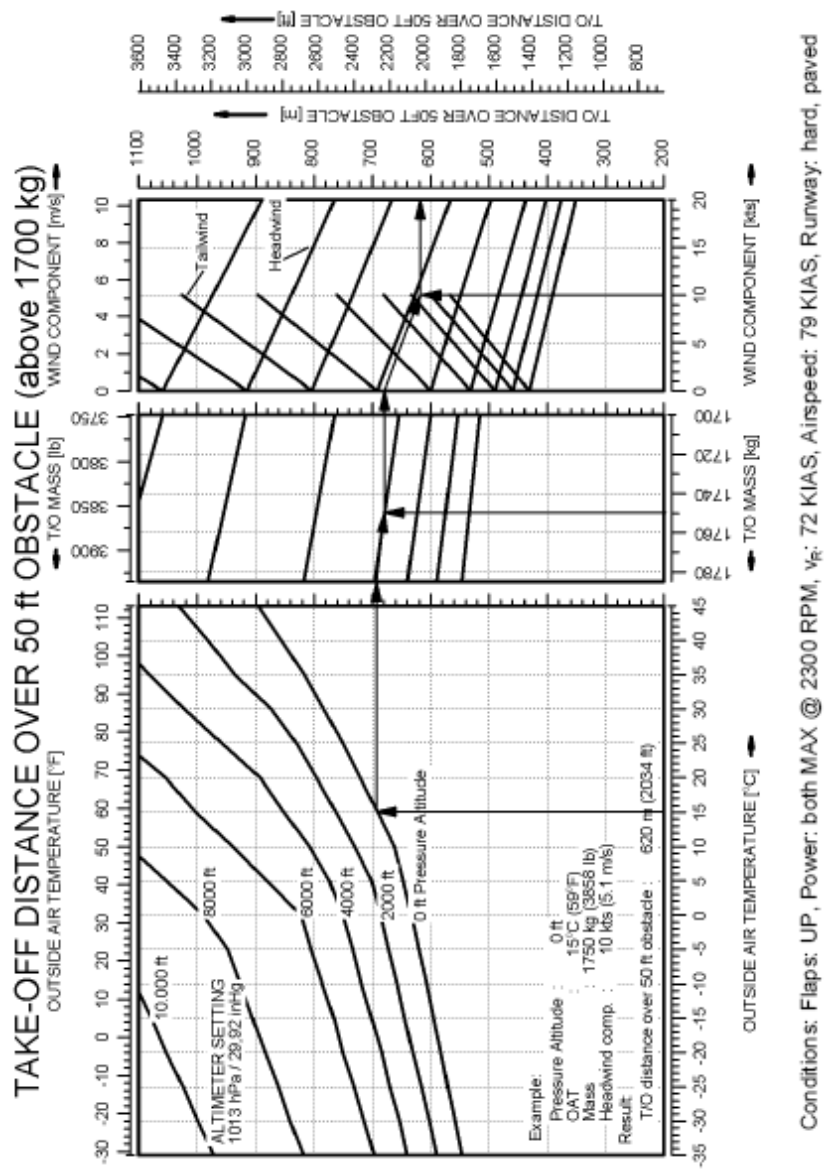
I N T E N T I O N A L L Y  L E F T  B L A N K

