



DA42-L360

TWINSTAR

QUICK REFERENCE HANDBOOK

Revision 0.2

EFF: 01-02-2010

Document Level: 3

sabena 
AIRLINE TRAINING CENTER, INC.

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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

DESCENT 500 FPM Table deleted

MAN

Stalls- minimum altitude in HACL revised

Effects of Assymetric Power- new Climb procedure

Vmca Demo- minimum altitude in HACL revised

Real Engine Shutdown and Restart- revised limitations

NORM PROC

Flow & Checklist Handing- revised Landing Checklist crew action

Walkaround— deleted non applicable procedures; revised terminology;

revised minimum Engine Oil level

Miscellaneous—revised terminology; deleted non-applicable procedures

Cockpit Preparation—deleted non-applicable procedures; revised Gear

Warning;

Engine Start—added procedural step for Ignition Switch; revised Remedy for rough running engine

Ground Check—added procedural step for Alternate Air

Cruise—added procedural step for Transfer Pumps

Preliminary Inspection Flow List— revised Flaps setting

Cockpit Preparation Flow List—deleted non-applicable procedure; revised

Gear Warning check

Descent/Approach Flow List—deleted non-applicable procedure

Before Start Checklist—revised Gear Warning check

After Landing Checklist—deleted non-applicable procedure

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.

EMER

Both Altn Fail—revised comment
Stick Limit—revised procedure and notes

LIM

Tire speed rating—added

W & B

Abbreviations—added
Definitions—added
Weight & Balance Factors and Requirements—added
Determining Moment & CG shift—added

PERF

New Section

TITLE PAGE

Revision # - added
Effective Date—added
Document Level—added

ALL

Each text page—Document Level

PITCH POWER TABLE

TOC

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SPEED	CONF	ALT/ENGINES	MAP " / RPM	BODY ATTITUDE (°)
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TAKEOFF

VR 78 KIAS	FLAPS UP	2 engines	28" / 2700	+9
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CLIMB

90 KIAS	CLEAN	2 engines	28" / 2700	+9
105 KIAS	CLEAN	2 engines	25" / 2500	+7
85 KIAS	CLEAN	2 engines	28" / 2700	+11
90 KIAS	CLEAN	1 engines	28" / 2700	+4

LEVEL

65 KIAS	CLEAN	2 engines	20" / 2500	+10
65 KIAS	LAND FLAPS	2 engines	18" / 2500	+0
105 KIAS	CLEAN	2 engines	18" / 2500	+4
120 KIAS	CLEAN	2 engines	21" / 2200	+1
<5.000FT 130 KIAS	CLEAN	2 engines	22" / 2200	+0
>5.000FT 145 KTAS	CLEAN	2 engines	21" / 2200	+0
105 KIAS	CLEAN	1 engine	25" / 2500	+4

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PITCH POWER

SPEED	CONF	ALT/ENGINES	MAP " / RPM	BODY ATTITUDE (°)
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TRAFFIC PATTERN—2 ENGINES

105 KIAS	CLEAN	DOWNWIND	18" / 2500	+4
95 KIAS	APP FLAPS/GU	DOWNWIND	18" / 2500	-1
90 KIAS	APP FLAPS/GD	BASELEG	15" / 2500	-2.5
85 KIAS	LDG FLAPS/GD	FINAL	17" / 2500	-5

FLAPLESS PATTERN—2 ENGINES

105 KIAS	CLEAN	DOWNWIND	18" / 2500	+4
100 KIAS	CLEAN/GU	DOWNWIND	17" / 2500	+5
95 KIAS	CLEAN/GD	BASELEG	15" / 2500	-2.5
90 KIAS	CLEAN/GD	FINAL	15" / 2500	-1.5

TRAFFIC PATTERN—1 ENGINE

105 KIAS	CLEAN	DOWNWIND	25" / 2700	+4
95 KIAS	CLEAN/GD	BASELEG	18" / 2700	-2
90 KIAS	APP FLAPS/GD	FINAL	17" / 2700	-3

IFR APPROACH

100 KIAS	APP FLAPS/GD	2 engines	17" / 2500	-3
100 KIAS	FLAPS UP/GD	1 engine	18" / 2700	-2.5

MANEUVERS

PERF W&B LIM PAT EMER NORM **MAN** PPT TOC

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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	90 KIAS CLEAN	VY
BEST ANGLE OF CLIMB	85 KIAS CLEAN	VX
CLIMB 1 ENGINE	90 KIAS	PITCH FOR THE BLUE LINE
NORMAL CRUISE	130 KIAS	<5 .000 FT MSL
NORMAL CRUISE	145 KTAS	> 5.000 FT MSL
CRUISE 1 ENGINE	105 KIAS	25" / 2500 RPM
VFR MANEUVERS	105 KIAS	18" / 2500 RPM
STEEP TURNS	120 KIAS	21"-22" / 2200 RPM
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

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SPEEDS				
IFR HOLDING 2 ENG	120 KIAS	22" / 2200 RPM	CLEAN	FLAPS UP
IFR COURSE REVERSAL 2 ENG	120 KIAS	22" / 2200 RPM	CLEAN	FLAPS UP
IFR APPROACH SPEED 2 ENG	100 KIAS	17" / 2500 RPM	GEAR DOWN	FLAPS APP
IFR APPROACH SPEED 1 ENG	100 KIAS	18" / 2700 RPM	GEAR DOWN	FLAPS UP

FLAPS SPEED SCHEDULE

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

SLOW FLIGHT

- DECELERATION
 - SPEED 105 KIAS (18" / 2500RPM)
 - POWER REDUCE TO 15" / 2500 RPM
 - ALTITUDE..... MAINTAIN
 - BA GRADUALLY INCREASE TO + 10°
 - SPEED 65 KIAS
 - POWER 20" / 2500 RPM

Trim

- ACCELERATION
 - POWER 25" / 2500 RPM
 - ALTITUDE..... MAINTAIN
 - BA..... GRADUALLY DECREASE TO +4°
 - SPEED 105 KIAS
 - POWER 18" / 2500 RPM

Trim

STEEP TURNS

SPEED 120 KIAS (21" / 2200 RPM)
 BANK ANGLE NORMAL ROLL RATE TO 45°
 BA INCREASE by 2° (BA +3°)
 POWER INCREASE +1"
 RUDDER AS REQUIRED TO CENTER SIDE SLIP

Do not trim

 HEADING..... 15 ° BEFORE INITIAL HEADING
 BANKNORMAL ROLL RATE TO 0°
 BA.....DECREASE TO +1°
 POWER 21" / 2200 RPM
 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 3000 FT AGL
 - A** AREA OUT OF CONTROLLED AIRSPACE
..... NOT ABOVE TOWNS OR AIRFIELDS
 - C** COCKPIT.....LANDING LIGHTS ON
..... FUEL PUMPS ON
..... 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
 - POWERREDUCE TO IDLE
 - ALTITUDE..... MAINTAIN
 - TRIM DO NOT TRIM BELOW 75 KIAS
- RECOVERY
 - POWERFULL
 - SPEED ACCELERATING THROUGH 75 KIAS
 - BA..... ROTATE TO +5°
 - SPEEDMAINTAIN 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 18" / 2500 RPM

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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 15" / 2500 RPM

WHEN PASSING THROUGH 75 KIAS:

BA RAISE TO +20°
 POWER MCP
 TRIM DO NOT TRIM BELOW 75 KIAS

- RECOVERY
 POWER FULL
 SPEED ACCELERATING THROUGH 75 KIAS
 BA ROTATE TO +5°
 SPEED MAINTAIN 90 KIAS
 ALTITUDE BACK TO INITIAL ALTITUDE
 HEADING TURN BACK TO INITIAL HEADING

LEVEL OFF AT INITIAL ALTITUDE

SPEED 105 KIAS
 POWER 18" / 2500 RPM

Trim

LANDING STALL (POWER—OFF / FLAPS LDG)

0° BANK—57 KIAS

IDLE—FORWARD CG—MAX WEIGHT

- **ENTRY**

SPEED 105 KIAS
POWER 18" / 2500 RPM

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

POWER 16"-17" / 2500 RPM
SPEED 85 KIAS
FLIGHT PATH ESTABLISH A STABILIZED DESCENT
TRIM TRIM FOR 85 KIAS
POWER IDLE TO SIMULATE A FLARE TO LAND
PROPS FULL FORWARD

- **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 18" / 2500 RPM

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 CALL "**GO—AROUND, FLAPS UP**"

GO—AROUND

"GO—AROUND, FLAPS!"

POWER FULL
 BA ROTATE TO +5°
 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 AND CONFIGURATION

- EACH DEMO ONCE
- MINIMUM ALTITUDE 4000 AGL

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

- CLIMB
 - SPEED..... 90 KIAS
 - LEFT OR RIGHT THROTTLEREDUCE TO IDLE
 - AIRPLANE REACTION & PERFORMANCE OBSERVE
 - SIMULATED "0" THRUST..... SET ON L/R ENGINE
 - SPEED..... 90 KIAS
 - AIRPLANE REACTION & PERFORMANCE OBSERVE
 - FLAPS SET APP AND LANDING
 - SPEED..... 90 KIAS
 - AIRPLANE REACTION & PERFORMANCE OBSERVE
 - FLAPS UP
 - LANDING GEAR DOWN
 - SPEED..... 90 KIAS
 - AIRPLANE REACTION & PERFORMANCE OBSERVE
 - LANDING GEAR UP

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

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- 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 (15" = ABOVE GEAR HORN)
SET THROTTLE FOR 105 KIAS CLEAN (25" / 2500 RPM)

DEMONSTRATE: LEVEL FLIGHT-TURN-CLIMB-DESCENT- EFFECTS OF CONFIGURATION

EMPHASIZE:

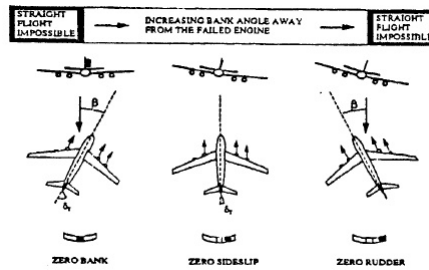
THROTTLE AND FOOT TOGETHER
THROTTLE TRAVEL DOUBLES
THE SIDE SLIP INDICATOR SHOULD BE +1/2 WIDTH OUT ON THE SIDE OF THE GOOD ENGINE
EFFECTS OF CONFIGURATION ON PITCH, AIRSPEED, AND ONE ENGINE INOPERATIVE PERFORMANCE
BANK ANGLE 3-5° TOWARDS THE GOOD ENGINE

• Demonstrate:

1—Zero bank (bad)

2—Zero rudder (bad)

3—Zero sideslip (good)



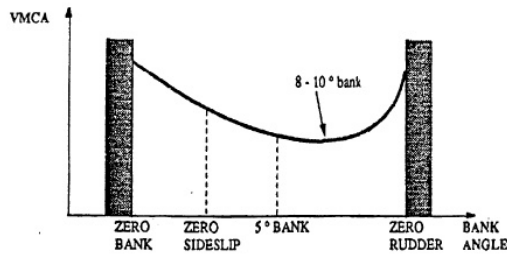
• Demonstrate:

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) Vmca EXERCISE—VITAL ACTIONS

H HEIGHT ABOVE 4000 FT AGL
A AREA OUT OF CONTROLLED AIRSPACE
..... NOT ABOVE TOWNS OR AIRFIELDS
C COCKPIT.....LANDING LIGHTS ON
..... FUEL PUMPS ON
..... NO LARGE LOOSE ARTICLES
..... SEAT BELTS SECURED
..... ENGINE INSTRUMENTS IN LIMITS
L LOOKOUT 180° OR 2x90° CLEARING TURN(S)

- SEQUENCE

SPEED..... 105 KIAS (18" / 2500 RPM)
PROPS FULL FORWARD
POWER IDLE DEAD ENGINE – FULL GOOD ENGINE
BANK MAX 5° INTO THE GOOD ENGINE
BASLOWLY 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):

POWERREDUCE ON GOOD ENGINE TO KEEP CONTROL
RUDDER PRESSURE RELAX
BA DECREASE

WHEN DIRECTIONAL CONTROL IS REGAINED:

POWER FULL GOOD ENGINE-IDLE DEAD ENGINE
SPEED..... 90 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
- PERFORM 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 AIRSPEED 90-120 KIAS.**
- **DO NOT SWITCH OFF THE ALTERNATORS, MAGNETOS, OR FUEL SELECTORS (SIMULATE THESE ACTIONS WITHOUT ACTUALLY DOING THEM)**

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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 !”

POWERFULL

FLAPS UP

GROUND CONTACT UNLIKELY

GEAR UP

SPEED BLUE LINE (APPROX. +6°)

“AFTER TAKEOFF CHECKLIST”

WARNING!

