PPL, VFR NIGHT, CPL, FI

STANDARD OPERATING PROCEDURES

DIAMOND DA-20 C1 KATANA

CHANGE IV - 02/10/2024

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1 GENERAL INFROMATION

This document provides the operational procedures required for training on the DIAMOND DA-20 C1 SEP(L) class aircraft.

The Standard Operating Procedures for the Diamond DA-20 aircraft have been developed to standardize and unify flight operations performed on the above-mentioned model of aircraft during flight training, training, operational and technical flights at ATO SALT AVIATION.

The obligation to apply SOP is independent on the type of flight, its place of departure or destination. During flight training, the application of Standard Operating Procedures is intended to improve the safety of flight operations. At the same time, it is to familiarize student pilots and pilots-in-training with the use and application of standardized systems of operation in the aircraft cockpit.

The Standard Operating Procedures are only a supplement to the procedures contained in the Flight Manual of the Diamond DA-20 aircraft. When applying the procedures described in this document, any modification to the equipment of a particular aircraft must be considered.

Remember that Standard Operating Procedures are never a substitute for the Airplane Flight Manual.

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2 GOLDEN RULES

1. **FLY - NAVIGATE - COMMUNICATE**

2. **SPEED IS YOUR LIFE - ALTITUDE IS INSURANCE**

3. **REMEMBER THAT IN AVIATION, THE MOST IMPORTANT THINGS ARE:**
   - **EXPERIENCE - WHICH YOU DON'T HAVE - BUT YOU WILL GET,**
   - **PROCEDURE - WHICH YOU WILL FIND IN THIS DOCUMENT,**
   - **KNOWLEDGE - WHICH YOU WILL SHOW OF TO YOUR INSTRUCTOR,**
4. **REMEMBER THAT WHAT YOU KNOW VERY WELL ON THE GROUND, YOU MAY KNOW ONLY SUFFICIENTLY IN THE AIR**

5. **IF SOMETHING HAPPENS AND YOU DON'T KNOW WHAT TO DO - STAY CALM**
6. **LOOK - THINK - DO**

7. **IF YOU MAKE THE DECISION TO ABORT TAKEOFF, DON'T CHANGE YOUR MIND**

8. **IF YOU MAKE A DECISION TO ABORT A LANDING, DON'T CHANGE YOUR MIND**
9. **THERE ARE NO STUPID QUESTIONS**

3 ACRONYMS

Acronym	Meaning of acronym
AAL	Above Aerodrome Level
ADF	Automatic Direction Finder
ADIZ	Air Defence Identification Zone
AFIL	Air-filed flight plan
AFM	Aircraft Flight Manual
AGL	Above Ground Level
AIP	Aeronautical Information Publication
AIRAC	Aeronatuical Information Regulation And Control
AMA	Area Minimum Altitude
AMSL	Above Mean Sea Level
ARO	Airport Reservation Office
ASM	Airspace Management
ATC	Air Traffic Control
ATIS	Automatic Terminal Information Service
ATO	Approved Training Organisation
ATS	Air Traffic Service
AUP	Airspace Use Plan
BAT	Battery
COM	Communication
CTR	Control Zone
D	Dangerous
DN	Navigation wind direction
Doc	Document
ENR	En-route
GAMET	General Aviation Meteorological Information
GEN	Generator
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
FE	Flight Examinator
FIS	Flight Information Service
FT	Feet
HP	Horse Power

HT	Head of Training
IAS	Indicated Air Speed
ICAO	International Civil Aviation Organization
IFR	Instrument Flight Rules
ILS	Instrument Landing System
KBO	Lateral Deflection Angle
KDM	Magnetic Course
KG	Kilogram
KIAS	Knots Indicated Airspeed
KM	Magnetic Heading
KPT	Route End Point
KW	Wind angle
KZ	Drift Angle
L	Left
LDG	Landing
MAX	Maximum
METAR	Aviation Routine Weather Report
MRT	Military Routes
MSL	Mean See Level
NAV	Navigation
NDB	Non Directional Beacon
NOTAM	Notice to Airmen
NLD	Prescribed Course
Nr	Number
NKDM	Prescribed Magnetic Path Angle
NTP	Navigation Speed Triangle
PAPI	Precision Approach Path Indicator
PANSA PAŻP	Polish Air Navigation Services Agency (Polska Agencja Żeglugi Powietrznej)
PDT	Journey Log
PFI	Preflight Inspection
PIC	Pilot in Command
PPL(A)	Privat Pilot License (Airplane)
PZ	Turning Point
QNH	Altimeter sub-scale setting to obtain elevation when on the ground

R	Right
RKDM	Actual Magnetic Path Angle
RLD	Actual Course
ROL	Flight Restriction Area
RPM	Revolutions Per Minute
RTF	Radio Telephony
RWY	Runway
SEC	Second
SOP	Standard Operation Procedure
T/O	Take-off
TAF	Aerodrome Forecast
TMA	Terminal Control Area
TSA	Temporary Segregated Areas
TRA	Temporary Reserved Areas
TWR	Tower
U	Wind speed
UHF	Ultra-High Frequency
ULC	Civil Aviation Authority (Urząd Lotnictwa Cywilnego)
US	United States
WPT	Route Starting Point
V_A	Manoeuvering Speed
V_{APP}	Approach Speed
V_{BG}	Best Glide Speed
VDL	Vision Device Lenses
V_{EF}	Engine Failure
V_{FE}	Maximum Flap Extended Speed
VFR	Visual Flight Rules
VHF	Very High Frequency
VMC	Visual Meteorological Conditions
V_{NE}	Never Exceed Speed
V_{NO}	Maximum Structural Cruising Speed
VOR	VHF Omnidirectional Radio Range
Vr	True Airspeed
V_R	Rotation Speed
V_{REF}	Landing Reference Speed

V_{S0}	Stalling Speed In Landing Configuration
V_{S1}	Stalling Speed In Clean Configuration
V_X	Best Angle-of-Climb Speed
V_Y	Best Rate-of-Climb Speed

4 LIMITATIONS

STRUCTURAL LIMITATIONS

Limitations given to avoid overstress or damage the aircraft structure. These limits are created during designing and type certification. Below are the structural speed limits.

SPEED	KIAS	EXPLANATION
V_{NE} Never Exceed Speed	164	Never exceed this speed in any operation
V_{NO} Maximum Structural Cruising Speed	118	Do not exceed this speed except in smooth air, and then only with caution.
V_A Maneuvering Speed	106	Do not make full or abrupt control movements above this speed. Under certain conditions, the airplane may be overstressed by full control movement.
$V_{FE(T/O)}$ Maximum Flap Extended Speed T/O Position	100	Do not exceed this speed with flaps in T/O position
$V_{FE(LDG)}$ Maximum Flap Extended Speed LDG Position	78	Do not exceed this speed with flaps in lLDG position

NORMAL PROCEDURES

Speeds used during normal use of the aircraft.

SPEED	KIAS	EXPLANATION
VY(CRUISE) Best Rate-of-Climb Speed Flap CRUISE Position	75	Speed of best climb rate, at sea level, flaps in CRUISE position
VX(CRUISE) Best Angle-of-Climb Speed Flap CRUISE Position	60	Speed of best angle of climb at sea level, flaps in CRUISE position
VY(T/O) Best Rate-of-Climb Speed Flap T/O Position	68	Speed of best rate of climb, at sea level, flaps in T/O position
VX(T/O) Best Angle-of-Climb Speed Flap T/O Position	57	Speed of best angle of climb at sea level, flaps in T/O position
VREF Landing Reference	55	The lowest speed you are supposed to have over the runway threshold. SALT AVIATION for Student-Pilots recommends speed of 65 KIAS.
VR Rotation	44	Rotation speed
VS0 Stalling speed in landing configuration	34	Stall speed in landing configuration. Flaps in LDG position
VS1 Stalling speed in clean configuration	42	Stall speed in clean configuration. Flaps in CRUISE position
VAPP(T/O) Approach Speed Flap T/O Position	75-70	Approach speed. Flaps in CRUISE or T/O position

$V_{APP(LDG)}$ Approach Speed	60-70	Landing approach speed. Flaps in LDG position
Flap LDG Position		
	20	Maximum crosswind component for takeoff and landing
	5	Maximum tailwind component for takeoff and landing

EMERGENCY PROCEDURES

Speeds used during emergency situations in which the aircraft may be.

SPEED	KIAS	EXPLANATION
V_A Maneuvering Speed	106	Do not make full or abrupt control movements above this speed. Under certain conditions, the airplane may be overstressed by full control movement.
V_{BG} Best glide angle	73	Greatest glide range with flaps in CRUISE position
V_{EF} Engine Failure	64	Lowest speed with engine not running, flaps in CRUISE position
$V_{EF(T/O)}$ Engine Failure T/O Flap Position	60	Lowest speed with engine not running, flaps in T/O position
$V_{EF(LDG)}$ Engine Failure LDG Flap Position	55	Lowest speed with engine not running, flaps in LDG position

5 CHECKLISTS

GENERAL INFORMATION

1. Checklists at ATO SALT AVIATION are an integral part of the SOP and have been based on the AFM of individual aircraft used by ATO and are assigned to them.
2. Checklists at ATO SALT AVIATION describe sets of actions related to specific phases of operations (engine start-up, taxi, take-off, etc.) referring to flight safety, which pilots must perform, check and confirm. They ensure a direct check of the aircraft configuration and systems, thereby protecting against human error.
3. Every student, instructor and pilot renting an aircraft from ATO SALT AVIATION is required to use the checklist in accordance with this manual.
4. It is prohibited to use the checklist on an aircraft unit to which it does not apply.
5. HT ATO SALT AVIATION is responsible for issuing and updating individual checklists.
6. If any error is found in the checklists, the finder is obliged to notify HT ATO SALT AVIATION.
7. The person who is obliged to use a checklist (student, instructor, renting pilot) is responsible for having the checklist during operation.
8. Checklists are publicly available at www.salt.aero, and it is recommended to print them double-sided in A4 format.
9. For each flight, the Student is to have the printed checklist for the particular aircraft on which he or she will receive flight training.
10. Checklists are divided into NORMAL PROCEDURES and EMERGENCY PROCEDURES.
11. NORMAL PROCEDURES - are used within the normal range of operations, when nothing particular is happening (parameters in the cockpit are in the green fields)

12. EMERGENCY PROCEDURES - are used when the situation requires immediate intervention from the crew and consideration of an immediate landing which may be an emergency landing (parameters in the cockpit are in red fields).
13. When any of the parameters in the cockpit is in the yellow field, the situation requires increased caution from the crew. An immediate landing is not required unless there is a belief that the situation may deteriorate (a precautionary landing may be carried out). The crew is required to precisely monitor the parameter in question and its trend.

