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STANDARD OPERATING PROCEDURES

SOP

EDITION NO. 1 DATED 26.01.2021
REVISION NO. 4 OF 10.03.2025

KONSTANCIN-JEZIORNA
2021

CERTIFICATE
INTRODUCTION OF SOP FOR OFFICIAL USE

These SOPs editions I, have been introduced for official use by the Accountable Manager (electronic signature)

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SOP 1-00 TYPE AND COMPLEXITY OF OPERATIONS

1. NATURE OF OPERATIONS AND RISK FACTORS

The activity consists of aviation tasks such as:

a) Patrolling power substations, poles and power lines;
b) Patrolling gas pipelines;
c) Pipeline patrolling;
d) Performing flights to inspect the area;
e) Patrolling for the security of strategic energy infrastructure;
f) Patrol flights using an aerial observation system (SOL).

Patrol flights are performed at altitudes lower than those specified in SERA.5005.(f).

Patrol flights over power lines are aimed at:

a) Visually locating potential damage and irregularities in the installation of power lines (including the condition of wires, poles and insulators);
b) Visually locate potential irregularities in the vicinity of substations and power lines;
c) Identify anomalies in the strip of land adjacent to power lines, such as dangerous proximity to trees, the presence of landfills, the emergence of buildings;
d) Assessment of the integrity of the condition of fences, buildings, and installations at power substations.

Patrol flights over gas pipelines are carried out for possible ascertainment:

a) gas leak;
b) losses or irregularities in the marking of gas pipelines;
c) construction of facilities or storage sites within the working strip.

Patrol flights over the pipelines are performed for possible ascertainment:

a) oil leak;
b) losses or irregularities in the marking of pipelines;
c) construction of facilities or storage sites within the working strip.

Patrol flights for the security of strategic energy infrastructure aim to:

a) Visually locate and assess potential or existing threats to energy infrastructure.

Air surveillance system (SOL) patrol flights are aimed at:

a) Image recording of the linear object and collection of photo, video, thermal and 3D materials;
b) Locate potential damage and irregularities in the installation of power lines (including the condition of wires, poles and insulators) using SOL;
c) Locate potential anomalies around substations and power lines using SOL;
d) Identify anomalies in the strip of land adjacent to power lines, such as dangerous proximity to trees, the presence of landfills, the formation of buildings using SOL;
e) assessment of the integrity of the condition of fences, buildings, installations at power substations;

f) Locate potential damage and abnormalities in the gas pipeline or pipeline system (including the condition of the transmission infrastructure, leaks/leaks, foreign objects that threaten the infrastructure);
g) acquisition of photographic/spatial imaging material for the purpose of commissioned tasks.

The aerial observation system (SOL) includes SOL1, SOL2 and SOL3. The operation and installation of all types of systems are identical.

SOL1 includes:

a) mounting platform for specialised equipment
b) air frequency radio scanner
c) medium format diagonal camera 1
d) medium format diagonal camera 2
e) medium format orthogonal camera
f) thermal imaging camera
g) INS-GNSS inertial system
h) peripherals
i) software

SOL2 includes:

a) mounting platform for specialised equipment
b) air frequency radio scanner
c) RBG medium format diagonal camera
d) RBG medium format orthogonal camera
e) medium format orthogonal NIR camera
f) thermal imaging camera
g) INS-GNSS inertial system
h) peripherals
i) software

SOL3 includes:

a) mounting platform for specialised equipment
b) SWE-400 TCU camera system, including:
   - HD thermal camera
   - HD color camera
   - UV detection camera
   - laser rangefinder
   - IMU
c) software
d) remote controller
e) peripherals
f) software

The following risk factors are detailed during the implementation of the above tasks:

a) resulting from flying a single-engine helicopter with a turbine engine, i.e., the limitations specified in the altitude and airspeed diagram - delineating the envelope of dangerous flight parameters, where a safe landing with propulsion failure is not assured;
b) Effects of electromagnetic field on EMC compatibility of helicopter onboard equipment;

c) Flights over hostile environments, such as power infrastructure facilities (high-voltage lines, power stations), forests, and built-up areas;
d) low-altitude flights;
e) Low-speed flights;
f) Flying near energy infrastructure;
g) Landing outside airports and airfields in the area of energy infrastructure;
h) possibility of collision with birds;
i) Additional activities the crew performs related to their task affect the division of attention (e.g., observation of equipment in the helicopter's cabin).

2. COMPLEXITY OF OPERATIONS

The operation consists of:

a) The flight to the energy infrastructure facility or other place of execution of the air task;
b) inspection of an energy infrastructure facility or performance of another aviation task;
c) flight to the basing/refuelling location.

Depending on the needs, it is performed:

a) repeat flights over a particular facility or area;
b) landing in the area of the right of way of a linear power facility for detailed inspection or detailed identification or activation of the aerial observation system, provided that the landing is in accordance with the restrictions contained in SOP-8-00, para. 3;
c) landing in the vicinity of power substations to inspect installations, structures or buildings on the ground or launch an aerial observation system, provided that the landing is in accordance with the restrictions contained in SOP-8-00, para. 3;
d) image recording or photographic documentation of the energy infrastructure region with handheld cameras or camcorders.
e) Image registration and acquisition of photogrammetric material of the energy infrastructure region by means of SOL.

Implementation of tasks requires detailed planning of the length of the low-speed flight route. Refuelling can take place at a designated airfield or airport. Daily flight time should not exceed 7 hours.

During a flight operation:

a) No specialised equipment other than the equipment included in the SOL system shall be used;
b) No one enters or leaves the helicopter deck
c) No one is carried outside the helicopter.

A crew of one or two people is assigned to carry out the flights in accordance with the requirements described in Chapter OM-A-5-00.

In addition to crew members, task specialists are present on board the helicopter during the flight.

No additional aircraft-mounted equipment shall be used during flights except SOL, nor shall any equipment on the ground be used.

3. OPERATIONAL ENVIRONMENT AND GEOGRAPHICAL AREA

Operations will be carried out in FIR Warsaw, FIR Lithuania, FIR Latvia and FIR Estonia Approaches to the inspection site are conducted following VFR flight rules.

Some linear facilities subject to patrol pass through controlled airport zones, prohibited zones, danger zones, restricted zones, reserved zones, cities, and other areas where additional permission for overflight is required. The vast majority of inspections pass over non-urbanized terrain.

Overflights over congested areas, compact buildings and population centers are prohibited. Overflights over livestock are also avoided. In this case, bypassing or increasing the flight altitude is recommended.

4. APPLIED RISK ANALYSIS AND EVALUATION

The procedures described in the SMM (Safety Management Manual) were used to analyse and assess risks. Hazards and related risks were entered in the Operator's Hazard Register.

The level of risk is analysed on an ongoing basis and considered in operations. Due to the repetitive nature of flight operations, risk estimation forms are not used. Risk analysis is a topic at periodic training, staff briefings, and daily operations. A pilot or task specialist can post information affecting the safety and optimisation of flight tasks after an operation through the intranet and email.

The main risk analysis issues that are addressed and are the subject of training and briefings are:

g) Flying on a single-engine turbine-powered helicopter;
h) single-crew operations;
i) low altitude patrol flight;
j) low airspeed and, therefore, staying in the envelope of the H/V diagram;
k) Performing manners at low altitudes;
l) Staying above a hostile environment;
m) proximity to the HV power line;
n) landing on an unregistered airfield.