# TAKEOFF DISTANCE
## 50FT—UP TO 1.700KG



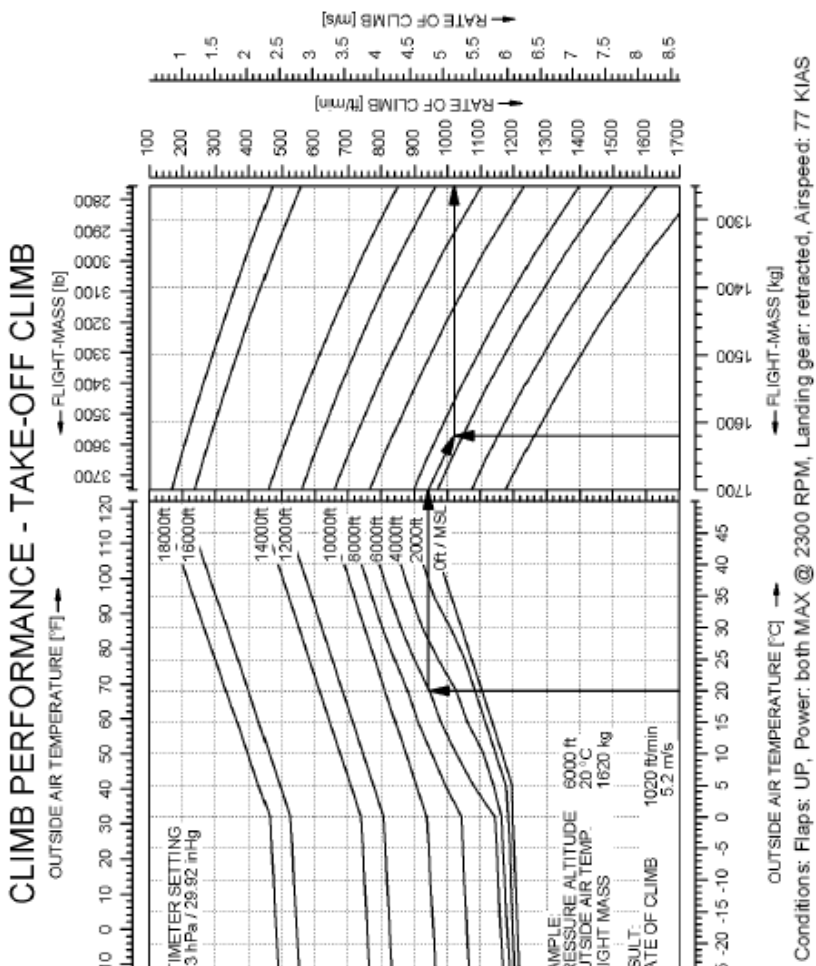

Conditions: Flaps: UP, Power: both MAX @ 2300 RPM, $v_R$: 70 KIAS, Airspeed: 77 KIAS, Runway: hard, paved

# TAKEOFF DISTANCE
## 50FT—ABOVE 1.700KG

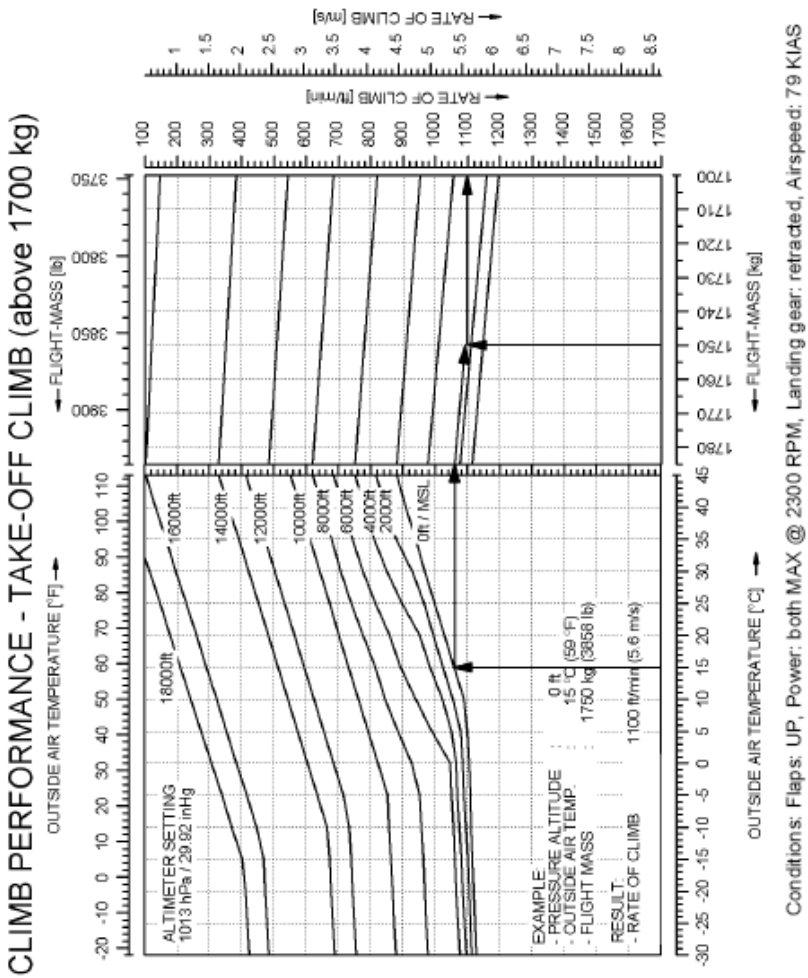



Conditions: Flaps: UP, Power: both MAX @ 2300 RPM, $v_R$: 72 KIAS, Airspeed: 79 KIAS, Runway: hard, paved