RULES OF PERFORMANCE

1. The checklist is called out by the person flying in the left seat of the aircraft, by calling out its title and using the phrase "checklist," e.g. **"TAXI CHECKLIST"**
2. Checklists or their parts marked with a vertical black line on the left, must be memorized; these are so called MEMORY ITEMS.
3. The checklist except so called MEMORY ITEMS (marked with a black line on the left), is to be read, not declaimed from memory.
4. If, during performing of the checklist, there was a situation in which it had to be interrupted, the pilot starts it from the beginning
5. Checklists at SALT AVIATION are "read and do" in nature.
6. After reading a particular point in the checklist, we use the phrase contained therein as confirmation.
7. If there is a flow to be performed before the checklist (a set of actions in the cockpit, which are then confirmed by performance of the checklist), the pilot performs it in the given order and starts the checklist; he or she does not perform both activities at the same time,
8. The checklist (if all actions have been correctly performed and confirmed) is completed by the call out e.g. **"TAXI CHECKLIST COMPLETED"**

9. If, while performing operations, especially in a single-pilot crew, the pilot's attention must be turned outward to observe the space around the aircraft, or on the instrument panel, he or she, should stop reading the checklist (safety first), and return to continue it.
10. If any of the checklist items does not apply to the given flight, use the phrase: "not applicable".
11. Performing an item described "As required" requires specification of what is to be done with the item.
12. The approach briefing in flight pattern is always considered as completed - "COMPLETED".
13. When taxi, outside of the areas indicated in the checklist, after stopping the aircraft, we follow the rule: "parking brake - on/taxi light - off", and before taxi: "taxi light - on/parking brake off".
14. At ATO SALT AVIATION, we divide NORMAL PROCEDURES into individual checklists, provided in the table below. Their sequence also reflects the standard recommended order of performance.

Name	Place or time of performance
PREFLIGHT	Aircraft stand
EXTERIOR INSPECTION	Aircraft stand
BEFORE STARTING ENGINE	Aircraft stand (check if the area behind the aircraft is empty) and after taking seats in the aircraft
ENGINE START	After obtaining approval for start-up (controlled airports) and when the area around the engine(s) is clear.
FLOODED/WARM ENGINE START	If carrying out ENGINE START led to flooding of the engine (this is usually indicated by fuel leak under the aircraft) or when the engine is still warm after the previous operation
AFTER STARTING ENGINE	Immediately after starting the engine.

TAXI	During taxi, when there is the least workload in the cockpit.
RUN UP POSITION	At the holding point of the runway, or within the shortest time before takeoff, when engine parameters allow. Make sure the area behind the aircraft is clear!
BEFORE LINE UP	At the holding point of the runway, before receiving clearance to line-up the runway.
LINE UP	At the holding point of the runway, after receiving clearance to line-up the runway.
TAKE-OFF	MEMORY ITEM - after receiving of approval for take-off, after entering the runway
CLIMB	MEMORY ITEM - After lift-off and completion of TAKE-OFF CHECKLIST
CRUISE	After reaching cruising altitude and setting cruise power. In flights in a traffic pattern and into the training zone, the checklist is skipped.
DESCENT	Before beginning descent from cruising altitude with the intention of initiating an approach. It is not performed in a traffic pattern.
APPROACH	After APPROACH BRIEFING, before reporting readiness for approach
FINAL	MEMORY ITEM - on the final, if the situation allows, after receiving permission to land
GO AROUND	MEMORY ITEM - after the decision is made to abort approach and go around.
RUNWAY VACATED	After vacating the runway, in the case of controlled airports beyond the holding point, or during a long taxi down the runway to the nearest taxiway.
SHUT DOWN POSITION	On the aircraft stand, where we want to shut down the engine.

15. EMERGENCY PROCEDURES are performed in the occurrence of an event specified in the title of the particular checklist.

NORMAL PROCEDURES CHECKLIST

PREFLIGHT

Aircraft Documents ..... ON BOARD
Fire Extinguisher..... CHARGED & SECURE
Structural Temperature Indicator..... CHECK
Tie Downs ..... REMOVED / ON-BOARD
Flight Control Lock..... REMOVE
Rudder Pedals..... ADJUSTED & LOCKED
Parking Brake ..... ON
Magnetos..... OFF
Avionics Master Switch & Electrics ..... OFF
GEN/BAT Master Switch..... ON
Fuel Quantity..... CHECK
Flaps..... LDG
Warning Lights ..... ON
GEN/BAT Master Switch..... OFF

EXTERIOR INSPECTION

LEFT WING

Left Main Landing Gear..... CHECK
Stall Warning..... CHECK
Pitot-Static Probe..... CLEAN, HOLES-OPEN
Lights..... VISUAL CHECK
Aileron, Wing Flap..... VISUAL CHECK

FUSELAGE

Fuel Tank Vent..... CHECK
Fuel Drains..... DRAIN WATER
Maintenance Fuel Drains..... NO LEAKS
Fuel Quantity..... VISUAL INSPECTION
Antennas..... VISUAL INSPECTION

TAIL

Stabilizers and Control Surfaces ..... CHECK

RIGHT WING

Aileron, Wing Flap..... VISUAL CHECK
Lights..... VISUAL CHECK
Right Main Landing Gear..... CHECK

NOSE

Oil..... CHECK LEVEL (6-4 QUARTS)
Cowling..... VISUAL INSPECTION
Air Intakes..... CLEAR
Propeller..... CLEARANCE MIN 25 CM
Propeller Blades..... CHECK
Spinner..... VISUAL INSPECTION
Nose Gear..... CHECK

BEFORE STARTING ENGINE

Parking Brake..... ON
Brake Pressure..... CHECK
Baggage ..... STOWED & SECURED
Seatbelts..... FASTENED & ADJUSTED
Flight Controls..... FREE & CORRECT
Canopy..... CLOSED & SECURE
Circuit Breakers..... CHECK
Fuel Shut-off Valve..... ON (PUSH IN & LOCK)
Throttle..... FREE/IDLE
Throttle Friction..... CHECK
Alternate Air..... OFF
GEN/BAT Master Switch ..... ON
Avionics Master Switch & Radio ..... ON
ATIS/ATC Clearance ..... RECEIVED
Altimeters..... SET QNH
Avionics Master Switch & Radio ..... OFF
Generator Warning Light..... ILUMINATE
Canopy Warn. Light OFF (PRESS TO CHECK)

ENGINE START

Strobe/Position Lights ..... ON
Throttle..... IDLE
Mixture..... FULL RICH
Brakes..... HOLD
Fuel Pump..... ON
Fuel Prime..... ON
Throttle..... FULL (3-7 SEC) THEN IDLE ¼ INCH
Propeller Area..... CLEAR
Starter..... ENGAGE (MAX 10 SEC)
Throttle..... 800 - 1000 RPM
Oil Pressure..... CHECK
Fuel Prime..... OFF
Avionics Master Switch ..... ON
Engine instruments..... CHECK

FLOODED START

Strobe/Position Lights ..... ON
Mixture..... FULL RICH
Brakes..... HOLD
Fuel Pump..... OFF
Fuel Prime..... OFF
Throttle..... HALF OPEN
Propeller Area..... CLEAR
Starter..... ENGAGE
Throttle..... ADJUST 1000 RPM
Oil Pressure..... CHECK
Avionics Master Switch ..... ON
Engine instruments..... CHECK

AFTER STARTING ENGINE

Cabin Heat and Defrost ..... AS REQUIRED
Flaps..... CHECK/ CRUISE
Transponder..... STBY
Radios/NAV/GPS..... SET
Fuel Pump ..... ON
Fuel Pressure..... CHECK > 3.5 PSI
Engine Instruments..... CHECK
Trim Indicator ..... NEUTRAL
Taxi Clearance..... RECEIVED

TAXI

Parking Brake/Taxi light..... OFF/ON
Flight Instruments/Brakes ..... CHECK

RUN UP POSITION

Parking Brake/Taxi light..... ON/OFF
Mixture..... FULL RICH
Throttle..... 1700 RPM
Oil Temp..... MAX. RPM > 100 °F
Oil Pressure..... BELOW 70 PSI
Alternator Load (Ammeter) ..... CHECK
Mixture Lean Function..... CHECK
Magnetos ....CHECK (MAX.DROP 150, DIFF.50)
Alternate Air..... ON/OFF (NO RPM DROP)
Engine instruments..... CHECK
Warning Lights..... NO ILUMINATE
Throttle..... MAX / IDLE THEN 1000 RPM
Take-Off Briefing ..... COMPLETED

CHECK LISTS MARKED WITH THE THICK VERTICAL LINE ON THE LEFT SHOULD BE MEMORIZED

BEFORE LINE UP

Trim Indicator..... NEUTRAL
Magnetos ..... BOTH
Fuel Pump..... ON
Flaps..... T/O
Mixture..... FULL RICH

LINE UP

Parking Brake/Taxi/LDG Light..... OFF/ON
Transponder..... ALT
Gyro..... RWY HDG

TAKE-OFF

Take-off power..... SET
RPM..... MIN 2000
Engine Gauges ..... CHECK
Rotation..... 44 KIAS
Climb speed..... 58 KIAS

CLIMB

Throttle..... FULL
Landing/Taxi Light..... OFF
Flaps..... CRUISE

CRUISE

Cruise Power..... SET
Fuel Pump ..... OFF
Altimeters..... SET/ CROSS CHECKED
Mixture..... ADJUST

DESCENT

Mixture..... FULL RICH
Fuel Pump..... ON
Throttle..... AS REQUIRED

FINAL

Mixture..... FULL RICH
Flaps..... LDG
Fuel Pump..... ON
Landing/Taxi Light..... ON
Approach Speed ..... 65 KIAS

GO AROUND

Throttle..... FULL POWER
Flaps..... T/O
Airspeed..... 58 KIAS

RUNWAY VACATED

Landing Light..... OFF
Flaps..... CRUISE
Transponder..... STBY

SHUT DOWN POSITION

Parking Brake/Taxi light..... ON/OFF
Electrics & Avionics ..... OFF
Avionics Master Switch ..... OFF
Throttle..... IDLE
Fuel Pump ..... OFF
Engine..... COOLING
Mixture..... CUT OFF
Strobe/Position Lights..... OFF
Magnetos ..... OFF
GEN/BAT Master Switch..... OFF
Tie Downs ..... AS REQUIRED

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EMERGENCY PROCEDURES CHECKLIST

EMERGECY PROCEDURES

ENGINE FAILURE DURING TAKE-OFF RUN

Throttle.....IDLE
Brakes.....AS REQUIRED
Flaps .....CRUISE
Mixture.....CUT OFF
Magnetos.....OFF
GEN/BAT Master Switch.....OFF