**ONE ENGINE INOPERATIVE CLIMB PERFORMANCE AT ELEVATED DENSITY
 ALTITUDE WILL BE SERIOUSLY REDUCED OR NON-EXISTANT**

SHORT FIELD TAKEOFF

APPROACH FLAPS

- TAKEOFF
 BRAKES HOLD
 POWER FULL
 ENGINE INSTRUMENTS.....CHECK
 BRAKES RELEASE
 SPEED CHECK INCREASING—ROTATE AT 78 KIAS

- CLIMB
 ALTIMETER & VSI..... POSITIVE CLIMB

“POSITIVE CLIMB”

 GEAR UP
 BA..... +9°
 SPEEDMAINTAIN 90 KIAS

WHEN CLEAR OF OBSTACLES (100 FT ABOVE OBSTACLE)

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

“AFTER TAKEOFF CHECKLIST”

SHORT FIELD LANDING

- FINAL TURN COMPLETED
 FLAPS.....LDG
 SPEED 85 KIAS

WHEN CLEAR OF OBSTACLES

- BA..... AIM FOR THRESHOLD
 POWERADJUST FOR 80 KIAS

“SHORT FINAL CHECKLIST”

- TOUCHDOWN
 BRAKES APPLY (GRADUALLY)

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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				
Phase of Flight	Flow		Checklist	
	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	PM	Loud
After Landing	PM	Silent	PM	Silent
Shutdown	PF	Loud	PM	Loud

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

UPPER SWITCH PANEL ALL SWITCHES OFF
ALTERNATOR SWITCHES ON

LOWER SWITCH PANEL ALL SWITCHES OFF

Check pitot heat off, start keys 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 BRAKESET

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

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<p>NORM PROC</p>	<p>QRH DA42-L360 REV 0.2 — 3.6</p>
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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
 FUEL TRANSFER SWITCHES ON
 AUX FUEL STATE CHECKED
 FUEL TRANSFER SWITCHES OFF
 FLAPS UP
 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 chocks were used, put in the flight gear bag.

TOW BAR PROPERLY STOWED

REQUIRED EQUIPMENT 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
- Ballast cylinders
- Ballast cases

NOSE BAGGAGE DOORS OPEN

FWD BULKHEAD BALLAST SECURE

NOSE BAGGAGE DOORS CLOSED, SECURE

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

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WALK AROUND

Walkaround is clockwise around the aircraft.

LEFT WING

- STEP CHECK
- AUX TANK DRAIN.....CHECK DRAIN
- 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

- AUX TANK FILLER..... CHECK/CLOSE
- 4 AIR INLETS/1 AIR OUTLET CLEAR
- 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.

ENGINE OIL LEVEL.....CHECK

Check oil level through inspection hole in upper cowling. Normal oil quantity is 6.5 quarts. Minimum is 5.5 quarts for VFR operation, minimum 6.0 quarts for IFR operation, maximum is 8.0 quarts.

EXHAUSTCHECK

WARNING
The exhaust can cause burns when hot.

ENGINE DRAINSCHECK FOR BLOCKAGE

GASCOLATOR DRAIN

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

AUX TANK FUEL DRAIN DRAIN

NACELLE UNDERSIDECHECK

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

TOC
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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
STALL STRIPS (left wing root) CHECK NO DAMAGE

FRONT FUSELAGE AND NOSE LANDING GEAR

FRONT CANOPY, LEFT & RIGHT SIDE CHECK
LEFT AND RIGHT NOSE 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 15cm / 5.9".

DOWN & UPLOCK SWITCHESCHECK
WEAR, TREAD & DEPTH OF TIRECHECK

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 MARKSCHECK
CHOCKS REMOVE
LANDING GEAR DOOR & LINKAGECHECK
LANDING AND TAXILIGHTCHECK
EPU CONNECTOR.....CHECK
TOW BAR REMOVE
CABIN VENT AIR INLET (right wing root).....CHECK CLEAR
STALL STRIPS (right wing root)..... CHECK NO DAMAGE

RIGHT MAIN LANDING GEAR

LANDING GEAR STRUT & LOCKCHECK

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 TIRECHECK

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

GASCULATOR..... DRAIN
AUX TANK VENT OUTLET CHECK
EXHAUST CHECK

WARNING
The exhaust can cause burns when hot.

ENGINE DRAINS..... CHECK FOR BLOCKAGE
COWLING..... CHECK
4 AIR INLETS/1 AIR OUTLET CLEAR
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.

ENGINE OIL LEVELCHECK

Check oil level through inspection hole in upper cowling. Normal oil quantity is 6.5 quarts. Minimum is 5.5 quarts for VFR operation, minimum 6.0 quarts for IFR operation, maximum is 8.0 quarts.

NACELLE UNDERSIDECHECK

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

AUXILIARY TANK FILLER..... CHECK/CLOSE

RIGHT WING

TANK DRAIN/TANK AIR INLET CHECK/DRAIN

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

TANK AIR OUTLETCHECK

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

TIE-DOWN CHECK/CLEAR

WING TIPCHECK

POSITION LIGHT, STROBE LIGHT (ACL)CHECK

STATIC DISCHARGERS.....CHECK

AILERON & LINKAGECHECK

FOREIGN OBJECTS IN AILERON PADDLECHECK

FLAP AND LINKAGE.....CHECK

FLAP HINGES & SAFETY PINCHECK

NACELLE UNDERSIDE FUEL COOLER AIR IN- & OUTLETCHECK

(is not used in the DA42L360)

AUX TANK DRAIN DRAIN

STEPCHECK

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<p>NORM PROC</p>	<p>QRH DA42-L360 REV 0.2 — 3.14</p>
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FUSELAGE, RIGHT SIDE, UNDERSIDE

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

EMPENNAGE

- STABILIZERS & CONTROL SURFACES, ELEVATOR TIPS..... CHECK
- HINGES CHECK
- ELEVATOR TRIM TAB..... CHECK
- RUDDER TRIM TAB CHECK
- TIE-DOWN CHECK/CLEAR
- STALL STRIPS CHECK NO DAMAGE
- 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

ELECTRIC 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

ELECTRIC MASTER SWITCH..... OFF

TOC

PPT

MAN

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COCKPIT PREPARATION

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

RUDDER PEDALSADJUSTED & 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 CONTROLSPROPER 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.

NOSE BAGGAGE DOORS CLOSED

Visually check that the NOSE BAGGAGE doors are closed.

AVIONICS MASTER SWITCH OFF
ELECTRIC MASTER SWITCH ON

- CO ALERT flashes twice then goes out. System can also be tested by pressing the CO ALERT annunciator.
- 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.

ELECTRIC FUEL PUMPS OFF
IGNITION KEYS INSERTED, OFF
PITOT HEAT OFF
ALTERNATE STATIC OFF
ALTERNATORS CHECK ON

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

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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

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 only available on the MFD after the MASTER switch has been switched on.](#) Push the SYSTEM soft-key on the MFD to activate the engine/system page.

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

Write down the G1000 total time in service.

DISPLAY BACKUPPUSH ON
GEAR WARNING..... CHECK

Push the gear warning and verify you hear the aural alert and observe the warning light on the instrument panel. If the aural alert does not activate or the warning light does not illuminate, maintenance action is required.

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

CENTER CONSOLE

FLAPSCHECK UP
 PARKING BRAKE.....SET
 DEFROSTER SWITCH..... OFF
 HEATER SWITCH OFF
 THROTTLE LEVERS IDLE
 PROP LEVERS FULL FORWARD
 MIXTURE LEVERS..... CUTOFF
 VARIABLE ELEVATOR BACKSTOP.....CHECK

Pull the stick fully aft. While holding the stick at the backstop fully open each throttle one at a time. The stick should not move. Set both throttles full open. The stick must move slightly forward during power lever forward movement. Now set the flaps to APP and LDG in sequence. The stick limiter should retract and the stick regain full movement. Then set FLAPS UP. The stick limiter should extend and move the stick forward. Now set both throttles to idle.

WARNING

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

RUDDER TRIM CHECK & SET
 FUEL SELECTORS..... ON
 ELEVATOR TRIM.....SET FOR TAKEOFF
 THROTTLE FRICTIONADJUST
 AUX FUEL TRANSER SWITCHES OFF
 AVIONICS MASTER SWITCH ON
 ATISCOPY
 VFR OR IFR CLEARANCECOPY
 AVIONICS MASTER SWITCH..... OFF
 BRIEFING.....PERFORM

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Briefing must contain:

- Pilot flying
- Type of takeoff (normal or short field).
- 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, full power, flaps up, Vr 78, Vclimb 90.

Engine failure below 78 knots, abort on the remaining runway and advise ATC.

Engine failure at or above 90 knots and above obstacles, fly the blue line, brief the escape route (ER).

E.g. VMC: visual pattern return to airport or abort to _____; IMC: ER to MSA then return for IFR approach.

VFR departure procedure. E.g. right crosswind departure, climb to 3700ft, MSA 4500ft" or,

IFR departure procedure. E.g. at 2000' turn R hdg 120, intercept IWA R-030 inbound.

Questions?

"BEFORE START CHECKLIST"

ENGINE START

Starting with the external power source: perform procedure in read-and do with DA42-L360 AFM (Normal Operating Procedures 4A.6.4).

STROBE LIGHTS (DAY) OR POSITION LIGHTS (NIGHT) ON
 ELECTRIC MASTER CHECK ON
 Annunciations/Engine/System Page CHECK NORMAL RANGE

It is recommended to start the LH engine first.

THROTTLE LEVER..... 3cm (1/2) forward
 FUEL PUMP ON
 MIXTURE CONTROL LEVER RICH for 3-5 sec, then LEAN
 (for WARM engine 1-2 sec).....
 FUEL PUMP OFF
 THROTTLE LEVER..... 1 cm (0.4 in) forward
 (for WARM engine keep 3cm (1.2 in)).....
 PROPELLER AREA CLEAR

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

BRAKES..... HOLD
 IGNITION SWITCH START

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.

When engine fires:

MIXTURE CONTROL LEVER FULL RICH
 IGNITION SWITCH RELEASE
 STARTER ANNUNCIATION OFF

If the 'STARTER' annunciation does not extinguish after the engine has started and the START KEY has been released, set the STARTER SWITCH OFF.

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QRH DA42-L360
REV 0.2 — 3.22

THROTTLE LEVERADJUST 1000RPM
OIL PRESSURE..... CHECK

If the oil pressure has not moved into the green sector within 15 seconds after starting, switch of the engine.

AMMETER CHECK
ANNUNCIATOR PANNEL CHECK
CIRCUIT BREAKERCHECK ALL IN

REPEAT FOR OTHER ENGINE

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.

BACKUP MODE PUSH OFF
G1000 SETUP.....COMPLETE

I - F - T - R - B

- Initialize:
- Check units hPa or mBar: PFD_ALT unit softkey
- Check database: Aux Page 5—Worldwide + Version
- Check GPS CDI Selected AUTO
- 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)
- Transfer Fuel Timer: go to AUX—UTILITY
- Select SCHEDULER
- Highlight TIME
- Reset for 01:30
- 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 nav aids. 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.

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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,

“BEFORE TAXI CHECKLIST”

TAXI

TAXI LIGHT ON

CAUTION
The fuel crossfeed function can be tested simultaneously with both engines. The operation of both engines with both fuel selectors in crossfeed position, other than for this test, is prohibited.

FUEL SELECTORS..... CROSSFEED

Select both FUEL SELECTOR to CROSSFEED for 30 seconds.

CAUTION

Except during ground operations every time the fuel selector is moved from ON to CROSSFEED or from CROSSFEED to ON the corresponding fuel pump must be on

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..... (after 30 seconds) ON

CAUTION

Following extended operation on the ground, or at high ambient temperatures rough running of the engine may occur, shown by the following indications:

- Transient changes in idle RPM and fuel flow
- Slow reaction of the engine to operation of throttle levers
- Engine will not run with the throttle levers in the idle

Remedy for rough running of the engine:

1. Turn Fuel Pumps ON, if engine continues to run rough, go to steps 2-5
2. For a bout 1 to 2 minutes, or until the engine settles, run at the speed of 1800 to 2000 RPM. Oil and cylinder head temperatures must stay within limits.
3. Pull the THROTTLE levers back to IDLE to confirm smooth running
4. Set THROTTLE levers to 1200 RPM and MIXTURE for taxiing i.e. use MIXTURE control levers to set the maximum RPM attainable.
5. Immediately before the take-off run set the mixture for take-off, apply full throttle and hold this position for 10 seconds prior to brake release.

GROUND CHECK

NOSE WHEELSTRAIGHT
 PARKING BREAKSET
 AREA BEHIND AIRCRAFTFREE
 OIL TEMPERATURE.....AT LEAST 100°F (38°C)
 FUEL PUMPS..... OFF
 MIXTURE CONTROL LEVERS.....RICH (below 5000ft)

NOTE

At a density altitude of 5000ft or above, or at high ambient temperatures a fully rich mixture can cause rough running of the engine or a loss of performance. The mixture should be set for smooth running of the engine.