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SOP 2-00 AIRCRAFT AND EQUIPMENT

1. AIRCRAFT

Robinson R-66 helicopters are used for the operation. These are single-engine, uncomplicated turbine-powered helicopters with a classic tail rotor arrangement. The helicopters have five seats, with one and four people on board during tasks. The helicopters have been equipped with additional fuel tanks to optimise the task's time and length and minimise the number of refuelling. The aircraft has autopilot that can be used during overflights and on approach at the inspection site. The equipment includes air conditioning, which improves the crew's comfort in the summer and speeds up window evaporation in the winter.

2. EQUIPMENT

The equipment used during the inspection is:

- Tablet with a navigation application;
- Camera and camcorder with geographic coordinates recording (as needed);
- Voltage/gas concentration indicator or other specialised measuring devices as needed;
- Onboard radio station;
- Mobile phone;
- EFB (Electronic Flight Bag);
- SOL1, SOL2 or SOL3 system.

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SOP 3-00 CREW

1. MINIMUM FLIGHT CREW

The minimum crew composition of a helicopter, in accordance with the Helicopter Operations Manual, is one pilot - the crew commander. The Flight Operations Manager may expand the crew with a second pilot.

2. ADDITIONAL CREW

During training flights, the onboarding of a new pilot, and OPC check flights, the crew is augmented by a pilot who serves as a supervising pilot, training instructor, or examiner. Requirements for additional crew members are described in OM-A-5-00.1.3 SELECTION CRITERIA.

OM-A-4-00 describes the criteria for selecting crew members, and OM-A-5-00 describes the requirements for crew members.

3. TRANSITIONAL TRAINING

Each crewmember must undergo transition training before performing HR SPO operations. Transition training is initial training within the meaning of AMC2 SOP.OP.230. Transition training is conducted by a TRI or FI instructor. Upon completion of the transition training, an Operator Proficiency Check (OPC) is conducted. The OPC is conducted by an examiner. Transition training is one-time and its validity lasts 12 months. The validity period counts from the end of the month in which the training was conducted. The scope of the transitional training and OPC can be found in Annex 3 to the SOP.

4. RECENT EXPERIENCE AND PERIODIC TRAINING

Periodic training is conducted every 12 months by an FI or TRI instructor. At the end of periodic training, an Operator Proficiency Check (OPC) is conducted, unless the crew member has a valid OPC at the time the periodic training is conducted. The OPC is conducted by an examiner. Periodic training is conducted periodically and is valid for 12 months. The validity period counts from the end of the month in which the training was conducted. The scope of the interim training and OPC can be found in Annex 4 to the SOP

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SOP 4-00 TASK SPECIALISTS

1. THE NEED TO APPOINT TASK SPECIALISTS

An observer acting as a task specialist is designated for patrol flights. According to the company rules, task specialists in energy infrastructure inspection flights are a designated and permanent group of company employees with adequate knowledge, experience, and qualifications in the construction and operation of the installations to be inspected or the operation of the SOL device. The necessity of selecting personnel is because pilots need to have adequate knowledge of the construction and operation of energy infrastructure, and they cannot, in addition to piloting, act as observers simultaneously, as this would harm flight safety and the quality of task performance.

1.1. SELECTION CRITERIA

In the provision of aerial works, the principal appoints task specialists guided by the criteria it establishes.

Task specialists are appointed from among the employees of the Operator's units who are responsible for operation, investment, or safety. The following selection criteria apply:

a) Experience in work relevant to the observer's tasks performed
b) Knowledge of the course and specifics of the facilities to be inspected;
c) Body weight less than 110 kg;
d) Good mental and physical condition and no susceptibility to motion sickness.

1.2. INITIAL TRAINING

Before commencing flight operations, permanent task-based specialists must undergo theoretical training concluded with an examination in accordance with Appendix 4 to SOP

1.3. CONTINUITY OF EXPERIENCE AND CYLINDRICAL TRAINING

An appropriate group of people is appointed so that each specialist can perform inspections several times a year to maintain proper flight organisation skills and knowledge.

If the task specialist has not flown for 24 months, initial training shall be conducted in accordance with Appendix 4 to SOP.

2. JOB DESCRIPTION FOR TASK SPECIALISTS

2.1. SPECIALIZATION

Implementation of the task begins with joint route planning with the commander to ensure adequate time to prepare for the air task's implementation.

During the flight, the task specialist acts as an observer or SOL observer, visually observing the energy infrastructure or SOL operation. The detailed scope of observation depends on the arrangements and according to the needs. In the event of the need for detailed reconnaissance or repetition of material registration, the operator guides the commander so that it is possible to make a correct exit on the path of registration of patrolled objects. The operator develops notes on alarm events observed at the facilities. Suppose it is determined that an inspection from the ground is necessary. In that case, the task specialist informs the commander, who may land in the area of the incident for visual inspection or other appropriate activities. If it is necessary to restart the SOL, the cameras are found to be dirty or have other technical problems, and the operator informs the pilot to land and correct the problem.

Landing in adventurous terrain in the area of the working strip or at the nearest airport if the flight time is not more than 10 min.

2.2. PAST EXPERIENCES

Task specialists are not required to have previous experience in inspection flights.

2.3. BRIEFINGS AND TRAINING

Training is mandatory for the permanent task specialist, who will carry out helicopter flights as part of his official duties. Ad hoc task specialists undergo a briefing each time before flying.

Training of task specialists is described in Appendix 4 to SOP.

The task specialist's briefing concerns the conduct of the task and familiarization with operational and emergency procedures. The counter list of topics covered at the briefing is attached as Appendix 2 to the SOP.

The briefing of the task specialist is described in OM-A-8-02 para. 1.

Special attention should be paid to clearance before performing operations with the doors removed. Task specialists who do not have prior experience in standard operations cannot be qualified for this type of operation. Prior to the start of the flight, the Commander shall ensure through observation and conversation with the specialist that he is aware of and prepared for the conditions associated with a flight with dismantled doors.

Before flying with the doors removed, the task specialist checks the fastening of the seat belts, after which the commander checks again the already fastened belts.

When flying with the door removed, the commander must not make sudden turns or tilts to the side of the removed door.

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SOP 5-00 PERFORMANCE

1. TAKEOFF AND LANDING

Takeoffs and landings are carried out from airfields, airstrips and other locations in accordance with the requirements of OM-A-8-01 item. 3.

In the case of takeoffs and landings, attention should be paid to maintaining a safe distance from people, animals, buildings and other objects for which the helicopter could create a hazard and which could endanger the helicopter. The surface of the touchdown plane should be level and paved, without objects that could damage the skids.

If there is a lot of dust, the landing should be aborted. The hovering height should be increased to blow away the dust or change the touchdown site.

If the helicopter's takeoff weight is increased after refuelling or if it is refuelled, this change should be considered regarding the possible takeoff profile.

2. MINIMUM FUEL RESERVE

Fuel consumption is calculated and monitored by determining the average fuel consumption for given flight parameters at a given time and based on fuel gauge readings.

The pilot-in-command shall proceed to the commencement of the flight only if the helicopter has been provided with enough fuel and oil to fly to the airport of planned landing/place of flight operation where landing is planned and to continue flying for at least 20 minutes at the speed of the greatest range, or in the case of VFR flights during the day - to provide a fuel reserve sufficient for 10 minutes of flight at the speed of the greatest range, provided that it remains within 25 nautical miles of the airport/place of flight operation from which departure is made.

Detailed instructions for calculating minimum fuel reserve can be found in the OM-A-8-01 section.

3. FLIGHT

The flight to the inspection start location and the flight to the landing site after the inspection is carried out, if possible, using the autopilot at cruising speed. Flights between airports are conducted on optimal routes according to the general rules specified in regulations for VFR flights, adhering to noise reduction and safety procedures for single-engine helicopter operations.