ENGINE FAILURE AFTER TAKE-OFF

INSUFFICIENT ENGINE POWER

Airspeed.....60 KIAS
Throttle.....FULL
Mixture.....FULL RICH
Alternate Air.....OPEN
Fuel Shut-off Valve.....OPEN
Magnetos .....BOTH
Fuel Pump.....ON

SHORTLY BEFORE LANDING

Mixture.....CUT OFF
Fuel Shut-off Valve.....CLOSED
Magnetos..... OFF
Flaps.....AS REQUIRED
GEN/BAT Master Switch .....OFF

ENGINE FAILURE DURING FLIGHT

ENGINE RUNNING ROUGHLY

Mixture.....FULL RICH
Alternate Air.....OPEN
Fuel Shut-off Valve.....OPEN
Fuel Pump.....ON
Magnetos .....L-BOTH-R-BOTH
Throttle.....PRESENT POSITION
No improvement.RED. THROTTLE LAND ASAP

RESTARTING THE ENGINE WITH PROPELLER WINDMILLING

Airspeed.....73 KIAS
Mixture.....FULL RICH
Fuel Shut-off Valve.....OPEN
Magnetos ..... BOTH
Fuel Pump.....ON
Fuel Prime.....ON
Throttle.....3/4 INCH FORWARD

AFTER SUCCESSFUL RE-START

Oil Pressure.....CHECK
Oil Temp.....CHECK
Fuel Prime.....OFF
Electrical Equipment.....ON IF REQUIRED

RESTARTING THE ENGINE WITH PROPELLER AT FULL STOP

Airspeed.....73 KIAS
Electrically Equipment.....OFF
GEN/BAT Master Switch .....ON
Mixture.....FULL RICH
Fuel Shut-off Valve.....OPEN
Fuel Pump.....ON
Fuel Prime.....ON
Throttle.....3/4 INCH FORWARD
Magnetos ..... BOTH
Starter ..... ENGAGE

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AFTER SUCCESSFUL RE-START

Oil Pressure.....CHECK
Oil Temp.....CHECK
Fuel Prime.....OFF
Electrical Equipment.....ON IF REQUIRED

GLIDING

Flaps.....CRUISE
Airspeed.....73 KIAS
Glide ratio.....11:1

EMERGENCY LANDING

INSUFFICIENT ENGINE POWER

Airspeed (Flaps CRUISE) .....64 KIAS
Airspeed (Flaps T/O) .....60 KIAS
Airspeed (Flaps LDG) .....55 KIAS
Fuel Shut-off Valve.....CLOSED
Mixture.....IDLE CUT-OFF
Magnetos ..... BOTH
Safety Belts.....SECURED
Radio.....TRANSMIT
Flaps.....AS REQUIRED
GEN/BAT Master Switch .....OFF

ENGINE FIRE DURING ENGINE-START-UP ON THE GROUND

Fuel Shut-off Valve.....CLOSED
Cabin Heat.....CLOSED
Mixture.....IDLE CUT-OFF
GEN/BAT Master Switch .....OFF
Magnetos.....OFF
Evacuation.....IMMEDIATELY

ENGINE FIRE DURING FLIGHT

Fuel Shut-off Valve.....CLOSED
Cabin Heat.....CLOSED
Airspeed.....73 KIAS
Fuel Pump.....OFF
Emergency Landing.....PERFORM

ELECTRICAL FIRE INCLUDING SMOKE DURING FLIGHT

GEN/BAT Master Switch .....OFF
Cabin Air.....OPEN
Fire Extinguisher....USE IF SMOKE CONTINUES
Avionics Master Switch.....OFF
Electrical Equipment.....OFF
Circuit Breakers.....PULL ALL
Circuit Breaker.....PUSH BATTERY
GEN/BAT Master Switch .....ON BAT ½ ONLY
Circuit Breaker.....PUSH GEN
Circuit Breaker.....PUSH GEN CONTROL
GEN/BAT Master Switch .....ON
Circuit Breaker.....PUSH AVIONICS
Circuit Breaker.....PUSH AVIONICS MASTER
Avionics Master Switch.....ON
Circuit Breaker.....PUSH REQUIRED SYSTEMS
Radio.....ON

LAND AS SOON AS POSSIBLE

CHECK LISTS MARKED WITH THE THICK VERTICAL LINE ON THE LEFT SHOULD BE MEMORAIZED

SP-KWH SP-KWI

ELECTRICAL FIRE INCLUDING SMOKE ON THE GROUND

GEN/BAT Master Switch .....OFF

IF ENGINE RUNNING

Throttle.....IDLE
Mixture.....CUT OFF
Fuel Shut-off Valve.....CLOSED
Magnetos... ..... OFF
Canopy.....OPEN
Fire Extinguisher.....USE IF REQUIRED

CABIN FIRE DURING FLIGHT

GEN/BAT Master Switch .....OFF
Cabin Air.....OPEN
Cabin Heat.....CLOSED
Fire Extinguisher.....USE IF REQUIRED

LAND AS SOON AS POSSIBLE

STARTER RELAY FAILURE

STARTER LIGHT REMAINS ILUMINATED

Throttle.....IDLE
Mixture.....CUT OFF
Magnetos..... OFF

MAINTENANCE ACTION IS REQUIRED

ELECTRICAL POWER FAILURE

Circuit Breaker.....RESET
GEN/BAT Master Switch .....ON

IF POWER NOT RESTORED

GEN/BAT Master Switch .....OFF

LAND AT NEAREST SUITABLE AIRPORT

GENERATOR FAILURE

GENERATOR LIGHT ILLUMINATED

GEN Master Switch.....OFF-ON
Circuit Breaker.....GEN RESET
Circuit Breaker..... GEN CONTROL RESET

IF UNSUCCESSFUL

Electrical load.....REDUCE

LAND AT NEAREST SUITABLE AIRPORT

AIRSPEED FOR SAFE OPERATION

Best Rate-of-Climb Sp (V_Y) CRUISE....75 KIAS
Best Angle-of-Climb Sp (V_X) CRUISE...60 KIAS
Best Rate-of-Climb Speed (V_Y) T/O.....68 KIAS
Best Angle-of-Climb Speed (V_X) T/O....57 KIAS
Max Flaps Extended T/O Sp ($V_{FE\,T/O}$)..100 KIAS
Max Flaps Extended LDG Sp ($V_{FE\,LDG}$)..78 KIAS
Normal Operating Speed (V_{NO}).....118 KIAS
Landing Final App Speed LDG.....55 KIAS
Best Glide Angle Speed.....73 KIAS
Maneuvering Speed (V_A).....106 KIAS
Max Demo Crosswind.....20 KIAS

Manufactured by PUND®

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6 NORMAL PROCEDURES

FLIGHT PREPARATION

WEATHER

Check the meteorological conditions and weather forecast for the time of the planned flight. Make observations at the airport and analyze the area weather report: GAMET, available at: awiacja.imgw.pl.

The weather minimums for you are:
- Visibility 5 km,
- cloud base 1500 ft above ground level,
- distance from clouds: vertical 300 m, horizontal 1500 m
- crosswind component - 10 kts.

Remember

For training other than PPL(A), the weather minimums for the Trained Pilot are subject to change. You can find your current minimums in AIP POLAND/AIP VFR (ENR 1.1 - 1.2)

NOTAM

Check the current NOTAM information and airspace use provided for the planned route and airports by the Crew briefing office or at www.amc.pansa.pl, www.notams.faa.gov or www.ead.eurocontrol.int

PERSONAL EQUIPMENT

When going in for performing operations, you must have:
- Flight Crew License - Pilot Trainee,
- Medical Certificate,
- Logbook - Pilot Trainee,
- Proof of identity - Identity card or passport.
- SOP,
- Checklists for the particular aircraft,
- Aircraft Journey Log,

- Copy of the flight plan - if you submitted one,
- Load and balance sheet - Pilot Trainee
- Flight order - if it will be a solo cross country flight,
- Map - if it will be a cross country flight,
- Navigation flight plan - if it will be a cross country flight,
- Aircraft keys,
- Kneeboard,
- Clean sheet,
- Pen or pencil,
- Stopwatch,
- Headphones,
- Device for fuel sumping,
- Tissues,
- Torch - if night flights will be made,
- Corrective eyeglasses - if you have a VDL restriction in the Aero-Medical Examination, and an extra spare pair,
- Long pants,
- Full shoes,
- Cap,
- Bottle of water,
- Sunglasses,

Remember

Open the canopy:

- after opening the lock with the key - from the pilot's side,
- after opening the windows - (gently push them and slide them back)
- after moving the red levers on both sides of the canopy - inside the cockpit - (carefully put your hand through the window),
- holding the frame of the canopy - the place for the hand is at the front of the canopy on both sides, not on the plexiglass by the window.

AIRCRAFT Documents - Verify that the following are on board the aircraft:

- Certificate of Registration
- Certificate of Airworthiness,
- Radio Permit,
- Noise Certificate,
- Airplane Flight Manual - AFM,
- Weighing protocol,
- Certificate of Aviation Insurance,
- Procedures to follow in the event of interception of the aircraft,
- Visual signals of the intercepted and intercepting aircraft.

Oil - check preferably when the engine is cold. The dipstick is located under the filler cap.

Open the filler, take out the dipstick, clean it with a tissue and reinsert and cap it. Pull out the dipstick again and check the amount of oil - only then is the reading most reliable. The minimum amount of oil is 4 quarts. If it needs to be replenished, pour in the right amount - the bottle is in the baggage compartment. After this operation, wipe off the oil that did not get into the engine thoroughly with tissues.

Fuel - check the amount of fuel in the tank with the fuel gauges (GEN/BAT Master Switch - ON, Fuel Quantity - CHECK, GEN/BAT Master Switch - OFF) and with the wooden dipstick that is in the baggage compartment. We put it through the filler into the tank and read the amount of fuel in the tank on the scale. The general rule is to always have a full tank for flight. Only the instructor in charge of the training may deviate from this rule. After refueling:

- carefully close the filler and lock with the key,
- note the amount of fuel refueled in the Journey log,
- note the amount of fuel refueled in the notebook, which is located on the desk on the right side in the SALT AVIATION Operations Room.

Sumping - always perform fuel sumping after refueling or during EXTERIOR INSPECTION CHECKLIST. This is to check for water or other impurities in the fuel. You will find the vessel for this purpose on the desk on the left at the entrance to the semicircular hangar. After performing sumping, leave the vessel with the fuel sample on the same desk.

In the case of another airfields, discard this fuel in the least environmentally damaging way possible.

Remember
Oil, fuel and sumping activities must always be performed in the presence of an Instructor, unless you are a Pilot Trainee

PRE-FLIGHT INSPECTION

Remember
For training other than PPL(A), PREFLIGHT CHECKLIST and EXTERIOR INSPECTION CHECKLIST may be performed by the Pilot Trainee, without the presence of the Instructor.