THROTTLE LEVERS2200 RPM
 ALTERNATE AIR CYCLE (first flight of day)
 MAGNETO CHECKL—BOTH—R—BOTH
 Max RPM Drop 175RPM / Max difference 50 RPM
 PROPELLER RPM LEVERS CYCLE 3 TIMES (max 500 RPM drop)
 THROTTLE LEVERS1500RPM
 PROPELLER RPM LEVERSFEATHERING CHECK (max 300 RPM drop)
 THROTTLE LEVERS IDLE THEN 1000RPM

BEFORE TAKEOFF

CONTROLSFREE
 FUEL PUMPS ON
 MAGNETOS CHECK ON BOTH
 FLAPS CHECK AND SET AS REQUIRED
 PROPELLERS FULL FORWARD
 MIXTURES FULL RICH
 ALTERNATE AIR OFF
 TRIMSSET
 FUEL SELECTORS.....CHECK ON

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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

TRANSPONDER..... CONSIDERED

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 HEATAS 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
THROTTLE LEVERS FULLY FORWARD
PARAMETERSCHECK

Check:

- ANNUNCIATIONS CHECK
- RPM..... STABILIZES 2700
- MAPSTABILIZED FOR FIELD ELEVATION

Call out: **“Power checked”**.

Note:

1. 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.
2. Takeoffs are made with full throttle.

When speed tape comes alive. Call out: **"Speed checked"**

At rotation speed: **"78 knots rotate"**

AFTER TAKEOFF

"POSITIVE CLIMB"

GEAR UP (no lights)

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 is 90 Kias (best rate of climb)

Perform following actions at 1.000 FT AGL. (500 AGL pattern only)

- MAP/RPM..... 25 in / 2500 RPM
- ENGINE INSTRUMENTS IN GREEN SECTOR
- FUEL PUMPS OFF, ONE BY ONE
- TRANSPONDER..... CODE & ALT
- LANDING LIGHTAS REQUIRED

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

Adjust mixture for best power (1400 deg EGT).
Cruise checklist should be performed every 15 minutes.

FUEL STATUSCHECK
AUX FUEL..... TRANSFER @ 1:00 ET
ENGINE INDICATIONS / SYSTEM PAGECHECK

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".

FUEL PUMPS ON
ANNUNCIATIONS / ENGINE / SYSTEM PAGE..... CHECKED
GEAR WARNING HORN CHECKED
FUEL SELECTORS..... ON

"DESCENT-APPROACH CHECKLIST"

LANDING

Turning base:

LANDING GEARDOWN-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
FLAPSAS REQUIRED

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“LANDING CHECKLIST”

SHORT FINAL

LANDING GEAR DOWN-3 GREENS
 RPM LEVERS FULL FORWARD
 MIXTURE LEVERS FULL RICH

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. 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 beyond 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
 FUEL PUMPS OFF
 TRANSPONDER..... CODE & GROUND
 *FLAPS UP
 TRANSFER PUMPS..... OFF

“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

- PARKING BRAKE.....SET
- THROTTLE LEVERS 1000 RPM
- TAXI LIGHT OFF
- ENGINE SYSTEM PAGECHECK
- TOTAL TIME IN SERVICE.....NOTE

Write down the G1000 total time in service from the engine system page

- AVIONICS MASTER SWITCH OFF
- IGNITION CHECK..... OFF until RPM drops noticeably,
.....then immediately both again.
- MIXTURE CONTROL LEVERS..... IDLE CUT-OFF
- IGNITION SWITCHES..... OFF AND KEYS OUT
- STROBE LIGHT OFF
- ELECTRIC MASTER SWITCH..... OFF
- 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 BARSTOW PROPERLY
- SUNSCREENS, STALL WARINING COVER, PITOT COVER, TIE-DOWN,
CHOCKSINSTALL

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 two half hitch 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 CHECKLIST 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 KEYS..... CHECK OFF & KEYS REMOVED
 FRONT CANOPY & REAR DOOR..... CHECK
 FIRE EXTINGUISHER..... CHECK SECURE / CONDITION
 UPPER SWITCH PANEL..... ALL SWITCHES OFF
 ALTERNATOR SWITCHES..... ON
 LOWER SWITCH PANEL..... ALL SWITCHES OFF
 GEAR SELECTOR..... DOWN
 PARKING BRAKE..... SET
 ELECTRIC MASTER SWITCH..... ON
 FUEL GAUGES..... CHECK QUANTITY
 FUEL TRANSFER PUMPS AND AUX FUEL STATE..... ON, CHECK, OFF
 FLAPS..... UP
 ELECTRIC MASTER SWITCH..... OFF
 TRIMS..... NEUTRAL
 SUNSCREENS, PITOT COVER, STALL WARNING COVER & TIE-DOWN..... REMOVED
 CHOCKS..... REMOVED
 TOWBAR..... PROPERLY STOWED
 REQUIRED EQUIPMENT..... ON BOARD
 NOSE BAGGAGE DOORS & BALLAST..... OPEN, CHECK, SECURE

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LEFT WING

STEP CHECK
 AUX TANK DRAIN CHECK / DRAIN
 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 / DRAIN
 OPENINGS ON LOWER SURFACE CHECK

LEFT ENGINE NACELLE

AUX TANK FILLER CHECK / CLOSE
 4 AIR INLETS / 1 AIR OUTLET CLEAR
 COWLING CHECK
 PROPELLER & SPINNER CHECK
 ENGINE OIL LEVEL CHECK
 EXHAUST CHECK
 ENGINE DRAINS CHECK FOR BLOCKAGE
 GASCOLATOR/AIR INLET DRAIN / CLEAR
 AUXILIARY TANK VENT OUTLET CHECK
 NACELLE UNDERSIDE CHECK

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
 STALL STRIPS (LEFT WING ROOT) CHECK NO DAMAGE

FRONT FUSELAGE / NOSE LANDING GEAR

FRONT CANOPY LEFT & RIGHT SIDE..... CHECK
 LEFT & RIGHT NOSE 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
 LANDING & TAXI LIGHT CHECK
 OAT SENSOR..... CHECK
 EPU CONNECTOR CHECK
 TOWBAR CHECK REMOVED
 CABIN VENT AIR INLET (RIGHT WING ROOT) CHECK CLEAR
 STALLSTRIPS (RIGHT WING ROOT) CHECK NO DAMAGE

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

GASCOLATOR..... DRAIN
 AUXILIARY TANK VENT OUTLET..... CHECK
 EXHAUST..... CHECK
 ENGINE DRAINS..... CHECK
 COWLING..... CHECK
 4 AIR INLETS / 1 AIR OUTLET..... CLEAR
 PROPELLER & SPINNER..... CHECK
 ENGINE OIL LEVEL..... CHECK
 NACELLE UNDERSIDE..... CHECK
 AUXILIARY TANK FILLER..... CHECK / CLOSE

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RIGHT WING

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
 TIE-DOWN.....CHECK / CLEAR
 WING TIP.....CHECK
 POSITION LIGHT, STROBE LIGHT.....CHECK
 STATIC DISCHARGERS.....CHECK
 AILERON & LINKAGE.....CHECK
 FOREIGN OBJECTS IN AILERON PADDLE.....CHECK
 FLAP AND LINKAGE.....CHECK
 FLAP HINGES & SAFETY PIN.....CHECK
 AUX TANK DRAIN.....CHECK / DRAIN
 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
 STALL STRIPS.....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

COCKPIT PREPARATION FLOW

RUDDER PEDALS.....ADJUSTED & LOCKED
 FLIGHT CONTROLS.....PROPER OPERATION
 SEATBELTS.....LOCKED
 REAR DOORCLOSED & SECURED
 FRONT CANOPYPOSITION 1 OR 2
 NOSE BAGGAGE DOORS.....CLOSED & LOCKED
 AVIONICS MASTER SWITCH.....OFF
 ELECTRIC MASTER SWITCH.....ON
 FUEL PUMPS.....OFF
 IGNITION KEYS.....INSERTED & OFF
 PITOT HEAT.....OFF
 ALTERNATE STATIC.....CLOSED
 ALTERNATORS.....CHECK ON
 DIMMER CONTROL.....SET
 LIGHT SWITCHES.....OFF
 EMERGENCY SWITCH.....CHECK OFF & GUARDED
 STANDBY INSTRUMENTS.....CHECK
 MAGNETIC COMPASS.....CHECK
 DEVIATION CARD.....CHECK
 ELT.....ARMED
 CIRCUIT BREAKERS.....IN
 G1000.....ACKNOWLEDGE
 FUEL QUANTITY.....CHECK
 FUEL CALCULATOR.....SET
 TOTAL TIME IN SERVICE (HOBBS).....NOTE
 G1000.....BACKUP OR REV MODE
 GEAR WARNING.....CHECK
 MANUAL GEAR EXTENSION HANDLE.....CHECK PUSHED IN

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- ALTERNATE AIR.....CHECK CLOSED
- FLAPS.....UP
- PARKING BREAK.....SET
- DEFROSTER SWITCH.....OFF
- HEATER SWITCH.....OFF
- THROTTLE LEVERS.....IDLE
- PROP LEVERS.....FULL FORWARD
- MIXTURE LEVERS.....CUT OFF
- VARIABLE ELEVATOR BACKSTOPCHECK
- RUDDER TRIMCHECK / SET
- FUEL SELECTORS.....ON
- ELEVATOR TRIMSET FOR TO
- THROTTLE FRICTIONADJUST
- AUX FUEL TRANSFER SWITCHES.....OFF
- AVIONICS MASTER SWITCHON
- VFR OR IFR CLEARANCE.....COPY
- AVIONICS MASTER SWITCHOFF
- BRIEFING.....PERFORM

“BEFORE START CHECKLIST”

ENGINE START FLOW

- STROBE LIGHTS (DAY) OR POSITION LIGHTS (NIGHT).....ON
- ELECTRIC MASTER SWITCH.....CHECK ON
- FUEL PUMP.....ON
- THROTTLE 1/2 OPEN
- MIXTURE RICH.....(3-5”) THEN LEAN
- THROTTLESET FOR START
- FUEL PUMP.....OFF
- PROPELLER AREA.....CLEAR
- BRAKES HOLD
- IGNITION SWITCH.....START
- WHEN ENGINE FIRES.....MIXTURE RICH
- IGNITION SWITCH..... RELEASE
- RPM.....1000 RPM
- 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
 G1 000 SET UP (I-F-T-R-B).....COMPLETE
 AUTO PILOT.....TEST
 ELECTRICAL TRIM.....TEST

"BEFORE TAXI CHECKLIST"

TAXI FLOW

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

**GROUND CHECK (RUN-UP AREA)
 BEFORE TAKEOFF FLOW**

CONTROLS.....FREE
 FUEL PUMPS.....ON
 MAGNETOS.....CHECK BOTH
 FLAPS.....UP
 PROPS.....FULL FORWARD
 MIXTURES.....FULL RICH
 ALTERNATE AIROFF
 TRIMS.....SET
 FUEL SELECTORS.....ON
 SHORT BRIEFING.....PERFORM
 FRONT CANOPY.....CLOSED & LOCKED
 DOOR WARNING.....CHECK OFF

"BEFORE TAKEOFF CHECKLIST"

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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 SYSTEMCHECK
 *PITOT HEATAS REQUIRED

TAKEOFF FLOW

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

AFTER TAKEOFF FLOW

GEAR.....UP
 FLAPS.....UP
 ENGINE INSTRUMENTS.....CHECK
 FUEL PUMPS.....OFF
 TRANSPONDER.....CODE & ALT
 LANDING LIGHTS.....AS REQUIRED

"AFTER TAKEOFF CHECKLIST"

CRUISE FLOW

FUEL STATUS.....CHECK
 TRANSFER FUEL.....@ 1:00 ET
 ENGINE INDICATIONS / SYSTEM PAGE.....CHECK

DESCENT / APPROACH FLOW

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

"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
 PROP LEVERS.....FULL FORWARD
 MIXTURE LEVERS.....FULL RICH

AFTER LANDING FLOW

**MAYBE PERFORMED BY PM ON REQUEST OF PF*

*LANDING LIGHT.....OFF
 *TAXI LIGHT.....ON
 *PITOT HEAT.....OFF
 FUEL PUMPS.....OFF
 TRANSPONDER.....CODE & GROUND
 *FLAPS.....UP
 TRANSFER PUMPS.....OFF

"AFTER LANDING CHECKLIST"