4. MASS AND POSITION OF CENTER OF GRAVITY

The mass and center of gravity are determined by completing a form on the intranet network or computer disk. Before the flight, a copy of the electronic form is sent to the PSE Administrator and the PSE Flight Operations Manager, along with a package of other documents shown as necessary for commencing flight operation.

The mass and position of the center of gravity are determined in accordance with OM-A-8-01 item 6.

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SOP 6-00 NORMAL PROCEDURES

1. OPERATING PROCEDURES

1.1. STANDARDIZATION OF ACTIVITIES

Standardisation in the implementation of tasks is carried out through SOPs and internal training and deals with aspects such as:

a) Performing work and preparing for aviation tasks;
b) The implementation of aviation tasks and methodology;
c) on-board equipment;
d) Personal equipment of crew members;
e) The clothing of crew members and task specialists.

1.2. USE OF CHECKLISTS

Using checklists and terminology from the SOPs allows the creation of a standardised system in which the crew performs actions in the correct order without missing any element and verifies the operation of the helicopter and all equipment. Following the Standard Operating Procedures significantly impacts maintaining the recommendations in the helicopter's manual and the Operator's internal procedures.

1.3. STERILE COCKPIT

Crew members and task specialists avoid all unnecessary conversations and activities that do not directly relate to the operation. The principle of precise and unambiguous communication of communiqués applies. Each message must be confirmed by the person to whom it was addressed.

In addition, the sterile cockpit rule will always be promulgated for any period of increased crew workload in phases such as:

- takeoff and initial climb;
- landing approach and touchdown.

1.4. MINIMUM HEIGHTS

When flying to the place of operation, minima apply as for flights under VFR regulations.

During flyovers, a high-altitude patrol is performed:

- Not higher than 150 m AGL
- Not lower than 10 m AGL
- No closer than 5 m from the terrain obstacle (distance of the nearest obstacle from the edge of the rotor)

As required in justified circumstances related to the need for detailed identification of the object, the flight is performed at an altitude of less than 30 m AGL. In this case, the identification flight is carried out at a low speed to allow detailed observation with particular caution related to the proximity to obstacles and the impact of the blast from the carrier rotor.

The crew commander is responsible for maintaining minimum heights.

2. CONTROLS

The controls can only be taken over by firm employees designated as pilots, contract pilots, student pilots, instructors or ULC examiners.

Rudders are removed when the specialist is on board and installed only if a co-pilot is present.

Task specialists or travellers cannot control an aircraft during flight operations.

2.1. OPERATING FROM AIRSTRIPS

If an airstrip has procedures for takeoff and landing, follow them. It is mandatory to use a landing reflector during takeoff and on the approach to landing.

It is possible to perform takeoffs and landings at unregistered helipads. Prolonged stay in such places and leaving the helicopter unattended in areas accessible to the public shall be avoided. A helicopter shall not be left in an unprotected, unattended location overnight. Before taking off from an airstrip, it is advisable to make a phone call to the FIS service and ASM 3 to agree on whether compliant use of airspace is ensured along the flight route. After takeoff, as far as possible, depending on the range of the radio station, it is recommended that radio communication with the service be established to maintain the flight information service and possibly activate the flight plan.

In the case of a landing on an unregistered airfield, the touchdown plane must be identified in advance, and the possible directions of the approach from the air must be determined by first conducting a visual inspection from the ground by a person with experience in this field. The commander may perform a landing only if permission is obtained from the property owner on which the landing is to take place.

Suppose it is not possible to perform a check on the ground. In that case, the pilot performs a two-step review to determine the optimal direction of approach to landing and preliminary determination of the touchdown point and then reviews the touchdown plane. Lowering the helicopter's pitch lever is done with special care depending on the stability of the ground to avoid imbalance on an uneven plane, collapse of skids or, for example, a possible slide on ice. If danger is identified, a hovering takeoff is carried out, and the new touchdown location is asses.

Before commencing the approach to landing, the pilot shall survey the landing site each time to determine whether there are obstacles, animals, or people nearby. However, if people are more than 50 m from the planned touchdown site, a landing may be made, with people observed during the approach and touchdown.

If the task was performed using a flight plan, the plan must be closed by telephone within 30 minutes after landing.

2.2. DIFFICULT METEOROLOGICAL CONDITIONS

Intentional flight in the zone below minimal atmospheric conditions, icing and turbulence is prohibited.

If necessary, the pilot avoids adverse weather at a safe distance by visually observing hazards and supporting himself with information obtained from FIS. In the event of a change in weather conditions below the specified minimum, the pilot aborts the task and performs a flight to the departure airport, alternate airport or planned destination airport if possible. After landing, a report is made regarding the non-fulfilment or partial fulfilment of the task, citing weather conditions as the reason.

Two limits of meteorological conditions are set for the performance of overflights and inspection flights. All flights are conducted in accordance with the regulations for VFR flights and under VMC conditions. Intentional entry into IMC conditions is prohibited. It is forbidden to fly in heavy rainfall.

Minimal conditions for overflights:

- Visibility of 2 km,

- Cloud base 500 ft,
- Wind speed less than 25 kt.

Minimal weather conditions for inspection flights:

- Visibility 4 km,
- Cloud base 600 ft,
- Wind speed 20 kt, (maximum gusts up to 25 kt)

Flying towards the sun when it is low above the horizon is not recommended. This has a negative impact on flight safety, the quality of observation, and eye fatigue.

2.3. FLIGHT PROCEDURES - PRE-FLIGHT INSPECTION

The pre-flight inspection is performed in accordance with the Helicopter Flight Manual (HFM) and its checklist.

Additional activities before each day's flights include taking a fuel sample, checking the yaw plane (especially in winter), takeoff/ground surface/. It is also necessary to confirm the operation and charging of batteries in specialised equipment and prepare aviation and task documentation. Before taking off from a place other than an airport or fixed airstrip, make sure that the space around the helicopter is free of objects that the airstream could damage under the rotor and that there are no bystanders nearby. Ensure no objects in the area could fly into the air and damage helicopter components. All crew members participate in the observation, and any discrepancies or hazards are reported to the crew commander.

In cold weather, special attention should be paid to the accumulation of ice or frost, which must be removed from the surface of helicopter components before flight.

The crew commander is responsible for carrying out the activities described.

2.4. FLIGHT PROCEDURES - TAKEOFF BRIEFING

Before taking off in a two-pilot crew, the pilot in command flying (PF) should at least provide the following information to the co-pilot (PNF):

1) Special circumstances affecting departure conditions (weight, fuel, crosswinds, required performance, optimal takeoff direction) are considered regarding wind, obstacles, and avoidance of the H/V diagram zone.
2) Target route and departure speed.
3) Navigation instrument settings (crosscheck).
4) At a controlled airport - Pre-clearance for departure (obtained from the tower).

The commander conducts a pre-flight briefing to confirm the course of the operation and final agreement on implementation.

Scope of the pre-flight briefing:

- Final confirmation of the time and place of flight operations;
- Determination of landing sites, refuelling, and exchange of task specialists;
- Discussion of safety conditions and proceeding in an emergency, evacuation procedures;
- Instruction in taking a seat in the cabin, use of the cabin door, seat belts, and fire extinguisher;
- Walkin and walkout from a helicopter with an engine running;
- Clothing, whether it does not restrain movement and does not block or damage helicopter components;

- Securing the deck and specialised equipment on board;
- Compiling specialised equipment;

- Cabin communication and coordination with cooperating personnel.