Before starting aircraft inspection activities, it is necessary to inspect the cockpit and prepare the working area for ourselves accordingly. First, before entering the cockpit, we plug in our headphones and loosen the seat belts. Don't put aircraft keys in your pocket, hang them on one of the knobs on the instrument panel, such as on the altimeter or gyro compass. We check that all items are secured, especially those in the baggage compartment. Ensure that the baggage compartment net is properly fastened. Put all personal belongings in such a place that they do not interfere with taking your seat in the cockpit or constrain you during the flight. Next, we perform the PREFLIGHT CHECKLIST. Don't forget to adjust the setting of the rudder pedals.

Remember
The aircraft is moved by using a guide-bar, never by pulling or pushing by the propeller.

Perform an inspection of the cockpit using the "PREFLIGHT CHECKLIST":

PREFLIGHT

1. Aircraft Documents ..... ON BOARD
2. Fire Extinguisher.....CHARGED & SECURE
3. Structural Temperature Indicator.....CHECK
4. Tie Downs ..... REMOVED/ON-BOARD
5. Flight Control Lock ..... REMOVE
6. Rudder Pedals.....ADJUSTED & LOCKED
7. Parking brake ..... ON
8. Magnetos ..... OFF
9. Avionics Master Switch & Electrics..... OFF
10. GEN/BAT Master Switch ..... ON
11. Fuel Quantity .....CHECK
12. Flaps..... LDG
13. Warning Lights ..... ON
14. GEN/BAT Master Switch ..... OFF

SALT AVIATION recommends checking the Structural Temperature Indicator, each time a PREFLIGHT CHECKLIST is performed.
Perform an inspection of the aircraft using the "EXTERIOR INSPECTION CHECKLIST:"

EXTERIOR INSPECTION

LEFT WING

1. Left Main Landing Gear.....CHECK
2. Stall Warning .....CHECK
3. Pitot-Static Probe..... CLEAN, HOLES-OPEN
4. Lights .....VISUAL CHECK
5. Aleiron, Wing Flap.....VISUAL CHECK

FUSELAGE

1. Fuel Tank Vent.....CHECK

2. Fuel Drains.....DRAIN WATER
3. Maintenance Fuel Drains.....NO LEAKS
4. Fuel Quantity..... VISUAL INSPECTION
5. Antennas..... VISUAL INSPECTION

TAIL

1. Stabilizers and Control Surfaces.....CHECK

RIGHT WING

1. Aleiron, Wing Flap.....VISUAL CHECK
2. Lights .....VISUAL CHECK
3. Right Main Landing Gear.....CHECK

NOSE

1. Oil ..... CHECK LEVEL (6-4 QUARTS)
2. Cowling..... VISUAL INSPECTION
3. Air Intakes..... CLEAR
4. Propeller..... CLEARANCE MIN 25 CM
5. Propeller Blades .....CHECK
5. Spinner ..... VISUAL INSPECTION
6. Nose Gear.....CHECK

Remember

During the EXTERIOR INSPECTION CHECKLIST, in addition to the general condition, you are checking for: cracks, surface contamination, discoloration, delamination, excessive plays, the overall condition of the airframe, the ease of deflection of the control surfaces.

We record completion of the pre-flight inspection with an entry in the Journey Log (PFI field). During training flights, the entry is made by the Instructor, and in any other case by the aircraft commander.

STARTING THE ENGINE

Remember
Before taking a seat in the cockpit, check that there is no guide-rod on the front wheel.

Remember
Do not put any objects on top of the instrument panel.

Remember
To take a seat in the cockpit, you must:

- open the canopy,
- stand facing to the aircraft,
- grasp the grip behind the instrument panel with your left hand,
- put your left foot on the step,
- put your right foot over the side and rest it on the floor,
- for support, rest your right hand behind the seat back - near the headphone jack sockets,
- lower yourself onto the seat.

Do not lean on the top of the instrument panel!!!!!

After taking a seat in the cockpit and before starting the engine, check that:

- all loose items are secured,
- full movement of the rudder as well as use the brakes are possible,
- all buttons, knobs, etc. are accessible,
- seatbelts are fastened,

Before starting the engine, perform "BEFORE STARTING ENGINE CHECKLIST":

BEFORE STARTING ENGINE

1. Parking Brake ..... ON
2. Brake Pressure ..... CHECK
3. Baggage ..... STOWED & SECURED
4. Seatbelts ..... FASTENED & ADJUSTED
5. Flight Controls ..... FREE & CORRECT
6. Canopy ..... CLOSED & SECURE
7. Circuit Breakers ..... CHECK
8. Fuel Shut-off Valve ……. ON (PUSH IN & LOCK)
9. Throttle ..... FREE/IDLE
10. Throttle Friction ..... CHECK
11. Alternate Air ..... OFF
12. GEN/BAT Master Switch ..... ON
13. Avionics Master Switch ..... ON
14. ATIS/ATC Clearance ..... RECEIVED
15. Altimeters ..... SET QNH
16. Avionics Master Switch & Radio ..... OFF
17. Generator Warning Light ..... ILUMINATE
18. Canopy Warn Light ..... OFF(PRESS/CHECK)

Remember

Before starting the engine, the canopy must be closed and secured - red levers moved forward to the limit.
After starting the engine, the canopy must be closed until the engine is shut down.

It is forbidden to disembark or embark the aircraft while the engine is running.

Before starting the engine, make sure that there are no obstacles or people near the aircraft whose presence could compromise safety. Therefore, the command **“PROPELLER CLEAR”** should be called out loudly.

Remember
At EPMO airport, we can only run the engine on the GA4 apron, which is located between the semicircular hangar and taxiway A1.

If we are ready to start the engine then at EPMO and other controlled airports, we must:

- Avionics Master Switch – ON, COM – ON, write down departure information from appropriate ATC service or ATIS (at EPMO 136,555 MHz).
- establish communication with the appropriate ATC unit, in case of EPMO it is MODLIN DELIVERY (119.680 MHz) and ask for CLEARANCE FOR FLIGHT. Write down ATC Clearance on your kneeboard and reed it back to the controller.
- Get START-UP CLEARANCE at TOWER (at EPMO 123,930 MHz), then COM - OFF, Avionics Master Switch - OFF.
- perform "ENGINE START CHECKLIST"

Remember
Before performing ENGINE START CHECKLIST, place the key in the ignition and check that it definitely fits.

Remember
Startup must be performed with turned off COM and NAV equipment (AVIONIC MASTER OFF) and other electrical devices powered directly from the battery, except for the "STROBO" lights.

Remember

DO NOT turn the key back to the START position while the propeller is still rotating. Such action can lead to serious damage to the engine!

ENGINE START

1. Strobe/Position Lights ..... ON
2. Throttle.....IDLE
3. Mixture..... FULL RICH
4. Brakes ..... HOLD
5. Fuel Pump ..... ON
6. Fuel Prime ..... ON
7. Throttle ….. FULL (3-7 SEC) THEN IDLE ¼ INCH
8. Propeller Area ..... CLEAR
9. Starter.....ENGAGE (MAX 10 SEC)
10. Throttle..... 800 - 1000 RPM
11. Oil Pressure.....CHECK
12. Fuel Prime..... OFF
13. Avionics Master Switch ..... ON
14. Engine instruments.....CHECK

Remember

The maximum operating time for the starter is only 30 seconds, then take a break for 3 to 5 minutes.

The maximum waiting time to reach the correct oil pressure is about 30 seconds in air temperature above zero and 1 minute in winter conditions. If there is no indication of oil pressure, shut down the engine and report the fault to a mechanic.

If performing ENGINE START CHECKLIST has led to flooding of the engine (this is usually indicated by fuel leakage under the aircraft) or when the engine is still hot after the previous operation, in order to start the engine, you need to perform "FLOODED/WARM ENGINE START CHECKLIST":

FLOODED START

1. Strobe/Position Lights ..... ON
2. Mixture..... FULL RICH
3. Brakes ..... HOLD
4. Fuel Pump ..... OFF
5. Fuel Prime ..... OFF
6. Throttle..... HALF OPEN
7. Propeller Area ..... CLEAR
8. Starter.....ENGAGE
9. Throttle..... ADJUST 1000 RPM
10. Oil Pressure.....CHECK
15. Avionics Master Switch ..... ON
16. Engine instruments.....CHECK

After starting the engine, we perform "AFTER STARTING ENGINE CHECKLIST":

AFTER STARTING ENGINE

1. Cabin Heat and Defrost ..... AS REQUIRED
2. Flaps.....CHECK/ CRUISE
3. Avionics Master Switch ..... ON
4. Transponder..... STBY
5. Radios/NAV/GPS.....SET
7. Fuel Pump ..... ON
8. Fuel Pressure ..... CHECK > 3.5 PSI
9. Engine Instruments.....CHECK
10. Trim Indicator ..... NEUTRAL
11. Taxi Clearance ..... RECEIVED

Remember

On COM 2, set the frequency to 121.5 and monitor it throughout the flight.

Remember

Remember to write down and read back the full instructions for taxi (TAXI INSTRUCTION)

TAXI

If you are ready to taxi, perform the "TAXI CHECKLIST":

TAXI
1. Parking Brake/Taxi light ..... OFF/ON
2. Brakes/Flight Instruments.....CHECK

The first action after the aircraft is put into motion is to check the braking system. If flying with an instructor on board, the pilot should order a check of the brakes on the instructor's side with the command **"CHECK YOUR BRAKES"**. During taxi, when changing direction, check the correct indications of: artificial horizon, turn coordinator, gyro and compass.
When passing through intersecting taxiways, it is required to pay attention to possible traffic on these ways and confirm the clear taxiway by the commands **"LEFT CLEAR"**, **"RIGHT CLEAR"**.
When taxi on grass aerodromes without designated taxiways, pay special attention to the condition of the aerodrome surface in front of the aircraft to avoid potentially dangerous areas.

Remember

Once you have started movement of the aircraft, reverse the throttle lever and keep it in the "IDLE" position at all times, unless you are moving on soft ground and the aircraft stops.

Don't keep your feet directly on the brakes.

Autor: Dominik Punda

At aerodromes with grass surface, it is not recommended to use the TAXI light, especially in daytime conditions, as this shortens its lifetime significantly.
At night and at controlled airports TAXI lights must be used.
If you stop during taxi, remember to turn off the TAXI light, because for everyone around you, this will be a sign that the aircraft has stopped and is waiting.

Remember
On grass surfaces, always taxi with the elevator up as high as possible (stick pulled aft). When taxi on slippery surfaces and with crosswinds, the elevator is in neutral position.

ENGINE TEST
We perform it:
- only when the engine has reached the right parameters
- before taxi, if you are in a convenient location,
- at the latest, at the HOLDING POINT short of the runway.