ENGINE SHUTDOWN FLOW

PARKING BRAKE.....SET
 THROTTLES.....1000 RPM
 TAXI LIGHT.....OFF
 AVIONICS MASTER SWITCH.....OFF
 THROTTLES.....IDLE
 IGNITION CHECK (MAGNETOS GROUND).....CHECK
 THROTTLES.....1000 RPM
 MIXTURES.....CUT OFF
 IGNITION SWITCHES.....OFF
 STROBE LIGHTS.....OFF
 ELECTRIC MASTER SWITCH.....OFF
 IGNITION KEYS.....OUT
 HOBBS METERS.....NOTE
 PARKING BRAKE.....AS REQUIRED
 PILOT OVERHEAD READING LIGHT.....OFF

"SHUTDOWN CHECKLIST"

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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 & DOORS.....CLOSE AND LOCK

BEFORE START CHECKLIST

WALK AROUND COMPLETED
 RUDDER PEDALS ADJUSTED AND LOCKED
 SEAT BELTS LOCKED
 PARKING BRAKE SET
 GEAR WARNING CHECKED
 AVIONICS MASTER SWITCH OFF
 ELECTRIC MASTER SWITCH ON
 ELECTRIC FUEL PUMPS OFF
 ALTERNATORS ON
 CIRCUIT BREAKERS IN
 FLAPS UP
 G1000 ACKNOWLEDGED
 FUEL QUANTITY CHECKED
 ALTERNATE AIR CLOSED
 THROTTLES IDLE
 PROPS FORWARD
 MIXTURES CUT-OFF
 VARIABLE ELEVATOR BACKSTOP CHECKED
 FUEL SELECTORS ON
 FUEL TRANSFER SWITCHES OFF
 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

BEFORE TAKEOFF CHECKLIST

FLIGHT INSTRUMENTS CHECKED
 ENGINE INSTRUMENTS CHECKED
 MAGNETOS BOTH
 ALTERNATORS ON
 FUEL PUMPS ON
 FLAPS AS REQUIRED
 PROPS & MIXTURES FULL FORWARD
 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
 FUEL PUMPS OFF

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 PUMPS ON
 FUEL SELECTORS ON

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
 FUEL PUMPS OFF
 TRANSPONDER CODE & GROUND
 FLAPS UP
 TRANSFER PUMPS OFF

SHUTDOWN CHECKLIST

PILOT OVERHEAD READING LIGHT CHECK OFF
 LIGHTS OFF
 AVIONIC MASTER SWITCH OFF
 MIXTURES CUTOFF
 ELECTRIC MASTER SWITCH OFF
 IGNITION KEY OUT
 PARKING BRAKE AS REQUIRED

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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. Announce **Decision** to: PM, ATC, Passengers.

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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	L/R Oil pressure low (< 25 psi)
AP TRIM FAIL	4.8	Autopilot automatic trim inoperative
L/R FUEL PR HI	4.8	High fuel pressure (> 35 psi)
L/R FUEL PR LO	4.8	Low fuel pressure (< 14 psi)
L/R STARTER	4.8	Starter is engaging
L/R ALTN FAIL	4.22	L/R engine alternator failed
DOOR OPEN	4.20	Unlocked door(s) Front/Rear Canopy/Bag doors not closed and locked

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OTHER EMER PROC

Situation	Page
ENGINE TROUBLESHOOTING	4.9
ENGINE FIRE/FAILURE AND SHUTDOWN	4.11
RPM OVERSPEED	4.12
ENGINE RESTART	4.13
OVERVOLTAGE	4.14
COMPLETE ELECTRICAL FAILURE	4.15
ENGINE FIRE ON GROUND	4.16
ELECTRICAL FIRE ON GROUND	4.16
ELECTRICAL FIRE IN FLIGHT	4.17
UNINTENTIONAL FLIGHT IN ICING	4.17
LDG WITH DEFECTIVE MAIN TIRE	4.18
LDG WITH DEFECTIVE BRAKES	4.18
LDG GEAR UNSAFE WARNING	4.18
MANUAL GEAR EXTENSION	4.19
GEAR UP LANDING	4.19
EMERGENCY DESCENT	4.20
CO ALERT ILLUMINATION	4.20
DOOR OPEN	4.20

G1000 CAUTIONS

Warning	Page	Description
L/R AUX FUEL E	4.21	Aux tank is empty; TRANSFER PUMP switch is on
L/R FUEL LOW	4.21	Main tank fuel quantity < 4 gal
L/R VOLTS LOW	4.22	L/R bus voltage < 25 volts
PITOT FAIL	4.24	Pitot heating system failed
PITOT HT OFF	4.24	Pitot heating system OFF
STALL HT FAIL	4.24	Stall warning heating failed
STALL HT OFF	4.24	Stall warning heating OFF
STICK LIMIT	4.25	Stick limiting system failed

OTHER ABNORMAL PROC

Situation	Page
BOTH ALTN FAIL	4.23
HYD PUMP FAIL	4.26
CONT HYD PUMP OPERATION	4.26
LANDING ABOVE MLW	4.26
LIGHTNING STRIKE	4.27

ENGINE IND OUTSIDE GRN RANGE

Situation	Description/Action
OIL TEMP HI	Refer to EMER 'L/R OIL TEMP'
OIL TEMP LO	<ul style="list-style-type: none"> • Increase power • Reduce airspeed
OIL PRES HI	<ul style="list-style-type: none"> • Check oil temp and coolant temp • If within green range: <ul style="list-style-type: none"> • Oil pressure indication may be faulty, monitor temp • If outside green range: <ul style="list-style-type: none"> • Reduce power on affected engine • Expect ENG FAIL, LAND ASAP
OIL PRES LO	Refer to EMER 'L/R OIL PRES'
FUEL PR HI	Refer to EMER 'L/R FUEL PR HI'
FUEL PRES LO	Refer to EMER 'L/R FUEL LO'
RPM HI	<ul style="list-style-type: none"> • Reduce power • Keep RPM in green range <ul style="list-style-type: none"> • If not solved: Refer to EMER 'RPM OVERSPEED'
RPM LO	<ul style="list-style-type: none"> • Increase RPM with Prop Levers • Set Fuel Pump ON • Fuel Selectors check ON • Check Oil Pressure <ul style="list-style-type: none"> • If OP is LO, refer to EMER L/R OIL PRES
CHT HI	<ul style="list-style-type: none"> • On ground: <ul style="list-style-type: none"> • Check OP & OT- if abnormal, terminate operation • If OP & OT normal, probable sensor failure • In flight: <ul style="list-style-type: none"> • Check OP & OT- if abnormal refer to 'EMER L/R OIL TEMP' • If OP & OT normal- set Mixture Levers FULL RICH, reduce power & increase airspeed; continue to monitor

L/R OIL PRESS

L/R OIL PRES IND & WARNING LGTCHECK
L/R OIL TEMPCHECK

- If oil temp is rising and Oil Pres Warning flashes

THROTTLE LEVER AFFECTED ENGINE REDUCE

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

L/R OIL TEMP

OIL PRESSURE.....CHECK

- If L/R OIL PRES Warning LGT is flashing and oil pressure is below green

THROTTLE LEVER AFFECTED ENGINE..... REDUCE

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

LAND ASAP

- If oil pressure is in green range

THROTTLE LEVER AFFECTED ENGINE REDUCE
AIRSPEED INCREASE

- Continue normal operations.

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A/P TRIM FAIL

AUTOPILOT DISCONNECT

- Trim aircraft manually

DO USE ELECTRIC TRIM

L/R FUEL PR HI

FUEL PUMP AFFECTED ENGINEOFF

- Decrease power on affected engine

L/R FUEL PR LO

FUEL PUMP AFFECTED ENGINEON

L/R STARTER

- If starter DOES NOT DISENGAGE after engine start

THROTTLE, AFFECTED ENGINEIDLE
MIXTURE, AFFECTED ENGINE.....IDLE CUTOFF
IGNITION SWITCH, AFFECTED ENGINEOFF
ELECTRIC MASTER SWITCH.....OFF

ENGINE TROUBLESHOOTING

THROTTLE LEVER (AFFECTED ENGINE) 1/2 OPEN
 PROP LEVER (AFFECTED ENGINE) 2500 RPM
 MIXTURE LEVER (AFFECTED ENGINE)..... FULL RICH

- If in icing conditions:

ALTERNATE AIR OPEN

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

- If unsuccessful:

AIRSPEED MIN 90 KIAS-VYSE
 LANDING GEAR UP
 FLAPS UP
 MIXTURE LEVER (AFFECTED ENGINE)..... IDLE CUTOFF
 After confirmation from PF

PROP LEVER (AFFECTED ENGINE) FEATHER
 After confirmation from PF

IGNITION SWITCH (AFFECTED ENGINE) OFF
 After confirmation from PF

FUEL SELECTOR (AFFECTED ENGINE)..... OFF

LAND ASAP

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L/R ENGINE FIRE/FAILURE AND SHUTDOWN

DURING TAKEOFF

PERFORM A REJECTED TAKEOFF OR EMERGENCY RE-LANDING

THROTTLE LEVERS..... IDLE
BRAKESAPPLY
ATC INFORM

•If necessary:

FUEL SELECTORS (BOTH)..... OFF
ELECTRICAL MASTER OFF
IGNITION SWITCHES 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 78 KIAS)

THROTTLE LEVERS MAX
AIRPLANE CONTROL..... MAINTAIN

3-5° bank into good engine
Ball ½ deflected into good engine
Speed Vyse 90 KIAS

GEAR UP

FLAPS..... UP

IDENTIFY..... DEAD FOOT = DEAD ENGINE

Announce: **“Engine 1/2 failed”**

THROTTLE ENGINE # IDLE

Verify No yaw; sound change

• *IF CONDITIONS PERMIT (A/C under control, V >= 90KIAS, above MSA)*

ENGINE TROUBLESHOOTING PERFORM

WARNING: Never in case FIRE

Refer to page 4.

• *IF CONDITIONS DO NOT PERMIT.*

PROP LEVER # FEATHER

ENGINE MIXTURE # IDLE CUTOFF

After confirmation from PF

ALTERNATOR # OFF

FUEL SELECTOR # OFF

X-FEED CONSIDER

Max imbalance 5 USG

• In case of fire:

CABIN HEAT AND DEFROST OFF

LAND ASAP

RPM OVERSPEED

- PROP LEVER (AFFECTED ENGINE) REDUCE
 - Listen for audible reduction in RPM
 - If RPM does not decrease
 - OIL PRESSURE (AFFECTED ENGINE)..... CHECK
 - If oil pressure is below normal operating range:
 - THROTTLE LEVER (AFFECTED ENGINE) REDUCE
 - Refer to EMER “L/R OIL PRES”
- LAND ASAP**
- Be prepared for a loss of oil and engine failure

ENGINE RESTART

AIRSPEED90–120 KIAS
FUEL SELECTOR (AFFECTED ENGINE)..... ON
ALTERNATE AIR..... AS REQUIRED
MIXURE LEVER (AFFECTED ENGINE).....FULL RICH
PROP LEVER (AFFECTED ENGINE)FULL FORWARD
THROTTLE LEVER (AFFECTED ENGINE) 1/2 OPEN
FUEL PUMP (AFFECTED ENGINE)..... ON
IGNITION SWITCH (AFFECTED ENGINE)BOTH

- If engine does not start

STARTER.....ENGAGE

- If engine starts:

THROTTLE LEVER (AFFECTED ENGINE) SET FOR 15" MAP
ENGINE INSTRUMENTSCHECK GREEN RANGE
ALTERNATOR (AFFECTED ENGINE)..... ON

OVERVOLTAGE

- If indicated voltage exceeds 32 volts:

LH ALTERNATOR..... OFF

- If indicated voltage exceeds 32 volts:

LH ALTERNATOR.....ON

RH ALTERNATOR OFF

- If indicated voltage exceeds 32 volts:

LH ALTERNATOR..... OFF

LEAVE ELECTRICAL MASTER ON

PITOT HEAT OFF

- Reduce electrical load

LAND ASAP

COMPLETE ELECTRICAL FAILURE

CIRCUIT BREAKERS.....CHECK IN

- If unsuccessful:

HORIZON EMERGENCY SWITCH ON
FLOOD LIGHT ON
PROP LEVERS FULL FORWARD
THROTTLES LEVERS SET ACC. TO LEVER POSITION OR AIRSPEED
FLAPS VERIFY POSITION

LAND ASAP

Landing gear may slowly extend.