2.5. FLIGHT PROCEDURES - TAKEOFF / DEPARTURE

Note: When outsiders may enter the landing area from a side not visible to the crew, the task specialist may open the door and observe the endangered area during commissioning or leave the deck and observe the space. In this case, after the commissioning is completed, the task specialist, with extreme caution and visual communication with the pilot, takes a seat in the cabin.

Checklists are used during startup.

During engine start and takeoff, communication or conversation between crew members is avoided, and information about the activity being performed and possible danger is limited. The takeoff is carried out in accordance with the procedures for the airport, and in the case of airstrips that do not have established procedures, the takeoff is carried out with the assumption of optimal direction, taking into account the wind, obstacles, avoiding the envelope of the H/V diagram and minimising the impact of noise on the external environment. Everyone on board must wear a seat belt during the flight, including during HR operations.

2.6. FLIGHT PROCEDURES - FLYING LESS THAN 150 M OVER TERRAIN

Flight at less than 150 m is carried out to observe or register an object.

The flight altitudes specified below are recommended to achieve the maximum operational benefit from the aviation tasks performed. Flight altitude regulations are described in paragraph 3 of SOP 6-00.

The flight speeds specified below are recommended for maximum operational benefit from the flight tasks performed. During flight tasks, the Commander shall fly at speeds acceptable for a helicopter in HFM.

2.6.1. Description patrolling substations, poles and lines electricity:

Power lines typically run at about 10 - 150 m AGL. Line infrastructure objects are located in a technological strip 150 m wide, depending on the line type. The flight is performed on the right side of the line with an overhang so that the observer has the greatest possible field of view and the opportunity to conduct inspections. Flight altitude in the range of 10-30 m will be performed occasionally and in the absence of terrain obstacles, depending on the possible implementation of a hover for closer observation by the task specialist of overhead line elements. For the most part, the flight altitude will be maintained at about 30-120 m at a speed of 30-80 km/h, depending on the object's complexity and the observation's convenience. If a detailed inspection is needed, additional passes over the object can be performed for precise identification. During the flight, the task specialist can take photos or video documentation and zoom in on the screen for detailed evaluation.

Patrolling around power substations is performed at an altitude of not less than 20 m AGL at a speed of about 10-50 km/h with the possibility of hovering for closer observation by the task specialist.

If identification from the air is not possible or a detailed condition assessment is warranted, a landing and survey from the ground shall be performed. Landing is performed with special attention to safety rules for the approach to landing and selection of the touchdown place.

Unpaved field roads, access roads to power or gas infrastructure, and meadows in the line strip are the optimal touchdown places. Technical condition assessment activities and their documentation are performed in accordance with the internal instructions of the task specialist's directing unit.

The commander can make a landing only if:

- The dimensions of the site allow for a safe touchdown;
- has the consent of the holder of the property on which the landing will take place to carry out this aviation operation.

2.6.2. Description patrolling gas pipelines and pipelines:

The flight is carried out from the right side of the gas pipeline at a distance of about 50 m and an altitude of about 60-150 m at a speed of 50-100 km/h, depending on the shape of the pipeline line and the number of objects in the vicinity. If inconsistencies are suspected, further pass-over can be made on the object for identification. The task specialist can take a photo and then zoom in on the screen to confirm the nonconformity/fault. Suppose identification from the air is not possible. In that case, a landing and survey from the ground can be performed, with special attention to safety rules for the landing approach and selection of the touchdown plane. The optimal places for a touchdown are unpaved field roads, access roads to power substations, and meadows in the strip of the line route. When an inconsistency is found, the serial number, the photo taken, the coordinates/address entered, and a description of the characteristics are noted. If a gas leak is suspected, the landing is made preferably on the windward side at a safe distance, without shutting down the helicopter. Then the task specialist takes measurements and decides on further action.

The commander can make a landing only if:

- The dimensions of the site allow for a safe touchdown;
- has permission from the property holder on which the landing will take place to conduct this flight operation.

2.6.3. Description of flights to record images and create photographic documentation of the energy infrastructure region :

Image recording and creation of photographic documentation of the energy infrastructure region can be done in the implementation of other tasks such as:

a) Patrolling substations, poles and power lines;

b) Patrolling gas pipelines and pipelines;

c) flights to inspect the area where the power infrastructure is planned to be founded;

d) Security patrolling of strategic energy infrastructure.

The flight rules appropriate to one of the above tasks shall apply in this case.

Image recording and creation of photographic documentation of the energy infrastructure region can be done independently; in such a case, the following rules apply:

The flight takes place from the right side of the power line/gas pipeline at a distance that varies depending on the size and required details for the object to be recorded. Registration in flight with the camera

takes place at a speed of about 50-80 km/h. In the case of photographic registration of the object, the flight takes place at a speed of 50-100 km/h, as in the case of a normal patrol flight. When taking

pictures, the flight speed is reduced, and if necessary, the helicopter performs a flight around the photographed object to record it from different directions. If it is impossible to properly register from the air, a landing and registration from the ground is performed. The rules for landing as above are included in the description of patrolling.

The commander can make a landing only if:

- The dimensions of the site allow for a safe touchdown;
- has permission from the property holder on which the landing will take place to conduct this flight operation.

2.6.4. Description of flights to inspect the area where the foundation of energy infrastructure is planned:

The flight takes place from the right side of the lane of the planned infrastructure at an altitude of about 60-150 m at a speed of 50-100 km/h, depending on the object's shape. The principal determines the scope of observation and may concern, for example, the progress of work or analysis of objects in the vicinity or delineation of the optimal region of the planned network route. If there is a need to land and inspect from the ground, follow the rules above in the description of patrolling.

2.6.5. Description of patrolling for security of strategic energy infrastructure:

Operations are generally carried out in accordance with the principles described for patrolling gas pipelines and pipelines. Patrolling is aimed at locating and assessing potential or existing threats to energy infrastructure. Threats can be located directly on the infrastructure or away from it. Patrolling specifically covers areas affected by natural disasters, the effects of which may affect energy infrastructure. Also subject to patrolling may be the state of rivers, areas with increased risk of fires, etc.

2.6.6. Description of patrol flights using an aerial observation system (SOL):

Patrol flights can be carried out using SOL1, SOL2 and SOL3. Flights can be made to targets:

a) Image recording of power substations, poles and power lines;
b) Image recording of patrolling gas pipelines and pipelines;
c) flights to record the image on which the foundation of energy infrastructure is planned;
d) Security patrolling of strategic energy infrastructure.

The flight rules appropriate to one of the above tasks shall apply in this case.

Patrolling using SOL can be done as an independent task, in which case the following rules apply:

The flight is carried out on the axis of the power line/gas pipeline with an altitude that depends on the focal length/focus of the cameras and the planned width of the acquired image. The longitudinal axis of the helicopter must be parallel to the object's axis so that the front and rear cameras capture the linear object in the center of the frame. Tilts during flight with SOL must not be greater than 10 °.

If the linear object turns more than 30 °, it is recommended to fly in a straight line, past the turn, and then reenter the new direction by manoeuvring 270 ° opposite the linear object's turn. The standard altitude is 20-50 m above the patrolled object. In-flight registration with the SOL system is carried out

at a speed of about 50-100 km/h, depending on the shape of the object and the level of external lighting. In registering an object with a large width, several parallel flights are made so that the resulting material contains an image recorded on the overlap. The rules of landing as above are included in the description of patrolling.