Remember
We never perform RUN UP POSITION CHECKLIST while the aircraft is in motion.

If we are ready to test the engine then we perform the "RUN UP POSITION CHECKLIST":

RUN UP POSITION
1. Parking Brake/Taxi light ..... ON/OFF
2. Mixture..... FULL RICH
3. Throttle.....1700 RPM
4. Oil Temp .....……..ABOVE 100ºF
5. Oil Pressure ..... …….BELOW 70 PSI)
6. Alternator Load (Ammeter).....CHECK
7. Mixture Lean Function .....CHECK
8. Magnetos.....CHECK (DROP 150 DIFF±50)
9. Alternate Air .....ON/OFF (NO RPM DROP)
10. Engine instruments..... CHECK
11. Warning Lights ..... NO ILUMINATE
12. Throttle.....MAX/IDLE THEN 1000 PRM
13. Take-Off Briefing.....COMPLETED

PREPARING FOR TAKE-OFF (TAKE-OFF BRIEFING)

TAKE-OFF BRIEFING should be performed before each flight or series of flights. Arrangements for take-off can be omitted when making consecutive flights interrupted by short stops from the same airport in the absence of weather changes. It is initiated and recited by the Student in training flights and in others by the Commander (PIC) of the aircraft, depending on the situation:

- after starting the engine - if you have ATC CLEARANCE,
- at the holding point before the "RUN UP POSITION CHECKLIST."
- at the holding point, at the latest, before the "LINE-UP CHECKLIST".

Remember

We never perform TAKE-OFF BRIEFING while the aircraft is in motion.

The TAKE-OFF BRIEFING should include information about:

1	The runway in use	Startuję z pasa ….	Departure from RWY ….
2	Take-off method	z pełnego zatrzymania, bez zatrzymania	Full stop, Rolling take-off
3	Aircraft configuration and speeds	klapy do startu, klapy zero prędkość rotacji, prędkość na wznoszeniu	Flaps t/o, Flaps up rotate speed, climb speed
4	What you do in the event of a failure before VR	ściągam moc i maksymalnie hamuję	Power idle and maximum braking
5	What you do in the event of failure after VR	do wysokości 400 stóp AAL (… MSL), ląduje na wprost z odchyleniem w celu uniknięcia przeszkód, powyżej 400 stóp AAL (… AMSL) zawracam do lotniska ląduję na pasie przeciwnym lub innym bezpiecznym miejscu	To 400 ft AAL (… MSL), landing straight ahead with avoiding obstacles, above 400 ft AAL (… AMSL), turn 180° and landing on the opposite RWY or another safety place
6	Departure instructions received from ATC	Po starcie (w lewo, w prawo, na punkt …)	After departure turn (left, right, to …. point)
7	The height to which you are climbing	Wznoszenie do ….. ft AMSL	Climbing …… ft AMSL

PRE-TAKEOFF PROCEDURES

After obtaining clearance to enter the runway, but before doing it, make sure that the approach sector is free. If the space is free, the call-out **"APPROACH SECTOR FREE"** and **"RUNWAY IDENTIFIED"** is required. Also check that both ventilation windows have been closed before take-off.

At the holding point, before reporting “READY FOR DEPARTURE”, we perform the "BEFORE LINE UP CHECKLIST":

BEFORE LINE UP

1. Trim Indicator ..... NEUTRAL
2. Magnetos……BOTH
3. Fuel Pump ..... ON
4. Flaps.....T/O
5. Mixture..... FULL RICH

After receiving clearance to line-up the runway, we perform the "LINE UP CHECKLIST":

LINE UP

1. Parking Brake/Taxi/Landing Lights ..... OFF/ON
2. Transponder..... ALT
3. Gyro……RWY HEADING

On the runway, check that its direction is consistent with the indications of the magnetic compass - gyrocompass, and that the engine instruments are in the green range.

TAKEOFF AND CLIMB

Remember

Control the throttle with your right hand at all times during takeoff.

Once you have been cleared for takeoff (TAKE-OFF CLEARANCE):

- turn on the stopwatch,
- check whether the aircraft is on the centerline of the runway, choose a characteristic object located in the axis of takeoff as far away from you as possible, look at what is above this point (for example, clouds), this will help you maintain the set track line
- check the direction and velocity of the wind, and in the case of a crosswind, set the aileron upwind in proportion to the velocity of the wind and the speed of the aircraft (the higher the speed, the lower the deflection),

- set the take-off power, check the parameters and confirm - **"T/O POWER SET"** - RPM of about 2000,
- release the brakes, confirming - **"BRAKES RELEASED"**,
- check and confirm the indications on the airspeed indicator - **"SPEED RISING"**,
- maintain direction with the rudder, use the brakes only as a last resort (the plane will tend to turn left, so use the right foot),
- at VR - 44 KIAS - **"ROTATE"**, - with a gentle impulse, raise the front wheel by 5 - 10 cm and stop the aircraft in this configuration,
- liftoff will occur automatically
- accelerate the aircraft and maintain VX T/O + 1 kt - 58 KIAS,
- up to this point, the "TAKE-OFF CHECKLIST" will be helpful - (MEMORY ITEM):

– TAKE-OFF

1. Take-off power.....SET
2. RPM..... MIN 2000
3. Engine Gauges.....CHECK
4. Rotation.....44 KIAS
5. Climb speed.....58 KIAS

- above 300 ft AAL, accelerate the aircraft to VY CRUISE - 75 KIAS and perform "CLIMB CHECKLIST" - (MEMORY ITEM):

CLIMB

1. Throttle.....FULL
2. Flaps.....UP
3. Landing/Taxi Light..... OFF

- find on the ground a characteristic point located in the axis of the runway, draw a straight line to it, and make corrections according to this line,
- control the engine temperature, if it is too high, increase the flight speed.

At 500 ft AAL:

- check the sector of space towards which you will make the first turn,

- find a landmark on the ground where you are to complete the turn,
- lower the nose by 1 - 2° (a speed increase of about 5 KIAS),
- make a turn and try not to exceed the bank angle - 20°,
- watch the ball,
- after the turn, when the wings are horizontal, raise the nose by 1-2° - maintain speed - VY CRUISE - 75 KIAS,
- check how you move in relation to the runway from which you took off, look outside as well as at the gyrocompass - you are supposed to be moving perpendicularly from the runway,
- find a distinctive point on the ground located on the track line over which you want to move, and make adjustments according to it,
- control the engine temperature, if it is too high, increase the flight speed,
- climb to a pattern altitude of 1,000 ft AAL,
- after reaching the altitude of the pattern, confirm the altitude, for example:
- **"ONE THOUSAND FEET - LEVEL-OFF"**, lower the nose to the horizon and stop climbing,
- reduce RPM to 2200
- trim the plane,

Remember
If you are making traffic patterns, then:
- set RPM to 2000,
- do not perform CRUISE CHECKLIST,
- do not lean the mixture,

PROCEDURES DURING CROSS COUNTRY FLIGHT

After exiting the pattern and reaching cruising altitude, perform the "CRUISE CHECKLIST":

CRUISE
1. Cruise Power……...SET
2. Fuel Pump ..... OFF
3. Altimeters……..SET/CROSS CHECKED
4. Mixture..... ADJUST

For cross-country flight, you should refer to the Flight Manual (AFM) of the aircraft you are flying - Chapter 5 - to select the appropriate cruise power setting.

Remember

SALT AVIATION recommends flying cross-country with power setting of 2000 RPM

After reaching cruising altitude after takeoff, after changing altitude during flight, after flying over a navigation point or every 30 min of flight, whichever comes first:

- perform "CRUISE CHECKLIST",
- check the amount of fuel and record it in the navigation flight plan,
- check if the engine parameters are within normal operating ranges,
- check the accuracy and, if necessary, correct the indications of the gyrocompass relative to the magnetic compass. This check can be done only after stabilizing horizontal flight at a constant speed, so as to avoid errors in magnetic compass readings.

TRANSITION FROM LEVEL FLIGHT TO DESCENT

DESCENT

1. Mixture.....FULL RICH
2. Fuel Pump ..... ON
3. Throttle ..... AS REQUIRED

Start the descent: lower the nose below the horizon,

- be careful not to overcool the engine - do not use the minimum IDLE setting.
- control your speed - try to make sure your speed does not enter the yellow field of the airspeed indicator - 118 KIAS,

When you reach cruising altitude, set the engine RPM, trim the aircraft and perform the "CRUISE CHECKLIST."

CRUISE

1. Cruise Power……...SET
2. Fuel Pump ..... OFF
3. Altimeters……..SET/CROSS CHECKED
4. Mixture..... ADJUST

TRANSITION FROM LEVEL FLIGHT TO CLIMB

Before climbing en-route:

- enrich the mixture,
- increase rpm to maximum,
- raise the nose,
- maintain a speed of 75 KIAS

Once the set altitude is reached:

- lower the nose for horizontal flight
- perform "CRUISE CHECKLIST:

CRUISE

5. Cruise Power……..SET
6. Fuel Pump ..... OFF
7. Altimeters……..SET/CROSS CHECKED
8. Mixture..... ADJUST

PROCEDURES WHEN FLYING IN A TRAFFIC PATTERN

- Check the sector of space towards which you will make the second turn,
- find a landmark on the ground where you are to complete the turn,
- make a turn and try not to exceed the bank angle of - 20°,
- watch the ball,

Remember

If by the second turn, you have not reached the height of the pattern, follow the procedures as for the first turn.

- check how you are moving in relation to the runway from which you took off, look outside as well as at the gyrocompass - you are supposed to be moving parallelly to the runway,
- find a distinctive point on the ground located on the track line over which you want to move, and make adjustments according to it,
- abeam of the point where you intend to touch down (at EPMO airport, the threshold of the runway, at uncontrolled aerodromes, if there are no other restrictions, abeam of the touch-down marking), report the downwind position, e.g. **"MODLIN TWR SP-... LEFT HAND DOWNWIND RUNWAY 26"**.
- after receiving instructions, e.g.: continue, wait over INDIA point, extend downwind leg, etc.
- repeat the instructions you received and follow them,
- maintain the altitude of the pattern until the end of the downwind leg,

Remember

Build the airfield traffic pattern in such a way that, in case of engine failure, it is possible to land at the airfield or another safe place.