- For landing:

MANUAL LANDING GEAR EXTENSIONAPPLY

ENGINE FIRE ON GROUND

FUEL SELECTORS (BOTH) OFF
 MIXTURE LEVERS (BOTH)..... IDLE CUTOFF
 THROTTLE LEVERS (BOTH).....FULL OPEN
 ATC INFORM-CONSIDER MAYDAY CALL
 ELECTRIC MASTER..... OFF
 CABIN HEAT & DEFROST OFF

- When engines are stopped:

IGNITION SWITCHES.....OFF
 CANOPYOPEN
 AIRCRAFTEVACUATE

ELECTRICAL FIRE ON GROUND

ATC INFORM-CONSIDER MAYDAY CALL
 ELECTRIC MASTER..... OFF
 THROTTLE LEVERS (BOTH)..... IDLE
 MIXURE LEVERS (BOTH)..... IDLE CUTOFF

- When engine and aircraft stopped:

IGNITION SWITCHES.....OFF
 CANOPYOPEN
 AIRCRAFTEVACUATE

ELECTRICAL FIRE IN FLIGHT

HORIZON 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

UNINTENTIONAL FLIGHT INTO ICING

PITOT HEAT ON
 CABIN HEAT & DEFROST ON
 PROP LEVERS 2500 RPM
 THROTTLE LEVERS AS REQUIRED
 ALTERNATE AIR OPEN (AS REQUIRED)
 EMERGENCY WINDOWS OPEN (AS REQUIRED)
 ATC.....INFORM-CONSIDER MAYDAY CALL

- If pitot heat fails:

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

LDG WITH DEFECTIVE MAIN TIRE

ATC INFORM

- For landing:

TOUCHDOWNL OR R OF CENTERLINE (SIDE OF GOOD TIRE)
 WING KEEP LOW (SIDE OF GOOD TIRE)
 DIRECTIONAL CONTROL..... MAINTAIN WITH RUDDER
 BRAKES..... AS REQUIRED

LDG WITH DEFECTIVE BRAKES

- After touchdown (if necessary):

FUEL SELECTORS (BOTH)..... OFF
 MIXTURE LEVERS IDLE CUTOFF
 IGNITION SWITCHES..... 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
 CIRCUIT BREAKER(S)..... CHECK/RESET
 GEAR SELECTOR..... DOWN
 MANUAL EXTENSION HANDLE PULL

- If necessary:

AIRSPEED..... MAS 110 KIAS
 YAWAPPLY MODERATELY

GEAR INDICATOR LIGHTS CHECK 3 GREENS

GEAR UP LANDING

- **LANDING GEAR COMPLETELY RETRACTED**

ATC INFORM
 APPROACH.....NORMAL

- Prior to touchdown:

THROTTLE LEVERS (BOTH)..... IDLE

- If practicable prior to or following touchdown:

FUEL SELECTORS (BOTH)OFF
 MIXTURE LEVERS (BOTH)IDLE CUTOFF
 IGNITION SWITCHES (BOTH)OFF
 ELECTRIC MASTEROFF

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EMERGENCY DESCENT

- FLAPS..... UP
- LANDING GEAR DOWN
- THROTTLE LEVERS (BOTH)..... IDLE
- PROP LEVERS..... FULL FORWARD
- AIRSPEED 194 KIAS MAXIMUM
- LIGHTS..... ON
- ATC INFORM
- Level off at or above MEA/MSA

CO ALERT ILLUMINATION

- 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 & NOSE BAGGAGE DOORS CHECK
- If unable to latch canopy, or if NOSE BAGGAGE doors verified open (visually):

LAND ASAP

NEVER UNLATCH REAR PASSENGER DOOR IN FLIGHT. IF UNLATCHED AND SAFETY LEVER IS ENGAGED- DO NOT ATTEMPT TO RELATCH.

L/R AUX FUEL E

ON GROUND

- Aux Fuel Tank is empty; CHECK FUEL STATE

L/R FUEL TRANSFER SWITCH OFF

IN FLIGHT

- Aux Fuel Tank is empty; CHECK MINIMUM FUEL STATE AND REQUIREMENT TO DESTINATION

L/R FUEL TRANSFER SWITCH OFF

- If remaining fuel is below minimum required to destination-

LAND AT NEAREST SUITABLE AIRPORT

L/R FUEL LOW

FUEL QUANTITY CHECK

- If LH and RH quantities show a difference > 5 gal:

Possible fuel leak on side with lower indication.

FUEL PUMPS ON

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

FUEL PUMPS OFF

- If remaining fuel is below minimum required to destination-

LAND AT NEAREST SUITABLE AIRPORT

L/R VOLTS LOW

ON GROUND

CIRCUIT BREAKERSCHECK
 ALTERNATORS ON
 THROTTLE LEVERS..... INCREASE

If L./R LOW VOLTS still illuminated:

- Terminate operation, return to parking

IN FLIGHT

CIRCUIT BREAKERSCHECK
 ALTERNATORS ON
 ELECTRICAL LOAD.....REDUCE TO MINIMUM

If L./R LOW VOLTS still illuminated:

- Refer to ABNORMAL BOTH ALTN FAIL

L/R ALTN FAIL

ALT PROT CIRCUIT BREAKER (affected side) CHECK
 ALT CONT CIRCUIT BREAKER (affected side)..... CHECK
 ALTN ON/OFF SWITCH (affected side) CYCLE OFF, ON
 BUS VOLTAGE MONITOR

- If ALTN remains failed:
 - ELECTRICAL LOAD..... REDUCE
- If both ALTN have failed:
 - Refer to ABNORMAL BOTH ALTN FAIL

BOTH ALTN FAIL

ATC..... ADVISE, Declare Emergency If Necessary
 LH/RH ALTN SWITCHES..... OFF
 TRANSPONDER STANDBY
 LANDING GEAR..... DOWN

- When landing gear down & locked:

MANUAL GEAR EXTENSION HANDLE PULL

STALL/PITOT HEAT OFF
 ALL LIGHTS..... OFF
 HORIZON EMERGENCY SWITCH ON
 AVIONICS MASTER OFF

Expect battery power to last for 30 minutes

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PITOT FAIL/PITOT HT OFF

PITOT HEATCHECK 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 VALVEOPEN

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).

STICK LIMIT

STICK LIMIT FAILURE

VARIABLE ELEVATOR BACKSTOP (STICK LIMITER) FAILED "OFF"

BOTH THROTTLES ARE ADVANCED FORWARD OF 14.5" MAP OR
FLAPS UP

VARIABLE ELEVATOR BACKSTOP (STICK LIMITER) IS FAILED IN RE-
TRACTED CONDITION

**POWER ON STALL IN ANY CONFIGURATION PROHIBITED
FULL ELEVATOR AUTHORITY**

VARIABLE ELEVATOR BACKSTOP (STICK LIMITER) FAILED "ON"

BOTH THROTTLES ARE RETARDED BELOW 14.5" MAP OR FLAPS ARE
DOWN

VARIABLE ELEVATOR BACKSTOP (STICK LIMITER) IS FAILED IN EXTENDED
CONDITION

LIMITED ELEVATOR AUTHORITY

**MAINTAIN MINIMUM V_{ref} FOR LANDING CONFIGURATION DURING AP-
PROACH ESPECIALLY AT LOADING CONDITIONS OF FORWARD CG AT
LANDING**

FLAPS UP LANDING PREFERRED

MIN VREF.....90 KIAS (Flaps UP)

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HYD PUMP FAIL

- GEAR INDICATOR LIGHTSCHECK
- CEAR CIRCUIT BREAKER.....CHECK

Prepare for manual landing gear extension.

HYD PUMP CONTINUOUS OPERATION

- GEAR INDICATOR LIGHTSCHECK
- CEAR CIRCUIT BREAKER.....PULL

Prepare for manual landing gear extension.

LANDING ABOVE MLW

AVOID HARD LANDING

APPROACH SPEEDS

- FLAPS UP 100 KIAS
- FLAPS APP 90 KIAS
- FLAPS LDG..... 85 KIAS

- MIN V ref85 (Flaps LDG)
- MIN GO AROUND IAS..... 85 KIAS

LIGHTNING STRIKE

AIRSPEED..... 120 KIAS MAX
A/P..... DISCONNECT
PFD/STANBY INSTRUMENTS..... VERIFY

IF IMC/IFR

ATC NOTIFY (Declare EMERGENCY if necessary)
FLIGHT CONDITIONS..... VMC (if possible)