The commander can make a landing only if:

- The dimensions of the site allow for a safe touchdown;
- has permission from the property holder on which the landing will take place to conduct this flight operation

NOTE

When flying at low altitudes, a key factor related to flight safety is maintaining situational awareness of the possibility of propulsion failure. A late decision to take emergency action near or inside the H/V chart envelope has a negative impact on flight safety.

Do not tilt too much when making low-speed turns, and manoeuvre over convenient terrain with a minimum number of obstacles. Avoid human concentrations, pay attention to animal behaviour as much as possible, and avoid farms with animal farms. Also, avoid areas where horseback riding takes place.

2.7. STARTING

The procedure is performed in accordance with the HFM - Chapter 4, pp. 4-7 to 4-9

2.8. RUN-UP

The procedure is performed in accordance with the HFM - Chapter 4, pp. 4-7 to 4-9

Make sure the GPS satellite navigation system is working properly

2.9. CRUISE

The procedure is performed in accordance with the HFM - Chapter 4, pp. 4-10

During the start of the patrol flight, the commander confirms the start of the task with the task specialist.

The commander conducts a continuous review of the space .

The commander in a standard operation, except in abnormal and emergency situations, maintains the ratio:

- Spends 80% of its time reviewing the space outside the cabin
- Spends 20% of its time monitoring the helicopter's indicators

In two-pilot crew operations, the commander determines the tasks of the co-pilot in monitoring.

If the situation requires a longer transfer of attention to the helicopter's indicators, the commander takes the following actions:

- In a two-person crew - gives the co-pilot the command to perform a specific action on a split basis - monitoring the environment and indicators

- In a one-man crew - before monitoring the indicators, stabilise the helicopter at a safe height and distance from aerial obstacles

2.10. HOVER

The procedure is performed in accordance with the HFM - Chapter 4, pp. 4-9

Before approaching the hover, the commander observes all obstacles near the ground to avoid dynamic *rollover.*

Hovering is carried out while maintaining the minimum heights and distances from terrain obstacles, as indicated in the paragraph. 2.11.

Turning on the spot is performed according to technique 90^0 in the recognised terrain manoeuvres, which are performed only if necessary.

2.11. APPROACH

The procedure is performed in accordance with the HFM - Chapter 4, pp. 4-13

2.11.1. Approach at registered airports and airfields:

At registered airports and airfields with operational instructions, the approach must be carried out according to these instructions.

2.11.2. Approach to landing at flight operation sites:

The commander reviews the site of the air operation from a two-circle circle or overflight - at his discretion. The circle or overflight is made at an altitude of not less than 50 m or 20 m above the obstacles, whichever is higher. In case of uncertainty about the height of obstacles, the commander performs a high inspection, going lower and lower on the next overflight.

The commander verifies the direction of the wind based on existing artificial or natural aids (such as trees).

If the landing mass exceeds the maximum mass for hover without ground effect (HOGE), plan the final approach to avoid hover without ground effect.

2.12. LANDING

The procedure is performed in accordance with the HFM - Chapter 4, pp. 4-13

If the landing is performed from a hover, the hover shall be performed in accordance with 2.10. Before touchdown, the commander must ensure that the

- The tail propeller will not come into contact with any object;
- the terrain is level, free of obstacles that threaten the safety of the air operation;
- There are no people or objects within range of the rotor.

The commander must be ready to go into a hover at any time.

2.13. AFTER LANDING

After landing, follow the procedure described in HFM, Chapter 4, pp. 4-13

3. DESIGN LIMITATIONS OF THE HELICOPTER

It is prohibited to perform aerobatic flights.

It is forbidden to perform low overload maneuvers "LOW G"

Low-fuel flights should be avoided when one crew member (pilot) is on board, due to the possibility of mast bumping (higher tendency at higher speed).

If flying in turbulence, slow down to a speed of 70-80kt.

Avoid flying in heavy rainfall due to the delicate design of the carrier rotor blades.

Due to the fragile design of the carrier rotor blade plating, landing in earth or sand dust should be avoided.

4. GROUND PROCEDURES

On the day before flying or during preparation:

- The pilot and task specialist confirm the plan for the course of the operation
- The pilot obtains the required approvals to conduct the flight;
- The pilot carries out preparation in operational, navigational, meteorological, and performance aspects and prepares the documentation;
- Task specialists coordinate the locations where their eventual exchange will take place. They inform the pilot of proposed landing sites for the exchange of specialists.

On the day of the flights:

- The pilot, together with the task specialist, checks the equipment necessary for the task, the state of charge of the batteries;
- The task specialist carries equipment on board;
- Presentation of meteorological forecast, more analysis in case the task is planned for several days;
- Hanging out and possibly refueling the helicopter.

Post-flight:

- Taking away recording material, equipment and notes;
- Re-angering the helicopter or securing it if the helicopter is left off base;
- Completion of documentation, verification of completion of documentation;
- Summary of the task and non-compliance found at the patrolled facilities;
- Discuss topics relevant to optimising cooperation in the crew and accomplishing the task.

4.1. BRIEFING

When flying for the Company's internal purposes, it is recommended that a briefing be held before each day's flight. If a person is flying for the third day in a row, the briefing may be limited to discussing the scheduled flight.

A summary of the inspection flight is made during a brief discussion. The pilot confirms the information acquired during the inspection. All remarks are collected regarding crew cooperation and efficiency in carrying out the task, distance from the object, efficiency of observation, equipment used, observation conditions, etc. All comments should be taken into account, and critical comments, especially those affecting flight safety, should be reported to the Flight Operations Manager.

4.2. POST-FLIGHT INSPECTION

The aircraft commander shall perform the post-flight inspection. If the commander or his/her designee does not conduct the inspection, it will be carried out by a maintenance mechanic holding a factory authorisation from a Part-145 organisation.

Post-flight inspection should be performed in accordance with the approved Maintenance Program.

Any nonconformities found during the inspection must be recorded in the Onboard Technical Log. The person entering such nonconformity should also inform the Continuing Airworthiness Management Officer (CAMO) of the situation.

4.3. WEATHER RESTRICTIONS

Helicopters should be hangared if possible. Helicopters must be hangared when the meteorological forecast predicts icing, hail, snow, strong winds above 20kt or temperatures below -15°C. When a helicopter is left outside it should be pointed upwind. If the helicopter is left outside, safeguards shall be used in accordance with the helicopter's instruction manual. Due to its delicate design, leaving the helicopter outside overnight during the winter is not recommended.

If the helicopter has been exposed to the weather and snow, ice, or rime has accumulated, any deposits must be removed before flight using the means and methods recommended for the aircraft type.

4.4. LOW-TEMPERATURE OPERATIONS

The minimum temperature at which flight operations are performed is -20°C. After performing a low-temperature landing outside of the base area, it is not recommended to turn off and leave the helicopter for an extended time due to the risks associated with the possibility of a failed launch. The special recommendations that apply to low temperatures apply to ground operations in accordance with the helicopter's instruction manual.

4.5. GENERAL ARRANGEMENTS, RESTRICTIONS AND PROHIBITIONS

During operational flights, it is prohibited to simulate or practice emergencies.

Smoking of nicotine products on board the helicopter (cigarettes, e-cigarettes, pipes, etc.) is prohibited.

Each person on board the aircraft from the moment of startup to shutdown of the helicopter is wearing headphones with a microphone for internal communication. Replacement of headphones or their temporary removal is agreed upon each time with the crew commander.

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SOP 7-00 EMERGENCY PROCEDURES

1. OPERATING PROCEDURES

1.1. EMERGENCY MANAGEMENT

In an emergency on board the helicopter, the pilot shall follow the helicopter manual. During the pre-flight briefing, attention should be paid to the sterility of the cockpit (no unnecessary internal communication) in the event of an incident. During the incident, the pilot, in concise communication, informs about the failure and the actions taken and, if possible, notifies the subsequent actions.