# TAKEOFF CLIMB
## UP TO 1.700KG



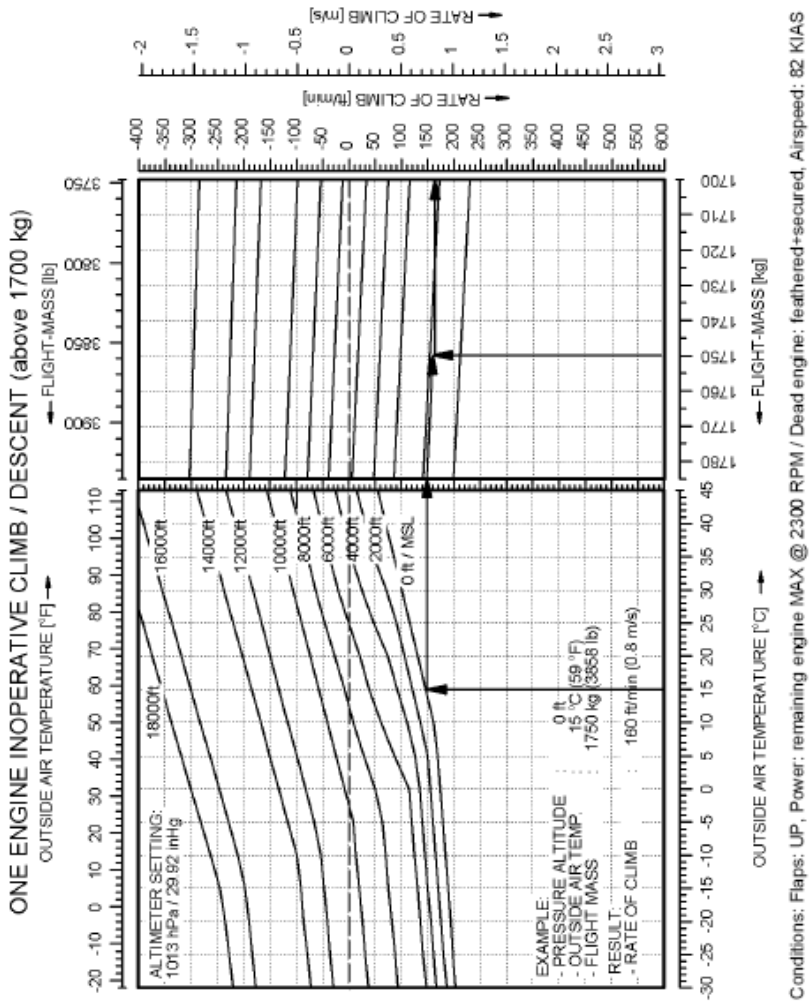
# TAKEOFF CLIMB
## ABOVE 1.700KG




Conditions: Flaps: UP, Power: both MAX @ 2300 RPM, Landing gear: retracted, Airspeed: 79 KIAS