AVOID ABRUPT/FULL CONTROL INPUTS
AVOID HIGH G LOAD
AVOID HIGH YAW ANGLES

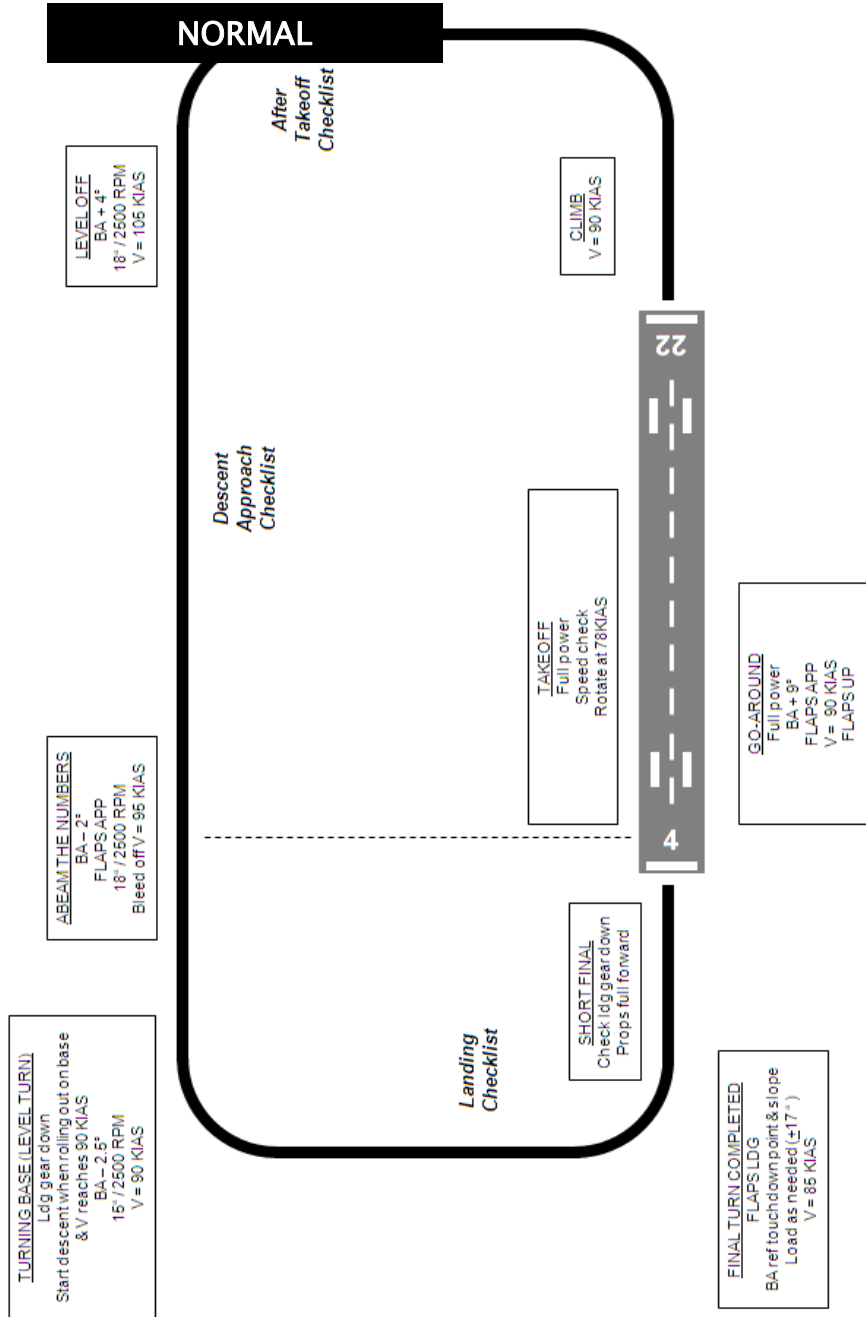
LAND ASAP

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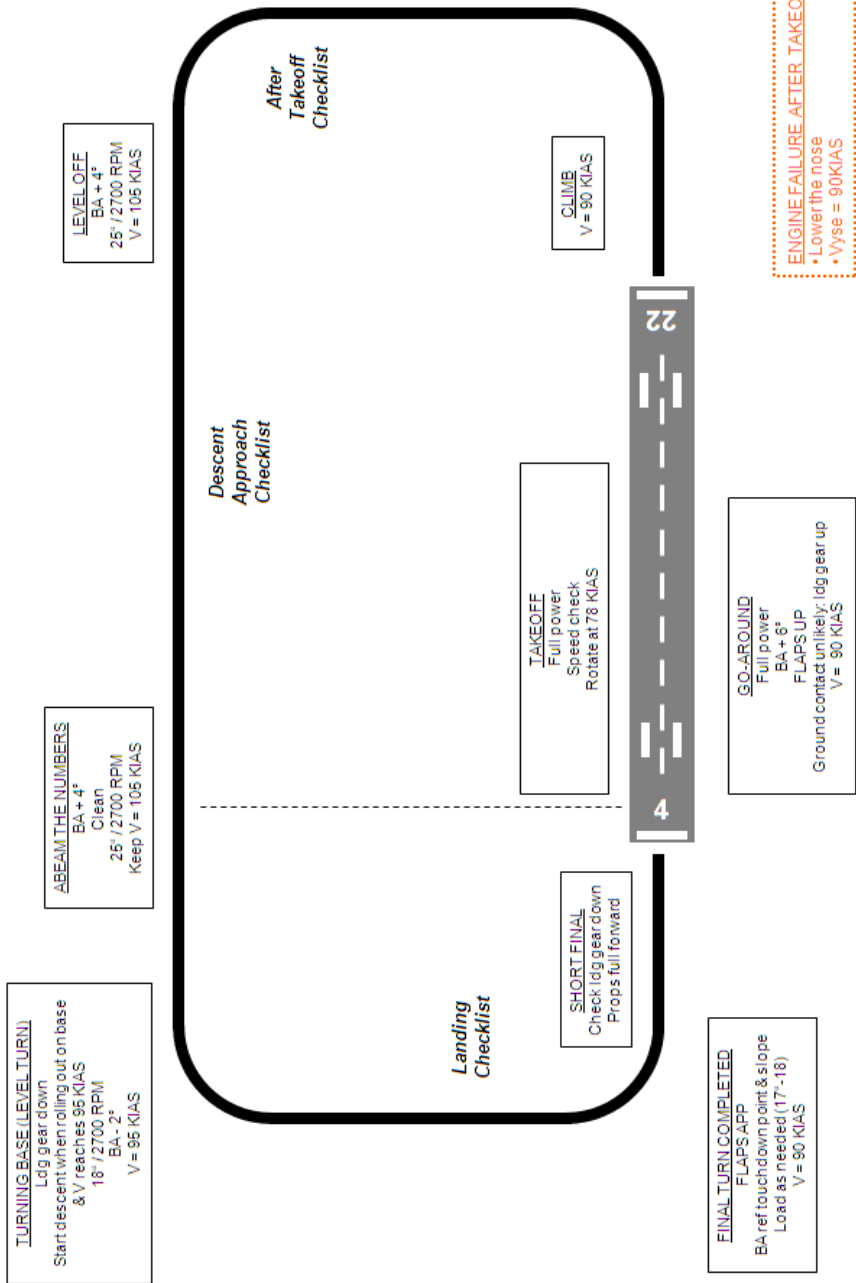
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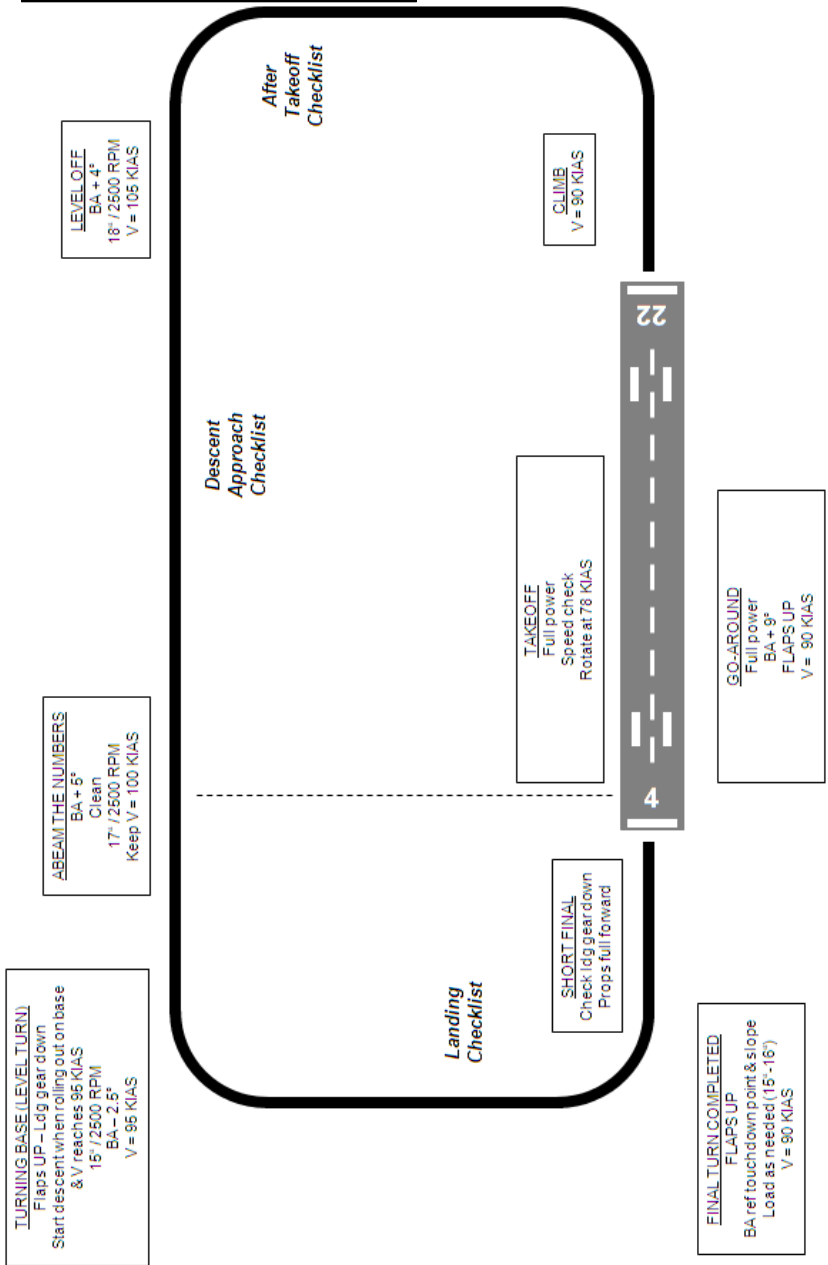
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1 ENGINE



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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.

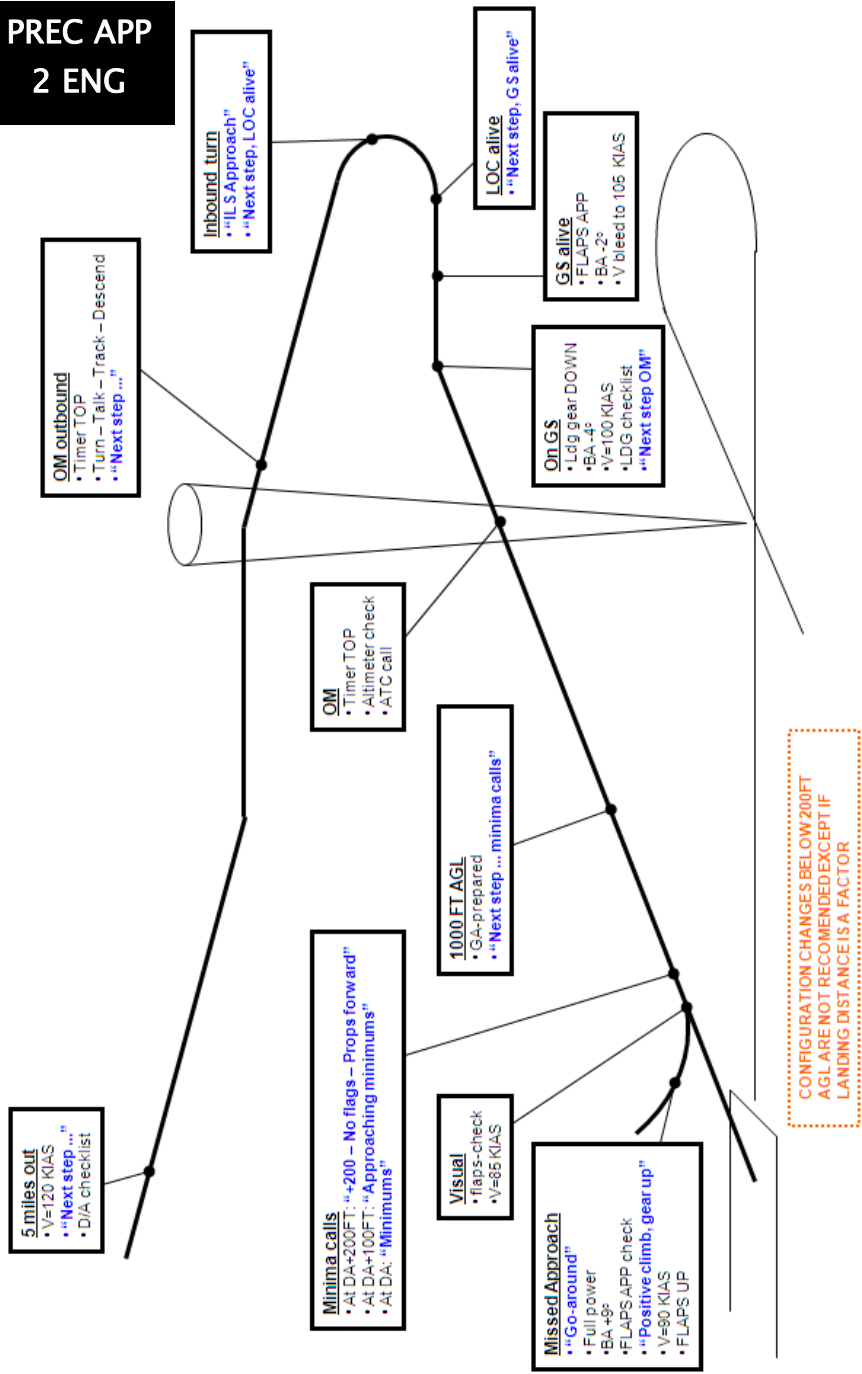
ALTITUDE BUG AND ALTITUDE WARNING

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

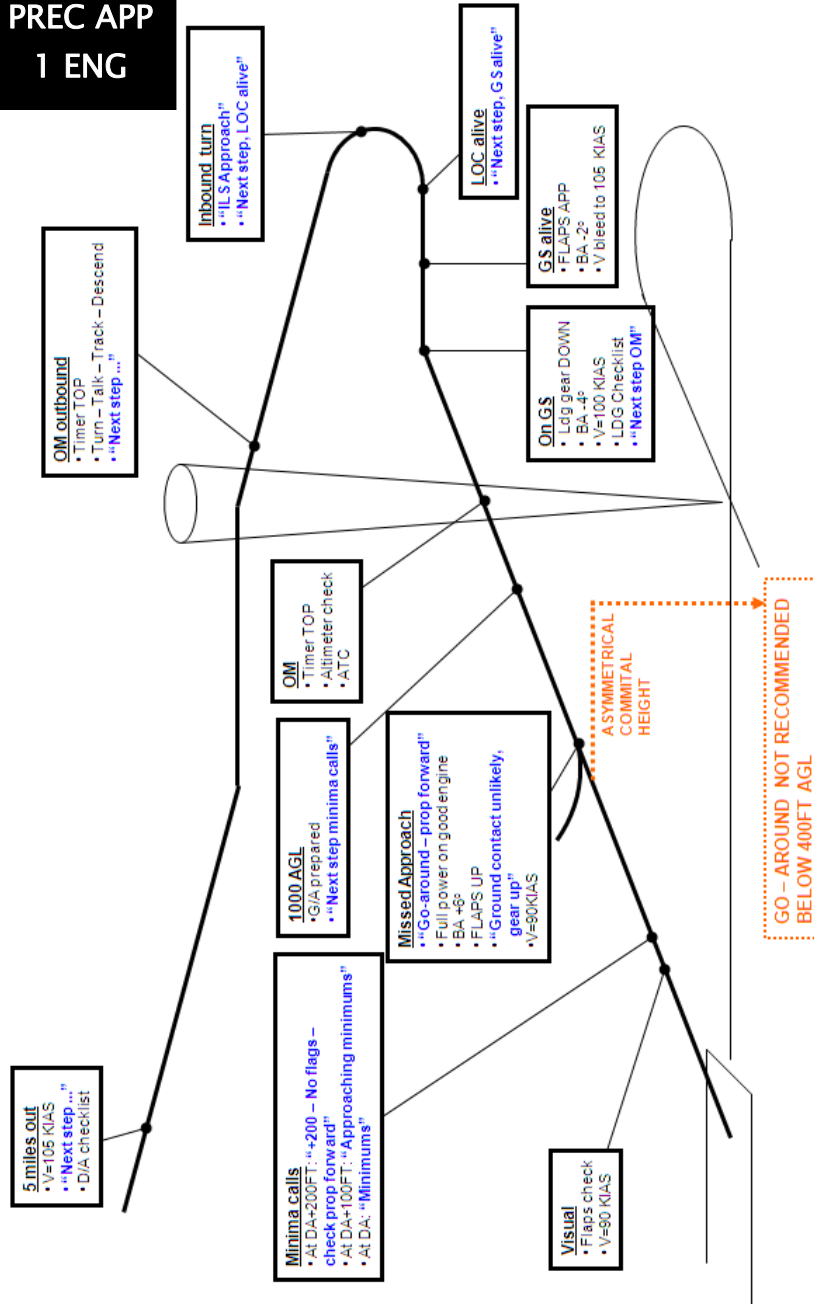
Altitude warning: gives an aural warning when approaching (1000ft) the selected altitude on the AP.