In an emergency, the first thing to do is to stop the task and gain a safe altitude if the situation permits.

In an emergency, the safety of those on board the aircraft is always the priority. The rules must be followed:

- Fly - maintain a safe flight configuration;
- Diagnose the problem - understand what's going on;
- Perform the appropriate procedures;
- Determine further action;
- Inform the relevant services if necessary.

The safe flight configuration is:

- Safe height - preventing a potential collision with the ground or obstacles when attention is shifted to the indicators;
- Safe speed - tailored to manage power and maintain control.

Individual emergency procedures are performed in accordance with the Helicopter Operating Manual Chapter 3.

1.2. EMERGENCY ASSISTANCE PROVIDED BY TASK SPECIALISTS

During an emergency, the task specialist immediately stops observation and waits for any instructions given by the pilot. The task specialist can support the pilot in certain activities. This applies to events where the specialist could assist in holding the items in question, for example, preparing a fire extinguisher for use or pushing the ELT button to the "ON" position. The use of any device follows a command given by the pilot.

1.3. POST-EVENT ACTIVITIES

After an aviation incident, if medical assistance is required, in the first instance, the pilot or task specialist shall ensure the safety of himself and others and the safety of the aircraft and then notify the appropriate services. In the second instance, the Flight Operations Manager, SMS Manager and Responsible Manager should be immediately contacted for further decisions or support. Notification of an aviation incident occurrence is completed by completing the "Aviation Incident Report" form. The report is completed in the form on the Intranet or filled out manually and emailed within 24 hours of the incident to the SMS specialist and the Flight Operations Manager.

2. GROUND PROCEDURES

In the event of an emergency landing, task specialists evacuate the helicopter. If possible, the commander shuts down the engine and evacuates the helicopter.

Crew members and task specialists immediately remove a fire extinguisher from the deck.

If necessary, Crew Members or Task Specialists shall notify the relevant services in accordance with the ERP.

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SOP 8-00 GROUND EQUIPMENT

1. FUEL EQUIPMENT

The operator refuels from third parties and has its fuel tanks. Refuelling of helicopters is carried out by trained persons or pilots. If the operator uses its resources before taxiing, a sample of about 0.2-0.5 liters is taken from the tanks on any given day. The sample is kept in a sealed container until the end of the day's operations. If water content or impurities are found in the sample, the pilot sinks 3 liters of fuel and then takes another sample. If the water content is still seen, the pilot does not refuel the helicopter and informs the Flight Operations Manager of the situation.

During refuelling:

- No vehicles or persons not involved in refuelling may be closer than 5 m from the helicopter;
- Smoking and use of fire is prohibited;
- Task specialists may not be in the helicopter;
- The engine is turned off;
- There is a fire extinguisher at the refuelling site.
- It is forbidden to use a mobile phone while refuelling.

2. FIREFIGHTING EQUIPMENT

Fire extinguishers are on-site to protect helicopter refuelling operations. Before refueling, make sure that the extinguishers are in place and have a current expiration date. Off-site refuelling occurs at registered airports or airstrips, and the airport or airstrip manager provides fire protection.

There is a fire extinguisher on board the helicopter.

3. SIZE OF THE LANDING AND TOUCHDOWN AREA

At airfields and airstrips of record, the Commander follows the data contained in the INOP.

The minimum landing site size (FATO) is at least a field with a diameter or side of at least 25 m, assuming:

- On the approach within 12 m from the edge of this field there are no obstacles higher than 2 m;
- In addition to the approach within 4 m from the edge of this field, there are no obstacles higher than 2 m

If there are high obstacles around the landing area, the minimum landing area size is a field with a diameter of 50 meters.

The size of the touchdown plane should provide a distance of at least 1 m from the surface of the skids to the end of the edge of the touchdown area. The touchdown plane should be reasonably even, ensuring a stable touchdown of the skid landing gear. The slope must not exceed 5 degrees. It must be assured that there is no possibility of slipping or sinking the landing gear skids to a depth of more than 5 cm.

Landing to verify the failure of a facility to be inspected, or after the facility is found to be non-compliant, should be made in the area of the facility's working belt if possible, preferably on unpaved roads or meadows. In this situation, it is not recommended to shut down the helicopter.

For scheduled flights, landing in a place other than an airport or a registered airstrip shall be done in accordance with aviation regulations, and the following requirements shall be observed:

- obtaining permission from the landowner to perform the landing;
- prior reconnaissance of the area by the Commander, a crew member or a person designated by the Operator;
- Maintaining FATO dimensions and distances from obstacles as described above;
- Not using such a place more often than 14 days in 12 months.

During heliport operations, special attention should be paid to hazards such as the possibility of raising dust, fire, or damage to any light parts with a large surface area by the airflow under the rotor. When landing, be mindful of the helicopter's noise nuisance to humans and animals, especially geese, ostriches, and horses.

4. GROUND MARKING

Fixed airstrips are marked in accordance with the requirements of aviation regulations and the airstrip's operations manual.

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SOP 9-00 PERSONAL EQUIPMENT AND SURVIVAL GEAR ABOARD THE HELICOPTER

Each crew member uses during the operations performed:

- Flight suit;
- Headphones;
- Tablet/smartphone with internet access;
- Flashlight;
- Aerial map 1:500,000;
- Mobile phone;
- Reflective vest
- It is recommended to use a baseball cap and sunglasses during the summer season;
- Documents required in accordance with OM-A-8-01
- EFB

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SOP 10-00 AVIATION DOCUMENTATION AND FLIGHT RECORDS

Records are kept in accordance with OM-A-8-01 and OM-A-8-07 for EFBs.

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SOP 11-00 ANNEXES

1) Pilot checklist.
2) Checklist for briefing a task specialist.
3) Transition Training and OPC.
4) Periodic Training.

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Annex No. 1 to the SOP

Annex 1 – Pilot checklist

Flight preparation

List of preflight tasks – Day before flights or before flight

1. **Send flight request/flight order:**
   Task: Sky Demon/Garmin Pilot
   Assing route
   Route – creating briefing pack – create
   Square with an arrow in the right-up corner – mail - paste to e-mail previously prepared text (notes in Apple folder), send to Flight Operation Manager and data administrator (in memory).
2. **Fill and send flight order and mass and balance:**
   Intranet/app – attach to email.
   In the right-up corner, three dots "..." -share and export – send a copy -mail
   send an e-mail to the Flight Operation Manager and data administrator
3. **Before flight:**
   1. AMS-3, AUP, flight plan, other permissions np. overflight city area
   2. Helicopter preparation, inspection, check if all documents are present, iPad Credit Card,
   3. **iPad- intranet, fill the form before the flight – if applicable**
   4. **Fill out the Tech log (PDT)**

Fill out the technical log (PDT) and note flight time during flights.

After Flight

1. Post-flight inspection and helicopter securing
2. Fill out the flight order form, take a photo and send it via e-mail
3. Send the report (second part of PDT) on the iPad intranet.
   Fill out the flight report - if applicable.

CHECKLIST

Before start

Open the door with the key, install the headphones, insert and turn the key, install the navigation, set the altimeter, check if cables/devices are disconnected, remove the covers, check TOT, and complete part of the checklist according to the flight manual (FLM).