APPROACH FOR LANDING

- start the third turn at the point where the flight path intersects the straight line derived from the touchdown point at an angle of 45° to the runway axis,
- check the sector of space towards which you will make the third turn,
- find a landmark on the ground where you are to complete the turn,
- make a turn and try not to exceed the bank angle of - 20°,
- watch the ball,
- after the turn, when the wings are horizontal, lower the nose, reduce rpm, check the speed if it is below 100 KIAS: **"SPEED CHECK - FLAPS T/O"** and set the flaps to the T/O position,
- turn on the TAXI and LANDING light,
- check how you are moving in relation to the runway from which you took off, look outside as well as at the gyrocompass - you are supposed to be moving perpendicularly to the runway,
- if you are too far from and too low with respect to the runway, then make a course correction towards it, it should not be more than 30°,
- find a distinctive point on the ground located on the line over which you want to move, and make adjustments according to it,
- start the descent,

Remember

Build the traffic pattern in such a way that, in case of engine failure, it is possible to land at the airfield or another safe place.

- do not accelerate the aircraft - do not exceed the speed of 100 KIAS,
- plan the descent so that final turn is made at an altitude of at least 500 ft AAL - remember that you adjust the descent with the power setting,

Remember
The standard landing is with flaps LDG.

- check the sector of space towards which you will make the fourth turn,
- if you are at an altitude close to 500 ft AAL, level off to horizontal flight - raise the nose to the horizon and gently add power,
- if you are at an altitude above 500 ft AAL, perform fourth turn on descent,
- draw yourself a line on the ground that will be an extension of the runway centerline,
- make the turn and try not to exceed the bank angle of - 20°, plan it so as to enter the designated line earlier, which is an extension of the runway's axis,
- watch the ball,
- after the turn, when the wings are horizontal, reduce rpm, check the speed if it is below 78 KIAS: **"SPEED CHECK - FLAPS LDG"** and set the flaps to the LDG position,
- lower the nose below the horizon, maintain speed - 65 KIAS,
- aim the nose at the threshold of the runway or just before it,
- if there are gusts of wind, increase the approach speed to no more than 70 KIAS,

Remember
Student Pilots are to maintain a speed of 65 KIAS on final approach. Trainee Pilots may maintain a lower speed of no less than 55 KIAS with flaps in the LDG position on final.

- determine the method of landing: crab or side slip, and using this method, keep the aircraft on the extension of the runway centerline,
- report position and intentions, e.g., full stop landing, touch-and-go, low pass: **"SP-... FINAL 26, FULL STOP LANDING,TOUCH AND GO, LOW PASS"**

- perform "FINAL CHECKLIST" - (MEMORY ITEM):

FINAL
1. Mixture ..... FULL RICH 2. Flaps ..... LDG 3. Fuel Pump ..... ON 4. Landing/Taxi Light ..... ON 5. Approach Speed ..... 65 KIAS

- adjust the speed by pitch, and the descent rate by power,
-

LANDING

- level off, start at 3 - 5 meters above the ground, aim with the nose so that you are above the threshold,
- pull back the throttle,
- move your sight to the left by 10-15° from the landing axis, about 30-40 m forward, and let it slip on the surface,
- the airplane will begin to descend, and you will slowly pull the stick aft,
- adjust the speed of pulling the stick to the speed of descent. The faster you are descending, the faster you pull the stick,
- with the right landing configuration, you should not be able to see anything forward, as the engine cowling will obscure the entire view,
- the touchdown should be made on the main wheels,
- maintain direction using the rudder,
- gently place the front wheel on the runway,

Remember
Until touchdown, your feet should not touch the brakes.

– put your feet on the brakes,
– brake as needed - long applications,
– make turns below 10 kts,

- passing the HOLDING POINT, report that the runway has been vacated - **"RUNWAY VACATED"** ,
- perform "RUNWAY VACATED CHECKLIST."

RUNWAY VACATED
1. Landing Light ..... OFF
2. Flaps ..... CRUISE
3. Transponder ..... STBY

TOUCH-AND-GO

Landing with the Touch-and-Go procedure is most often performed with a series of flights (patterns) in order to reduce taxi time and occupation of the runway for takeoff.

The most important thing is to make sure that the length of the runway is sufficient for a safe landing and immediate takeoff. If there is any doubt, abandon the take off and stop. The takeoff procedure in touch-and-go includes, after touchdown and contact between the front wheel and the runway surface, retracting the flaps to the T/O position and then full opening the throttle. This movement should be done as calmly and fluently as possible, so as not to cause the engine, which is cooled down after the approach, to stop. When performing the above procedure, we do not perform radio correspondence and our attention is focused on piloting the aircraft.

We follow all the procedures described earlier.

LOWPASS OVER THE RUNWAY

During some training flights, a lowpass procedure over the runway is applicable. It is recommended to perform a lowpass in a clean configuration (flaps retracted). This protects the aircraft from exceeding the speed limit with the flaps deflected and ensures maximum climbing performance after lowpass. When performing a lowpass, maintain an altitude that will keep the aircraft from colliding with the runway or obstacles due to pilot error, gusts or wake turbulence.

FAILED LANDING APPROACH (GO-AROUND)

The decision to perform a go-around should be made in case of any doubt about performing a safe landing. Once you have made such a decision, do not change it, as it can have tragic consequences.

If you decide to perform a go-around procedure, you should:

- smoothly but firmly set the takeoff power with the simultaneous start of climb, (abrupt opening of the throttle can lead to stop of the engine which was cooled after the approach),
- if the approach was made on LDG flaps, set them to the T/O position,
- check with "GO AROUND CHECKLIST" (MEMORY ITEM):

GO AROUND

4. Throttle.....FULL POWER
5. Flaps.....T/O
6. Airspeed.....58 KIAS

- above 300 ft AAL perform "CLIMB CHECKLIST" (MEMORY ITEM):

CLIMB

1. Throttle .....FULL
2. Flaps……CRUISE
3. Landing/Taxi Light ..... OFF

- accelerate the aircraft to VY CRUISE - 75 KIAS,

Once you have taken all the necessary steps to ensure the safe continuation of your flight, inform ATC of your decision and intentions.

TAXI AFTER LANDING

When passing through intersecting taxiways, it is required to pay attention to possible traffic on these ways and confirm the clear taxiway by the commands **"LEFT CLEAR", "RIGHT CLEAR"**.
When taxi on grass aerodromes without designated taxiways, pay special attention to the condition of the aerodrome surface in front of the aircraft to avoid potentially dangerous areas.

Remember

Once you have started movement of the aircraft, reverse the throttle handles and keep them in the "IDLE" position at all times, unless you are moving on soft ground and the aircraft stops on its own.

Don't keep your feet directly on the brakes.

At aerodromes with grass surface, it is not recommended to use the TAXI light, especially in daytime conditions, as this shortens its life significantly.
It is essential to use TAXI lights at night and at controlled airports.
If you stop during taxiing, remember to turn off the TAXI light, because for everyone around you, this will be a sign that the aircraft has stopped and is waiting.

Remember

On grass surface, always taxi with the elevator tilted as high as possible (stick pulled aft). When taxi on slippery surfaces and with crosswinds, the elevator is in neutral position.

After vacating the runway, perform the RUNWAY VACATED CHECKLIST:

RUNWAY VACATED
1. Landing Light ..... OFF
2. Flaps ..... CRUISE
3. Transponder ..... STBY

AT THE STAND

After stopping the aircraft at the stand, perform the "SHUT DOWN POSITION CHECKLIST":

SHUT DOWN POSITION
1. Parking Brake/Taxi light ..... ON/OFF
2. Electrics & Avionics ..... OFF
3. Avionics Master Switch ..... OFF
4. Throttle ..... IDLE
5. Fuel Pump ..... OFF
6. Engine ..... COOLING
7. Mixture ..... CUT OFF
8. Strobe/Position Lights ..... OFF
9. Magnetos ..... OFF
10. GEN/BAT Master Switch ..... OFF
11. Tie Downs ..... AS REQUIRED

DISEMBARKING THE AIRCRAFT

After the flight, the pilot may leave the aircraft cockpit only after all the engine shutdown activities have been completed "SHUT DOWN POSITION CHECKLIST".

After removing the keys from the ignition, do not put them in your pocket, hang them on one of the instrument panel knobs, such as of the altimeter or gyrocompass.

Remember

In order to exit the cockpit, you should:

- open the canopy,
- raise from the seat - help yourself by resting your right hand behind the seat back - near the headphone jack sockets,
- grasp the handle behind the instrument panel with your left hand,
- stand up in the cockpit,
- put your left foot over the side and stand on the step,
- put your right leg over the side and stand on the ground.

Do not lean on the top of the instrument panel!!!!!

Take all your belongings out of the cockpit and clean it up. Leave it in the condition you would like to find it in.
Write down the engine-hours, check the fuel consumption and fill out the journey log. In the case of an extended stop at an aerodrome other than Modlin, or where the aircraft will not be in hangar, lock the center stick, put a cover over the Pitot tube and stall sensor, and anchor it to the ground under the wings and in the tail section.

Remember

The aircraft is moved by using a guide-rod, never by pulling or pushing the propeller.

7 EMERGENCY PROCEDURES

Emergency situation - is a serious unexpected and often dangerous situation that requires immediate action.
In aviation, such a situation threatens the safety of the aircraft or people on board or on the ground. In case of an emergency situation, it is not possible to continue the flight using Normal Procedures

Emergency Procedure - this is a plan to carry out the appropriate actions in the right order to respond to an emergency situation.

Remember
In the event of any emergency situation - KEEP CALM!!!

Remember
In case of an emergency situation:
Fly - fly the plane,
Navigate - determine where you are and where you are going
Communicate - inform ATC

ENGINE FAILURE DURING TAKEOFF

Remember
In case of engine failure, apply the PPA rule
POWER
PERFORMANCE
ACTION

If there are any signs of aircraft malfunction before liftoff - (VR - 44 KIAS), immediately close engine power to the minimum (IDLE) and abort the takeoff. Immediately use the brakes in such a way as to keep the wheels on the ground.
Engine failure or any failure during the takeoff run before reaching VR:

- Abort takeoff,
- P - close the throttle
- P - maintain the centerline of the runway
- A - brake using the total useful runway length.
- in the case where the remaining available runway length is insufficient, avoid obstacles and perform ENGINE FAILURE DURING TAKE-OFF RUN CHECKLIST (MEMORY ITEM):

ENGINE FAILURE DURING TAKE-OFF RUN

1. Throttle.....IDLE
2. Brakes ..... AS REQUIRED
3. Flaps..... CRUISE
4. Mixture..... CUT OFF
5. Magnetos..... OFF
6. GEN/BAT Master Switch..... OFF

Some parameters decisive for takeoff abort:
- power drop,
- uneven engine operation,
- smoke from under the cowling,
- smoke in the cockpit,
- faulty airspeed indicator,
- insufficient acceleration that does not ensure lift off before the end of the runway.

Remember

Execute the decision once made.