# 1 ENG INOP CLIMB
## UP TO 1.700KG

# 1 ENG INOP CLIMB
## ABOVE 1.700KG

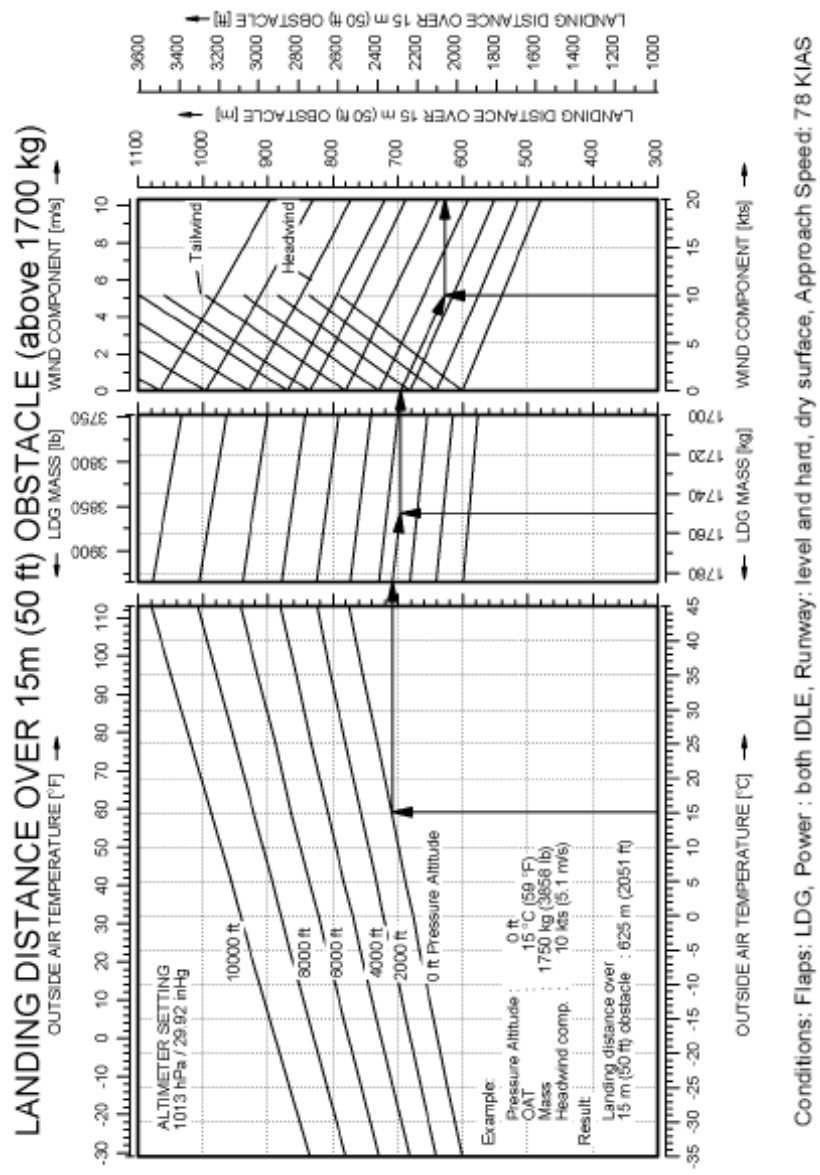


# LANDING DISTANCE
## 50FT—UP TO 1.700KG



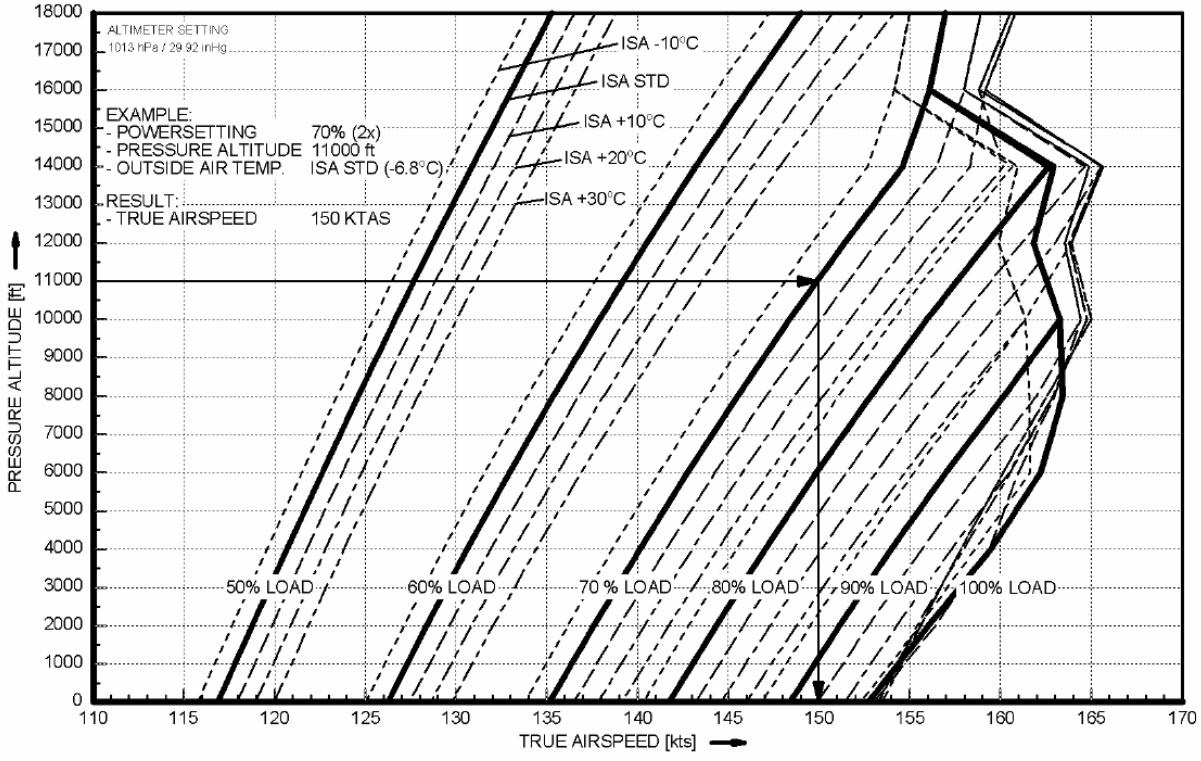

Conditions: Flaps: LDG, Power: both IDLE, Runway: level and hard, dry surface, Approach Speed: 76 KIAS

# LANDING DISTANCE
## 50FT—ABOVE 1.700KG




Conditions: Flaps: LDG, Power : both IDLE, Runway: level and hard, dry surface, Approach Speed: 78 KIAS

# CRUISING (TRUE AIRSPEED / TAS)




Conditions: Engines: all operating, Power: as required to adjust selected LOAD [%], Flaps: UP, Landing Gear: retracted

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# Full Throttle Flight Training

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