BEFORE STARTING ENGINE

Seat belts	Fastened
Fuel valve	ON, guard installed
Cyclic/collective friction	OFF
Cyclic, collective, pedals	Full travel free
Collective	Full down, friction ON
Cyclic	Neutral, friction ON
Pedals	Neutral
Rotor brake	Disengaged
Circuit breakers	In
Cabin heat, anti-ice, pitot heat	OFF
Landing lights	OFF
Avionics, generator switches	OFF
Altimeter	Set
Hydraulic switch	ON

STARTING ENGINE AND RUN-UP

Battery, strobe switches	ON
Igniter (key)	Enable
Area	Clear
Fuel cutoff	**Pull OFF**
Throttle	**Closed**
Start button	Push and release, begin timing
N_1	15%, increasing
MGT	Below 150°C
Fuel cutoff	Push ON
Successful ignition	Within three seconds
MGT	Monitor, observe limits
25% N_1	Main rotor rotating
Oil pressure	Increasing
N_1	Stable at 65 to 67%
Fuel cutoff guard	Install, begin timing idle
Ground power (if used)	Disconnect
Generator	ON
Avionics switch, headsets	ON
Annunciator panel test	All lights on
Audio alerts (if equipped)	Test
Engine anti-ice check	Annunciator light
Doors (if installed)	Closed and latched
Cyclic/collective friction	OFF
Hydraulic system	Check
Lift collective slightly	Low RPM horn
Warm-up	Verify at least one minute idle
Throttle	Increase slowly to full open
N_1 deceleration check	as desired
N_2/R	Stable at 100% (beep as required)
Annunciator lights	Out
Engine gages	Normal operating range

SHUTDOWN PROCEDURE

Collective down	Friction ON
Throttle closed	N_1 deceleration check
Cyclic and pedals neutral	Friction ON
Cool down	Two minute idle
Fuel cutoff	Pull OFF, monitor MGT
Sprag clutch check	Verify N_2/R needles split
Wait one minute	Apply rotor brake
Avionics, generator, battery, igniter switches	OFF

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Annex No. 2 to the SOP

Location, date .....

Briefing for task specialist

Briefing leader (legible name): .....

LP	Participant of the briefing, name	Organisational cell	Signature

LP	Subject	Recommended duration	A "**V**"/ No " -" was carried out.
1.	Time of operation and course, purpose of the task	As needed, no less than 10 min	
2.	Communication, means of communication, use of electronic equipment		
3.	Approaching the helicopter, Taking a seat in the cabin, Fastening belts, Closing, locking doors,		
4.	Handling of on-board equipment - headphones, phone, camera, location of equipment, storage space for equipment and luggage.		
5.	Restrictions and prohibitions, smoking nicotine products, drinking and eating.		
6.	Landings on uneven and sloping planes		
7.	In-flight behavior and internal communication		
8.	Handling an emergency situation		
9.	Use of rescue and firefighting equipment		
10.	Emergency lowering of the helicopter, location of emergency exits		

List of topics and duration

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Signature of the briefing leader

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Appendix No. 3

Transition training and OPC

Transition training is provided to crew members prior to employment with the Operator, including training on the aircraft (after completion of ground training).

Ground-based transitional training covers the following topics:

No	Subject	Duration
1	The Operator's management system, familiarization with the content of the operating manual, operating procedures, review of accident and incident reporting procedures	Minimum 6 h
2	Aircraft systems and equipment	
3	Performance and limitations, Operational procedures and requirements, including procedures for avoiding flights in icing conditions	
4	Flight planning	
5	Training in the knowledge of areas of operation	
6	Normal, abnormal and emergency procedures appropriate to the aircraft type or variant	
7	The equipment of the aircraft on which it operates, including the deployment and use of all emergency and safety equipment on board the aircraft, including: • Putting on the life jacket • Using Fire Extinguishers • Instructions for Deploying and Using Rescue Equipment • Emergency helicopter lowering • Safety procedures • Real operation of rescue exits • Firefighting with on-board fire extinguishers (real or simulated fire) • Effects of smoke and procedures for smoke activities • Actual handling of pyrotechnic materials • Using the First Aid Kit	
8	Training in Standard Operating Procedures for Operations: • Training to master all operational procedures included in the SOP, • Training in task preparation, helicopter preparation, documentation keeping, ground operations, • Training in cooperation with task specialists, • Mastering practical skills in patrolling power lines. • Training in the post-emergency procedure on board a helicopter in flight and while patrolling power lines. • Mastering the skills of conducting pre-flight briefings	
9	CRM elements, i.e. workload management, decision-making, development of resistance to stress and other factors	
10	Fatigue Management Training	

11	An overview of relevant examples of incidents, accidents or events discussed to raise awareness of events occurring in a given type of specialist operation.	

When conducting initial flight training for a given type of operation, you should:

a) Provide comprehensive training on the performance of normal, abnormal, and emergency procedures covering the provisions of the OM related to the operation.
b) complete any ground training before undertaking any flight training;
c) Before commencing flight training, conduct training including emergency procedures and procedures related to the use of emergency equipment.

Flight interim training covers the following topics:

No	Subject	Duration
1	**Pre-flight and post-flight checks and procedures:** • Helicopter knowledge (e.g. logbook, fuel, weight and balance, performance), flight planning, documentation, NOTAMS, weather • Pre-flight inspection and maintenance of the helicopter, location of parts and suitability • Cockpit inspection, take-off procedures • Checking navigation instruments and communications, selecting and setting frequencies • Pre-launch procedures, radiotelephony procedures, cooperation with air traffic control (ATC) units - compliance with their permits and instructions • Parking, shutdown and post-flight procedures	Minimum 1 h
2	**Hovering manoeuvres, advanced piloting and restricted areas:** • Take-off and landing, (detachment and touchdown) • Taxiing, arrival at the take-off point • Stationary hover with frontal/crosswind/tailwind • Rotation in a stationary hover, 360 degrees to the left and right (rotation on the spot) • Forward, sideways and reverse hovering maneuvers • Simulated engine failure in hover • Quick stop against the wind and with the wind • Landings and take-offs in descending terrain or in unprepared areas • Starts (different profiles) • Crosswind, rearwind start (if possible) • Take-off at maximum weight (real or simulated) • Approaches (different profiles) • Take-off and landing with limited power • Autorotation (basic autorotation, maximum range, low speed, with a 360-degree turn) • Autorotation landing • Practical forced landing with regained power • Power check, reconnaissance technique, approach and departure technique	
3	**Navigation - procedures during the flight:** • Navigation and orientation at different heights, map reading	

	• Maintaining altitude/relative altitude, speed and direction and observing airspace, setting the altimeter • Flight monitoring, logbook, fuel consumption, maximum flight time, approximate time of arrival, assessment of error in maintaining the prescribed line of route and return to it after yaw using navigation instruments • Observation of weather conditions, planning route variants • Maintaining the prescribed road line, determining the position, identification of radio navigation aids • Cooperation with air traffic control authorities and compliance with regulations, etc.	
4	**Instrument flight procedures and manoeuvres:** • Level flight, direction control, altitude/altitude control • Turns at angular velocity 1 in level flight with a change of direction from 180 degrees to 360 degrees left and right • Climb and descent, including turns with angular velocity 1 on the indicated course • Leading out of unusual positions • Turns in level flight with up to 30 degrees of bank with up to 90 degrees of direction to the left and right	
5	**Procedures in abnormal and emergency situations:** • Engine malfunction, including control failure, carburetor/engine icing, oil system • Fuel system malfunction • Malfunction of the electrical system • Malfunction of the hydraulic system, including approach and landing without the hydraulic system working, as required • Malfunction of the main rotor or torque balancing system (FFS only or theoretical overview) • Fire drills, including smoke control and extraction, as required	
6	CRM elements, i.e. workload management, decision-making, development of resistance to stress and other factors	
7	Training in the knowledge of areas of operation	
8	EFB training	
9	MEL training	
10	Training in Standard Operating Procedures for Operations (SPO HR Training)	