When established on GS or leaving the FAF altitude, check the DA/MDA on G1000 and the Altitude Alert on the KAP A/P is set to the Missed Approach altitude. This will give an aural warning when approaching the level off altitude in the Missed Approach.

**PREC APP
2 ENG**

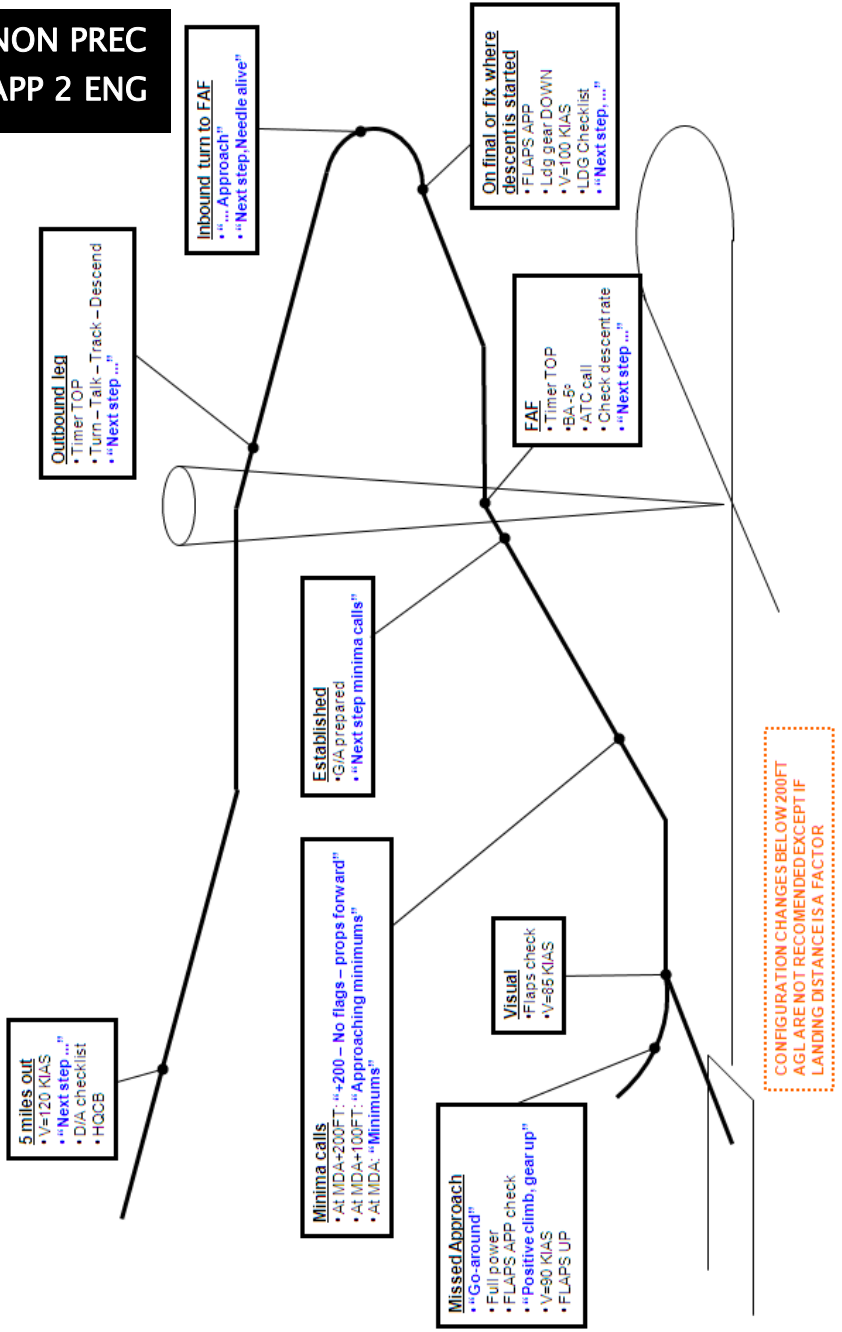


**PREC APP
1 ENG**

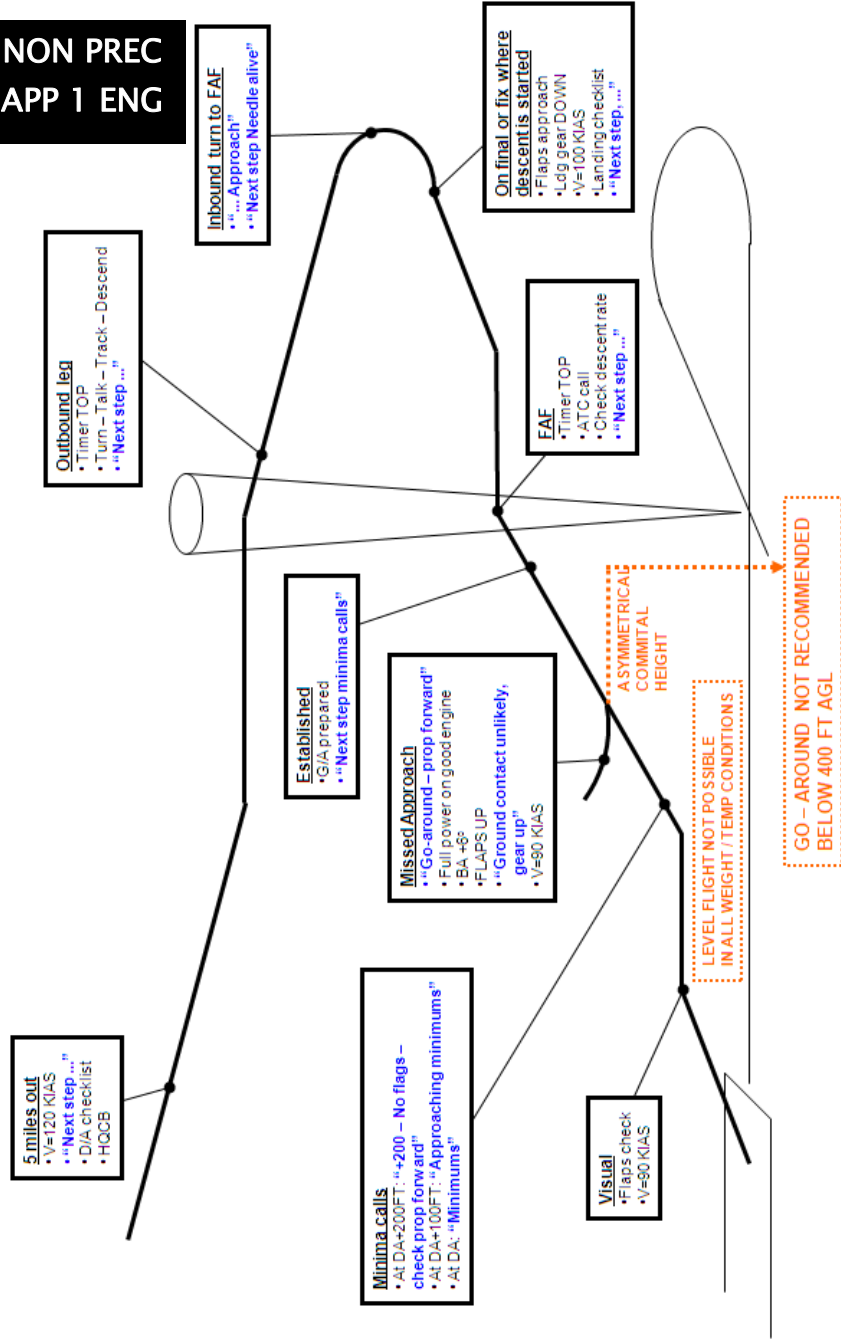


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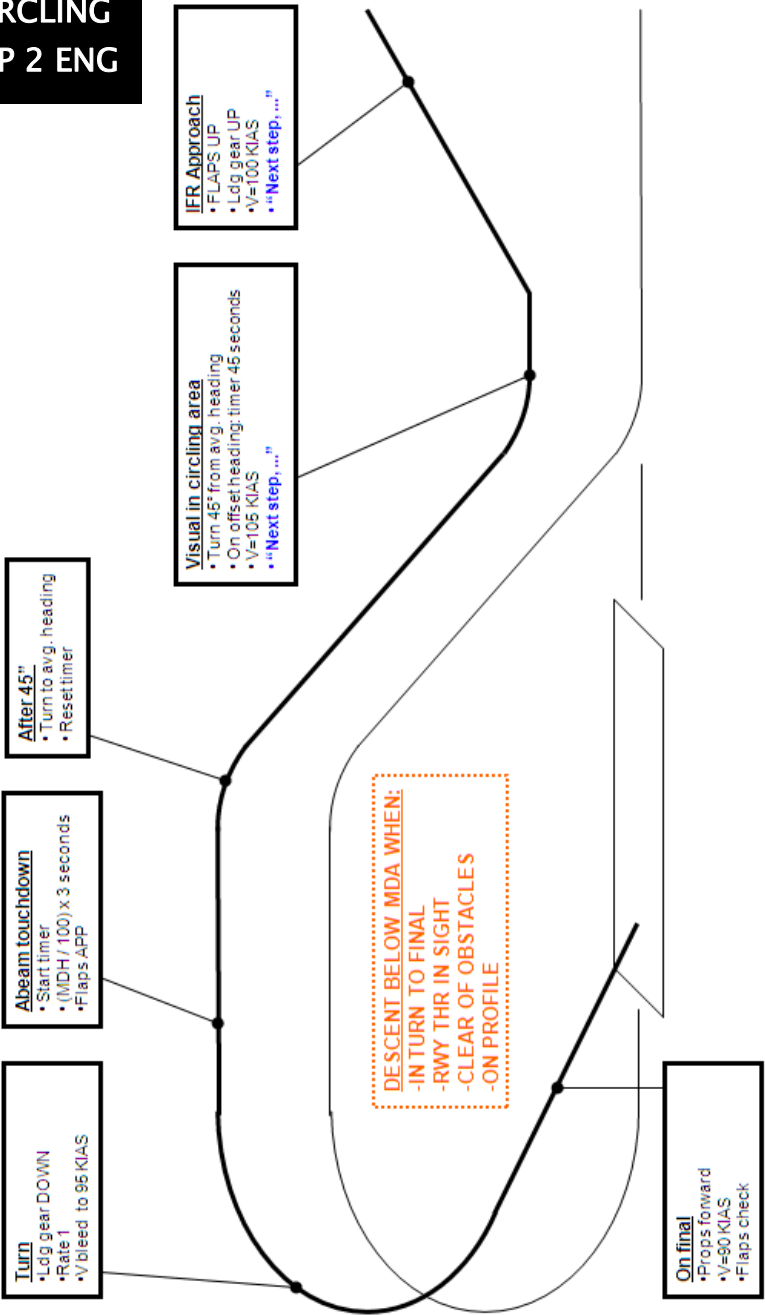
NON PREC APP 2 ENG



**NON PREC
APP 1 ENG**



**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	90 KIAS	90 KCAS	Blue radial line
Air Minimum Control Speed	65 KIAS	65 KCAS	Red radial line

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POWERPLANT LIMITATIONS		
Definition	Limitation	Indicator Marking
Rotational Speed	MAX CONT 2700 RPM	Red line
MAX CONT PWR	160 HP	
TAKEOFF PWR	FT	Ambient
TO PWR TIME LIMIT (BEO)	5 MIN	FT/2700 RPM
Oil Temperature	MAX 118°C	Red line
Oil Pressure	MIN 25 PSI MAX 115 PSI	Red line
Fuel Pressure	MIN 14 PSI MAX 35 PSI	Red line
Fuel Grade	100 LL AVGAS	

WEIGHT LIMITATIONS	
Max Ramp Weight	3.957 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	79.4 U.S. Gallons
Unusable Fuel	3 U.S. Gallons
Usable Fuel	76.4 U.S. Gallons

X-WIND LIMITATION
Maximum demonstrated crosswind component = 14 kts

TIRE SPEED LIMITATION
Maximum groundspeed for tire rating = 104 kts

WEIGHT & BALANCE

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ABBREVIATIONS

MEW

Manufacturer Empty Weight

MEM

Manufacturer Empty Moment

BEW

Basic Empty Weight

TOW

Take Off Weight

LW

Landing Weight

DEFINITIONS

MANUFACTURER EMPTY WEIGHT

Empty Weight of aircraft minus ballast.