CHANGING THE DECISION TO ABORT THE TAKEOFF, ONCE MADE, USUALLY HAS TRAGIC CONSEQUENCES

ENGINE FAILURE AFTER LIFTOFF

If, after liftoff, there is insufficient engine power then:
- P - open the throttle,
- P - Maintain a speed of 60 KIAS - nose down,
- A - check the mixture, alternate air, fuel cut-off valve, magnetos, turn on the pump,
- if there is no improvement in engine performance and you are below 400 ft AAL - land straight ahead with deviation to avoid obstacles,
- if there is no improvement in engine performance and you are above 400 ft AAL, turn back to the aerodrome (turn upwind and land on the opposite runway or other safe place)
- perform ENGINE FAILURE AFTER TAKE-OFF CHECKLIST (MEMORY ITEM):

FAILURE AFTER TAKE-OFF

INSUFFICIENT ENGINE POWER

1. Airspeed ..... 60 KIAS
2. Throttle ..... FULL
3. Mixture ..... FULL RICH
4. Alternate Air ..... OPEN
5. Fuel Shut-off Valve ..... OPEN
6. Magnetos ..... BOTH
7. Fuel Pump ..... ON

SHORTLY BEFORE LANDING

1. Mixture ..... CUT OFF
2. Fuel Shut-off Valve ..... CLOSED
3. Magnetos ..... OFF
4. Flaps ..... AS REQUIRED
5. GEN/BAT Master Switch ..... OFF

– Say your intentions to ATC, use briefing NITS.

Remember
Execute the decision once made.

CHANGING A DECISION TO CONTINUE TAKEOFF, ONCE MADE, USUALLY HAS TRAGIC CONSEQUENCES

Remember
In case of an emergency situation, declare it to ATC (MAYDAY MAYDAY MAYDAY or PAN PAN PAN PAN PAN PAN) and use briefing NITS
NATURE
INTENSION
TIMING
SPECIALS

ENGINE FAILURE IN FLIGHT

Most often, the aircraft engine warns that something is wrong and that it may soon refuse to cooperate. Try to react as quickly as possible to signals such as:

- uneven engine operation,
- increase in cylinder temperature,
- increase in oil temperature,
- oil pressure drop.

If there are problems with parameters such as temperatures or pressures, use a double check, often indicators fail!!! If, for example, the oil pressure dropped to zero and the oil temperature did not rise, and the engine is running smoothly, the oil pressure indicator is most likely to blame.

Whenever you have signs of engine problems, or have experienced a failure, perform "ENGINE FAILURE DURING FLIGHT":

ENGINE FAILURE DURING FLIGHT

ENGINE RUNNING ROUGHLY

Mixture ..... FULL RICH
Alternate Air ..... OPEN
Fuel Shut-off Valve ..... OPEN
Fuel Pump. ..... ON
Magnetos ..... L-BOTH-R-BOTH
Throttle ..... PRESENT POSITION
No improvement ..... THROTTLE IDLE/LAND ASAP

If you still don't have enough engine power to fly, prepare for an emergency landing.

Remember

Do not start the engine when the cause of failure was a drop in oil pressure or engine fire

STARTING THE ENGINE IN FLIGHT

In the case where an engine failure has happened to you at an altitude high enough that you still have altitude after ENGINE FAILURE DURING FLIGHT CHECKLIST, you can try to start the engine. In this situation, the propeller may or may not be windmilling.
If the propeller is windmilling, perform RESTARTING THE ENGINE WITH PROPELLER WINDMILLING:

RESTARTING THE ENGINE WITH PROPELLER WINDMILLING

1. Airspeed ..... 73 KIAS
2. Mixture ..... FULL RICH
3. Fuel Shut-off Valve ..... OPEN
4. Magnetos ..... BOTH
5. Fuel Pump ..... ON
6. Fuel Prime ..... ON
7. Throttle ..... 3/4 INCH FORWARD

AFTER SUCCESSFUL RE-START

1. Oil Pressure ..... CHECK
2. Oil Temp ..... CHECK
3. Fuel Prime ..... OFF
4. Electrically Equipment ..... ON IF REQUIRED

When the propeller is not windmilling, perform RESTARTING THE ENGINE WITH PROPELLER AT FULL STOP:

RESTARTING THE ENGINE WITH PROPELLER AT FULL STOP

1. Airspeed ..... 73 KIAS
2. Electrically Equipment ..... OFF
3. GEN/BAT Master Switch ..... ON
4. Mixture ..... FULL RICH
5. Fuel Shut-off Valve ..... OPEN
6. Fuel Pump ..... ON
7. Fuel Prime ..... ON
8. Throttle ..... 3/4 INCH FORWARD
9. Magnetos ..... START

AFTER SUCCESSFUL RESTART

1. Oil Pressure ..... CHECK

2. Oil Temp .....CHECK
3. Fuel Prime ..... OFF
4. Electrically Equipment ..... ON IF REQUIRED

When the propeller is not windmilling, you can spin it up by accelerating the aircraft. In this case, accelerate the aircraft to 137 KIAS - in this situation you will lose an additional around 1000 ft.

GLIDING AND EMERGENCY LANDING

In case the engine stops running and you cannot restart it, or due to the situation, it is pointless to do so, e.g. mechanical damage, lack of fuel, etc., perform the GLIDING CHECKLIST:

GLIDING

1. Flaps..... CRUISE
2. Airspeed .....73 KIAS
3. Glide ratio 11:1
4.

The speed of 73 KIAS during gliding is determined for the maximum takeoff weight - 800 kg. In this case, L/D is 11, and under these conditions, for every 1000 ft of altitude, you will fly 1.8 NM or 3.4 km. Once you have established the gliding conditions, select the field for landing and run the EMERGENCY LANDING CHECKLIST:

EMERGENCY LANDING

INSUFFICIENT ENGINE POWER

1. Airspeed (Flaps CRUISE) .....64 KIAS
2. Airspeed (Flaps T/O).....60 KIAS
3. Airspeed (Flaps LDG) .....55 KIAS
4. Fuel Shut-off Valve ..... CLOSED
5. Mixture..... IDLE CUT-OFF
6. Magnetos..... OFF
7. Safety Belts ..... SECURED
8. Radio ..... TRANSMIT
9. Flaps..... AS REQUIRED
10. GEN/BAT Master Switch ..... OFF

Report by radio on the last frequency you used, on which you had contact with anyone, and if this is impossible then transmit on 121.500 MHz.

Remember

In case of an emergency situation, declare it to ATC (MAYDAY MAYDAY MAYDAY or PAN PAN PAN PAN PAN PAN) and use the NITS briefing

NATURE
INTENTION
TIMING
SPECIALS

ENGINE FIRE DURING STARTUP

An engine fire on the ground during startup is a very common and very dangerous occurrence, due to the difficulty of determining whether or not such a situation has occurred. Most often it occurs after the engine is flooded with fuel, on the next attempt to start. A good practice is to have an observer outside the aircraft to watch over the progress of engine startup, and who will notify us immediately in case of a fire. In the event of a fire when starting on the ground, perform ENGINE START-UP ON THE GROUND FIRE CHECKLIST:

ENGINE FIRE DURING ENGINE-START-UP ON THE GROUND

1. Fuel Shut-off Valve ..... CLOSED
2. Cabin Heat ..... CLOSED
3. Mixture ..... IDLE CUT-OFF
4. GEN/BAT Master Switch ..... OFF
5. Magnetos ..... OFF
6. Evacuation ..... IMMEDIATELY

If you don't have help outside the plane, be cautious, and if you have any doubts, get out of the plane and check what's going on.

Always try to be aware where there are fire extinguishing media closest to the aircraft.

Remember
The powder extinguisher is located behind seats, on the right side.

ENGINE FIRE DURING FLIGHT

Engine fire during flight is a very dangerous situation. In this situation, perform ENGINE FIRE DURING FLIGHT CHECKLIST:

ENGINE FIRE DURING FLIGHT

1. Fuel Shut-off Valve ..... CLOSED
2. Cabin Heat ..... CLOSED
3. Airspeed ..... 73 KIAS
4. Fuel Pump ..... OFF
5. Emergency Landing ..... PERFORM

Land as soon as possible, time plays a huge role in this case. Even if the signs of fire have stopped - land.

FIRE IN THE COCKPIT DURING FLIGHT

In the event of a fire in the cockpit during flight, perform the CABIN FIRE DURING FLIGHT CHECKLIST:

CABIN FIRE DURING FLIGHT

1. GEN/BAT Master Switch ..... OFF
2. Cabin Air ..... OPEN
3. Cabin Heat ..... CLOSED
4. Fire Extinguisher ..... USE IF REQUIRED

LAND AS SOON AS POSSIBLE

The fire extinguisher is on the right side in the baggage compartment. If you used a fire extinguisher in the cockpit, ventilate it - open the side windows.

ON-GROUND ELECTRICAL SYSTEM FIRE

ELECTRICAL FIRE INCLUDING SMOKE ON THE GROUND

1. GEN/BAT Master Switch..... OFF

IF ENGINE RUNNING

1. Throttle.....IDLE
2. Mixture..... CUT OFF
3. Fuel Shut-off Valve..... CLOSED
4. Magnetos..... OFF
5. Canopy ..... OPEN
6. Fire Extinguisher.....USE IF REQUIRED

ELECTRICAL SYSTEM FIRE DURING FLIGHT

ELECTRICAL FIRE INCLUDING SMOKE DURING FLIGHT

1. GEN/BAT Master Switch..... OFF
2. Cabin Air..... OPEN
3. Fire Extinguisher….USE IF SMOKE CONTINUES
4. Avionics Master Switch ..... OFF
5. Electrically Equipment ..... OFF
6. Circuit Breakers..... PULL ALL
7. Circuit Breaker..... PUSH BATTERY

8. GEN/BAT Master Switch.....ON BAT ½ ONLY
9. Circuit Breaker.....PUSH GEN
10. Circuit Breaker.....PUSH GEN CONTROL
11. GEN/BAT Master Switch ..... ON
12. Circuit Breaker.....PUSH AVIONICS
13. Circuit Breaker..... PUSH AVIONICS MASTER
14. Avionics Master Switch ..... ON
15. Circuit Breaker.....PUSH REQUIRED SYS
16. Radio..... ON

LAND AS SOON AS POSSIBLE

You can try to restore some of the electrical systems you need. Do this systematically and slowly, observing the ammeter and voltmeter between switching on subsequent systems. After turning on each one, wait a while for smoke to appear, if there is none, turn on the next one.