Includes:

- Equipment as per Equipment List (Section 6 DA42-L360 AFM)
- Brake Fluid
- Hydraulic Fluid
- Engine Oil (2 X 6.3 qts)
- Unuseable fuel (2 USG main; 1 USG aux)

MANUFACTURER EMPTY MOMENT

Moment at Manufacturer Empty Weight not including ballast location

BASIC EMPTY WEIGHT

Manufacturer Empty Weight plus Ballast Weight

MOMENT SHIFT

Change in Empty Moment associated with ballast location; change in Total Moment associated with ballast or distribution of Useful Load

BALLAST CYLINDER(S)

Single unit of ballast- 11.2 lbs

NOSE FORWARD BULKHEAD BALLAST SYSTEM

Ballast cylinder installation on forward nose baggage bulkhead

UNDER FLOOR BALLAST LOCATION

Ballast storage area under cabin baggage floor; arm 143.7 in aft datum

USEFUL LOAD

Weight of crew, cargo, useable fuel

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WEIGHT & BALANCE FACTORS & REQUIREMENTS

DO NOT REMOVE BALLAST EXCEPT 4 OCCUPANT CREW/PASSENGER LOADING

STANDARD FUEL LOAD- FULL FUEL IN MAIN AND AUX TANKS

CG ALWAYS MOVES FORWARD WITH FUEL BURN

STANDARD BALLAST LOCATION FOR STARTING COMPUTATIONS- 6 UNITS IN NOSE

WHEN COMPUTED CG IS AT AFT OR AFT OF LIMIT- DETERMINE CG/ MOMENT SHIFT BASED ON TOW

WHEN COMPUTED CG IS AT FORWARD OR FORWARD OF LIMIT- DETERMINE CG/MOMENT SHIFT BASED ON LW

DETERMINING MOMENT AND CG SHIFT

TOW CG IS AT AFT OR AFT OF LIMIT

Desired CG—Actual CG X TOW = Moment Shift (Negative value/ Forward Shift)

Arm Shift = Rear Arm—Forward Arm

(Example: Cabin Baggage Arm—Nose Baggage Arm)

Weight Shift = Moment / Arm shift

TOW CG IS AT FWD OR FWD OF LIMIT

NOTE: Determine Moment shift based on LW

Desired LW CG—Actual LW CG X LW = Moment Shift (Positive value/ Aft Shift)

See Ballast Loading Table

Shift ballast from Nose to Underfloor as necessary to equal or exceed minimum aft moment shift

QRH DA42-L360

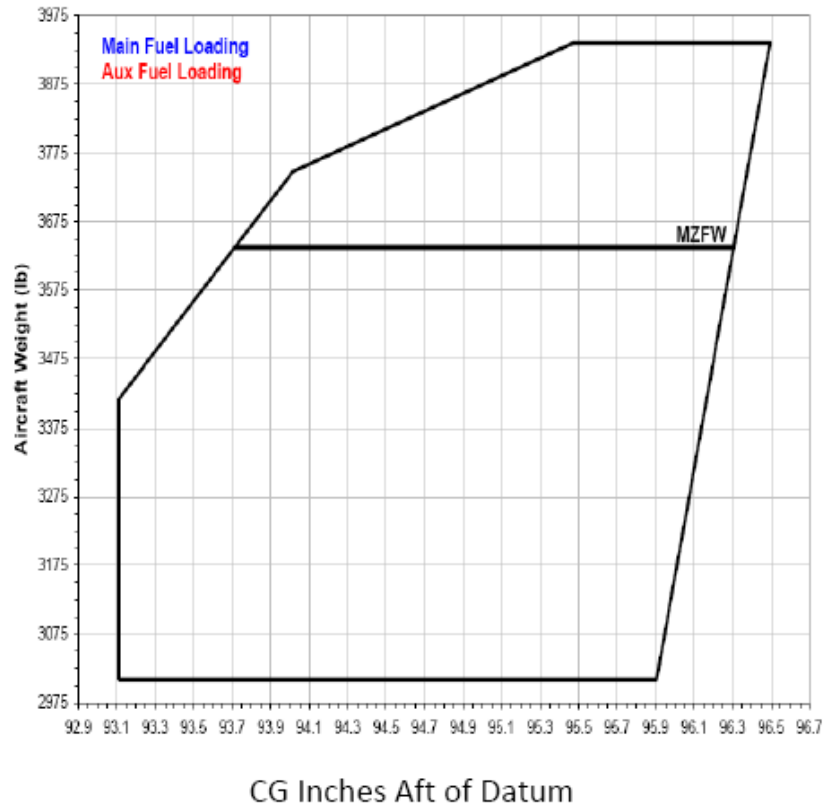
REV 0.2 — 7.4

Item	Weight	Arm	Moment
Manufacturer Empty Weight			
Ballast Weight	67.2		
Basic Empty Weight			
Pilot and Front Passenger		90.6	
Aft Passengers		128.0	
Nose Baggage Compartment (Max 66 lbs)		23.6	
Cockpit Baggage Compartment (Max. 100 lbs)		153.1	
Baggage Extension (Max 40 lb)		178.7	
Ballast Loading Moment ¹			
Zero Fuel Weight (Max 3638)			
Fuel in Main Tanks (50 gal – 6 lb/gal)		103.5	
Fuel in Aux. Tanks (26.4 gal)		126.0	
Ramp Weight			
Fuel Allowance (Start, Taxi, Run-up)	-22 lbs	103.5	-2277
Take-off Weight (Max 3935lbs)		CG	
Fuel State Main		103.5	
Fuel State Aux		126.0	
Landing Weight (Max 3748 lbs)		CG	

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Always check aircraft POH for latest weight & moments.



Aircraft	MEW	Arm	Moment
N4129M	2765.92	94.54	261498.28
N4197D	2765.92	94.54	261498.28
N966WW	2770.72	94.49	261815.56
ALWAYS CHECK AFM FOR UPDATED DATA			

Ballast Loading Table ¹		Total Moment Change
Nose	Under Floor	
6	0	+172
5	1	+1752
4	2	+3334
3	3	+4914
2	4	+6494
1	5	+8076
0	6	+9656

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PERFORMANCE FACTORS AND CONSIDERATIONS

IO 360 ENGINES IN THE DA42-L360 ARE NORMALLY
ASPIRATED

ENGINE POWER OUTPUT IS AFFECTED BY DENSITY ALTITUDE

THERE ARE NO DENSITY ALTITUDE GRAPHS/TABLES IN THE
DA42-L360 POH

DENSITY ALTITUDE FORMULA:

$\Delta\text{ISA} \times 120 + \text{P.A}$ (delta ISA X 120 + Pressure Altitude)

CRITICAL PERFORMANCE COMPUTATIONS

- **ENGINE POWER AVAILABLE AND POWER SETTINGS**

- **TO DISTANCE**
Two Engine
Accelerate/Stop Distance
Optional- RTO50 (Rejected Takeoff from 50')

- **CLIMB PERFORMANCE**
TO Climb
Cruise Climb
One Engine Inoperative (OEI)
 - Climb Rate
 - Climb Gradient (FT/NM)

- **CRUISE PERFORMANCE**
Fuel Consumption & Endurance

- **LANDING DISTANCE**

FOR PERFORMANCE TABLES, REFER TO SECTION 5 DA42-L360 AFM/POH

REQUIRED PERFORMANCE DATA—FLIGHT RELEASE FORM

Airport	Weather
Runway Length	Take Off Distance
Cross Wind Component	Landing Distance
S.E Rate of Climb	S.E Climb Gradient '/NM
S.E Service Ceiling	T.O 50' + LND 50' =

FOR AIRCRAFT PERFORMANCE TABLES, REFER TO AFM/POH

T.O 50' + LND 50':

**Accelerate/Stop Distance- use Ground Roll for TO 50' +
Ground Roll for LND 50'**

**THERE ARE NO ACCELERATE/STOP TABLES IN THE DA42-L360
AFT/POH**

RTO50 (Optional)- use TO 50' + LND 50'

**TO ENSURE SAFE TAKEOFF, AVAILABLE RUNWAY LENGTH MUST
EQUAL AT LEAST THE TOTAL DISTANCE FOR TAKEOFF OVER 50'
OBSTACLE**

**TO ENSURE SAFE LANDING, AVAILABLE RUNWAY LENGTH MUST
EQUAL AT LEAST THE TOTAL DISTANCE FOR LANDING OVER
50' OBSTACLE**

FACTORS AFFECTING TO DISTANCE COMPUTATIONS

HEADWIND/TAILWIND COMPONENT

Headwind (TO)– reduce Take Off Distance 3% for each 4 kts of headwind

Tailwind (TO)– increase Take Off Distance 5% for each 2 kts of tailwind

Headwind (LND)– reduce Landing Distance by 2% for each 1 kt of headwind

Tailwind (LND)– increase Landing Distance by 4% for each 1 kt of tailwind

RUNWAY SLOPE

Positive– increase Take Off Distance 10% for each +2% (up) of runway slope

Negative– increase Landing Distance 10% for each -2% (down) of runway slope

ONE ENGINE INOPERATIVE (OEI) PERFORMANCE

**ONE ENGINE INOPERATIVE CLIMB PERFORMANCE AT
ELEVATED DENSITY ALTITUDE WILL BE SERIOUSLY REDUCED
OR NON EXISTANT**

CRITICAL OEI PERFORMANCE COMPUTATIONS

**OEI CLIMB RATE
OEI CLIMB GRADIENT
OEI SERVICE CEILING**

FOR OEI CLIMB RATE PERFORMANCE TABLES, REFER TO AFM

OEI Climb Gradient-

**AFM/POH FORMULA
Grad % = $\frac{\text{ROC (fpm)}}{\text{TAS (KTAS)}} \times .95$**

NOTE: THE ABOVE FORMULA DOES NOT ALLOW FOR WIND



**ONE ENGINE INOPERATIVE CLIMB GRADIENT CONVERSION
CHART- FLIGHT RELEASE**

CLIMB RATE TO CLIMB GRADIENT CONVERSION	
Wind Component	Divide Rate By:
0	1.5
10 kts Head Wind	1.33
20 kts Head Wind	1.16
10 kts Tail Wind	1.66

FOR OEI CLIMB RATE PERFORMANCE TABLES, REFER TO AFM

**DETERMINING OEI CLIMB GRADIENT USING CONVERSION
TABLE**

OEI Climb Rate-

USE AFM PERFORMANCE DATA

**Divide OEI Climb Rate by Conversion Factor based on
headwind/tailwind component**

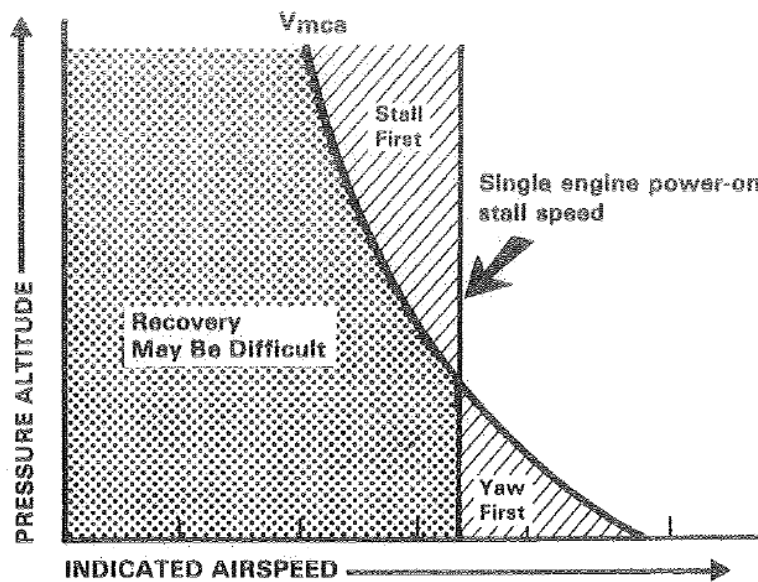
**FOR OEI SERVICE CEILING, REFER TO OEI CLIMB RATE
PERFORMANCE TABLES IN AFM/POH- GREY AREA DENOTES
OEI RATE OF CLIMB AT OR LESS THAN 50 FPM**

ONE ENGINE INOPERATIVE STALL VS V_{mca}

DA42-L360 ACTUAL V_{mca} DECREASES AS DENSITY ALTITUDE INCREASES

OEI INDICATED STALL SPEED REMAINS CONSTANT AS PRESSURE ALTITUDE INCREASES

DEPENDING ON WEIGHT/ALTITUDE/TEMPERATURE, ACTUAL V_{mca} AND INDICATED STALL SPEED WILL COINCIDE AT A VARIABLE PRESSURE ALTITUDE



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Full Throttle Flight Training



sabena 
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