STARTER RELAY FAILURE

If the starter has not disconnected after starting the engine and keeps running, this can lead to its damage and fire. In this situation, perform the STARTER RELAY FAILURE CHECKLIST:

STARTER RELAY FAILURE

STARTER LIGHT REMAINS ILLUMINATED

1. Throttle.....IDLE
2. Mixture..... CUT OFF
3. Magnetos..... OFF

MAINTENANCE ACTION IS REQUIRED

ELECTRICAL SYSTEM FAILURE

In case of an electrical system failure, perform the ELECTRICAL POWER FAILURE CHECKLIST:

ELECTRICAL POWER FAILURE

1. Circuit Breaker..... RESET
2. GEN/BAT Master Switch..... ON

IF POWER NOT RESTORED

1. GEN/BAT Master Switch..... OFF

LAND AT NEAREST SUITABLE AIRPORT

If the fault has not been fixed, then land at the nearest suitable aerodrome. Try to avoid those with heavy traffic, as your arrival without radio communication can create danger.

Remember

You don't hear and you are not heard. If possible, call the Instructor or FIS.

FIS WARSAW - +48 22 574 55 85,
+48 22 574 55 88
FIS KRAKOW - +48 12 639 75 85
FIS GDAŃSK - +48 58 340 74 85
FIS POZNAŃ - +48 61 896 73 85

GENERATOR FAILURE

In the event of a generator failure, which will be indicated by the red "GEN" light, perform the GENERATOR FAILURE CHECKLIST:

GENERATOR FAILURE

GENERATOR LIGHT ILLUMINATED

1. GEN Master Switch..... OFF-ON
2. Circuit Breaker .....GEN RESET
3. Circuit Breaker ..... GEN CONTROL RESET

IF UNSUCCESSFUL

4. Electrical load.....REDUCE

LAND AT NEAREST SUITABLE AIRPORT

If the generator is still not working, time is very important, because, depending on the state of the battery (charge, age, wear and tear), you will have electricity for a maximum of 30 minutes (new battery, properly serviced). Therefore, it is very important to reduce energy consumption on board to the necessary minimum - turn off all unused navigation equipment and lights. Land at the nearest usable aerodrome. Try to avoid the ones with a lot of traffic (in case you don't have energy during the flight).

Remember

You don't hear and you are not heard. If possible, call the Instructor or FIS.

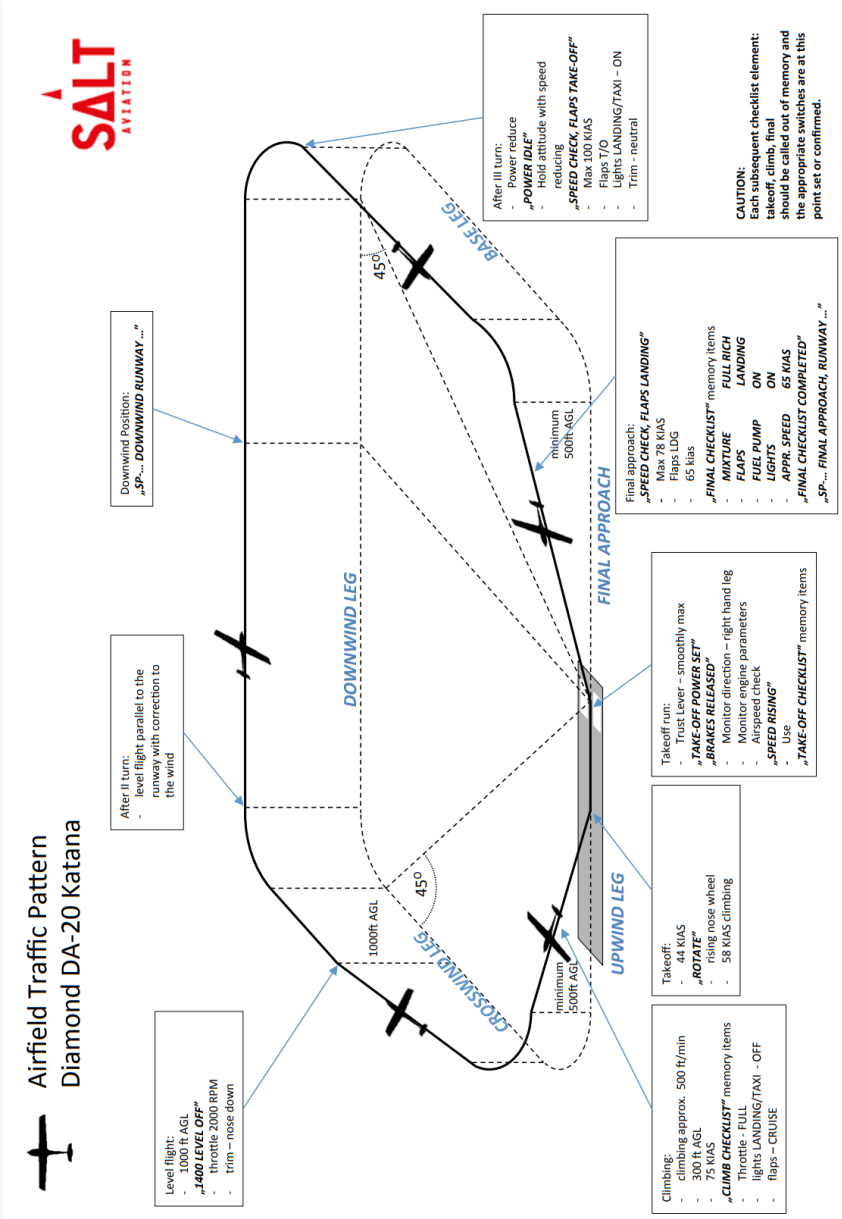
FIS WARSAW - +48 22 574 55 85,
+48 22 574 55 88
FIS KRAKOW - +48 12 639 75 85
FIS GDAŃSK - +48 58 340 74 85
FIS POZNAŃ - +48 61 896 73 85

8 ACCEPTABLE FLIGHT TOLERANCES DURING SKILL TEST FOR PPL(A) UNDER PART-FCL

The candidate should demonstrate the ability to:
- pilot the aircraft within its limitations,
- smoothly and accurately execute all maneuvers,
- properly assess the situation and use the airmanship,
- apply aviation knowledge,
- maintain control of the aircraft at all times in such a way that there is never any doubt as to the positive outcome of the procedure being performed.

The tolerances shown below are general guidelines. The FE examiner should take into account the occurrence of turbulence, piloting characteristics and performance of the aircraft used:
- altitude: normal flight ±150 ft,
- course or maintaining the prescribed path using radio navigation aids: normal flight ±10°,
- speed: takeoff and approach for landing +15/-5 kts,
- all other elements of flight ± 15 kts.

9 AERODROME TRAFFIC PATTERN OF THE DIAMOND DA- 20 KATANA



Autor: Dominik Punda

10 DIAMOND DA- 20 KATANA AIRCRAFT KNOWLEDGE TEST

1. The wing span of the aircraft is ..... m.
2. The manufacturer of the engine is the ..... company, and its designation is ..... .
3. Engine power is..... hp
4. The fuel we can use is ..... or ..... .
5. The capacity of the fuel tank is..... liters
6. Usable fuel is.....liters.
7. Unusable fuel is.....liters.
8. The maximum amount of oil in the engine is US qt.
9. The minimum amount of oil in the engine is …. US qt.
10. The maximum take-off weight is.....kg.
11. The maximum landing weight is .....kg.
12. Maximum speed with flap extended to T/O position ($V_{FE\ T/O}$) is KIAS.
13. Maximum speed with flap extended to LDG position ($V_{FE\ LDG}$) is KIAS.
14. Maximum maneuvering speed (V_A) is ..KIAS.
15. The never exceed speed (V_{NE}) is .....KIAS.
16. The speed of best climb ratio (V_Y) at sea level without flaps is KIAS.
17. The speed of the best angle of climb (V_X) at sea level without flaps is ... KIAS.
18. The speed of best climb ratio (V_Y) at sea level with flaps at T/O is ... KIAS.
19. The speed of the best angle of climb (V_X) at sea level with flaps in the T/O position is ..... KIAS.
20. Approach speed with flaps in LDG position is KIAS, SALT AVIATION recommends ..... KIAS.
21. Gliding speed (for the best range) with flaps retracted is .....KIAS.
22. Speed at engine failure after takeoff with flaps in T/O position is……. KIAS.
23. The landing speed without engine power with flaps in the T/O position is…….. KIAS.

24. The landing speed without engine power with flaps in the LDG position is…….. KIAS,

    65 KIAS is recommended by SALT AVIATION.

25. The maximum demonstrated crosswind component is……... KIAS.

26. Where is the Structural Temperature Indicator installed?

    ……..

27. Structural Temperature Indicator should be checked if the temperature exceeds ..
    , SALT AVIATION recommends checking before each flight.

28. The landing speed without engine power with flaps retracted is…… KIAS.

29. Specify the order in which activities are performed during FINAL CHECKLIST:

    1) ……,
    2) ……,
    3) ……,
    4) ……,
    5) ……..

30. Specify the order in which activities are performed during GO AROUND CHECKLIST:

    1) ……,
    2) ……,
    3) ……..

31. Specify the steps you take in case of engine problems (in the correct order):

    1) ……,
    2) ……,
    3) ……,
    4) ……,
    5) ……,
    6) ……,
    7) ……..

32. What do you do in the case of a lack of fuel pressure?

……..

33. How do you start the engine in the air if the propeller is windmilling?

1) .....,

2) .....,

3) .....,

4) .....,

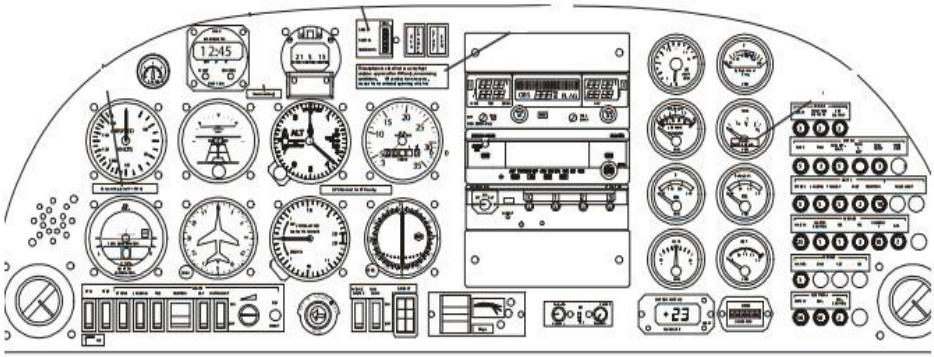
5) .....,

6) .....

34. During the magneto test, the rpm drop should be no more than:
.....rpm

35. On the illustration, mark :

1) Flaps fuse
2) Magnetic compass
3) Gyrocompass
4) Trim Indicator
5) Engine-Hour meter
6) Avionic Master
7) Flap deflection indicator
8) Airspeed indicator
9) Cylinder Heads Temperature Indicator
10) Transponder
11) Vacuum Pump Indicator
12) Landing light switch
13) Oil Temperature Indicator
14) Exhaust Gas Temperature Indicator



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