	Operator Proficiency Check (OPC) - helicopters	
No	**Subject**	**Duration**
1	**Pre-flight and post-flight checks and procedures:** • Helicopter knowledge (e.g. logbook, fuel, weight and balance, performance), flight planning, documentation, NOTAMS, weather • Pre-flight inspection and maintenance of the helicopter, location of parts and suitability • Cockpit inspection, take-off procedures • Checking navigation instruments and communications, selecting and setting frequencies	

	• Pre-launch procedures, radiotelephony procedures, cooperation with air traffic control (ATC) units - compliance with their permits and instructions • Parking, shutdown and post-flight procedures	At least 1 hour
2	**Hovering manoeuvres, advanced piloting and restricted areas:** • Take-off and landing, (detachment and touchdown) • Taxiing, arrival at the take-off point • Stationary hover with frontal/crosswind/tailwind • Rotation in a stationary hover, 360 degrees to the left and right (rotation on the spot) • Forward, sideways and reverse hovering maneuvers • Simulated engine failure in hover • Quick stop against the wind and with the wind • Landings and take-offs in descending terrain or in unprepared areas • Starts (different profiles) • Crosswind, rearwind start (if possible) • Take-off at maximum weight (real or simulated) • Approaches (different profiles) • Take-off and landing with limited power • Autorotation (basic autorotation, maximum range, low speed, with a 360-degree turn) • Autorotation landing • Practical forced landing with regained power • Power check, reconnaissance technique, approach and departure technique	
3	**Navigation - procedures during the flight:** • Navigation and orientation at different heights, map reading • Maintaining altitude/relative altitude, speed and direction and observing airspace, setting the altimeter • Flight monitoring, logbook, fuel consumption, maximum flight time, approximate time of arrival, assessment of error in maintaining the prescribed line of route and return to it after yaw using navigation instruments • Observation of weather conditions, planning route variants • Maintaining the prescribed road line, determining the position, identification of radio navigation aids • Cooperation with air traffic control authorities and compliance with regulations, etc.	
4	**Instrument flight procedures and manoeuvres:** • Level flight, direction control, altitude/altitude control • Turns at angular velocity 1 in level flight with a change of direction from 180 degrees to 360 degrees left and right • Climb and descent, including turns with angular velocity 1 on the indicated course • Leading out of unusual positions • Turns in level flight with up to 30 degrees of bank with up to 90 degrees of direction to the left and right	
5	**Procedures in abnormal and emergency situations:** • Engine malfunction, including control failure, carburetor/engine icing, oil system • Fuel system malfunction	

	• Malfunction of the electrical system • Malfunction of the hydraulic system, including approach and landing without the hydraulic system working, as required • Malfunction of the main rotor or torque balancing system (FFS only or theoretical overview) • Fire drills, including smoke control and extraction, as required	
6	CRM elements, i.e. workload management, decision-making, development of resistance to stress and other factors	
7	Refresher training on the knowledge of the areas of performing operations	
8	Training in Standard Operating Procedures for Operations (SOP HR Training): • Training to master all operational procedures included in the SOP, • Training in task preparation, helicopter preparation, documentation keeping, ground operations, • Training in cooperation with task specialists, • Mastering practical skills in patrolling power lines. • Training in the post-emergency procedure on board a helicopter in flight and while patrolling power lines. • Mastering the skills of conducting pre-flight briefings	

Appendix no. 4

Periodic training

The periodic training covers important aspects related to the operations performed by the Operator as described in the Operations Manual and training in the equipment of the aircraft on which the flights are performed, including training in the deployment and use of all emergency and safety equipment on board the aircraft.

The periodic training consists of:

a) ground training on:
- aircraft systems used by the operator;
- standard procedures, including flight planning, ground and flight procedures, performance, weight and balance issues, fuel planning and alternate aerodrome selection procedures, de-icing and anti-icing aspects;
- non-standard (*abnormal*) and emergency procedures;
- review relevant examples of incidents, accidents or events discussed in order to raise awareness of the events occurring in the type of operation.

b) training in the emergency equipment and emergency procedures of the aircraft on which the flights are performed;

c) flight training on the aircraft used in the operation, including the performance of standard procedures, non-standard procedures (*abnormal*) and emergency procedures, including those relating to the OM provisions related to the operation.

Detailed scope of periodic ground training:

<table>
<tr><th>No</th><th colspan="4">Subject</th><th>Duration</th></tr>
<tr><td>1</td><td colspan="4">The Operator's management system, familiarization with possible changes in the content of the operating manual, operating procedures, review of accident and incident reporting procedures</td><td rowspan="8">Minimum 6 h</td></tr>
<tr><td>2</td><td colspan="4">Aircraft systems and equipment</td></tr>
<tr><td>3</td><td colspan="4">Performance and limitations, Operational procedures and requirements, including procedures for avoiding flights in icing conditions</td></tr>
<tr><td>4</td><td colspan="4">Preparing for the flight</td></tr>
<tr><td>5</td><td colspan="4">Abnormal and emergency procedures</td></tr>
<tr><td>6</td><td colspan="4">The equipment of the aircraft on which it operates, including the deployment and use of all emergency and safety equipment on board the aircraft, including:</td></tr>
<tr><td rowspan="2">7</td><td>On an annual basis</td><td colspan="3">• Putting on the life jacket
• Using Fire Extinguishers
• Instructions for Deploying and Using Rescue Equipment
• Emergency helicopter lowering
• Safety procedures</td></tr>
<tr><td>3-year cycle</td><td>Year 1</td><td>Year 2</td><td>Year 3</td></tr>
</table>

		• Real operation of rescue exits	• Firefighting with on-board fire extinguishers (real or simulated fire) • Effects of smoke and procedures for smoke activities	• Using the First Aid Kit • Actual handling of pyrotechnic materials	
8	Procedures appropriate to the aircraft type or variant				
9	CRM elements, i.e. workload management, decision-making, development of resistance to stress and other factors				
	On an annual basis	• situational awareness • Workload management • decision-making;			
	3-year cycle	Year 1	Year 2	Year 3	
		Effective communication and coordination with other operator personnel and ground services.	effects of surprise and frightening;	development of resistance to stress and other factors;	
10	EFB refresher training				
11	MEL refresher training				
12	Training in Standard Operating Procedures for Operations (SOP HR Training): • Training to master all operational procedures included in the SOP, • Training in task preparation, helicopter preparation, documentation keeping, ground operations, • Training in cooperation with task specialists, • Mastering practical skills in patrolling power lines. • Training in the post-emergency procedure on board a helicopter in flight and while patrolling power lines. • Mastering the skills of conducting pre-flight briefings				

Detailed scope of periodic flight training:

No	Subject	Duration
1	**Pre-flight and post-flight checks and procedures:** • Helicopter knowledge (e.g. logbook, fuel, weight and balance, performance), flight planning, documentation, NOTAMS, weather • Pre-flight inspection and maintenance of the helicopter, location of parts and suitability • Cockpit inspection, take-off procedures • Checking navigation instruments and communications, selecting and setting frequencies	Minimum 1 h

	• Pre-launch procedures, radiotelephony procedures, cooperation with air traffic control (ATC) units - compliance with their permits and instructions • Parking, shutdown and post-flight procedures	
2	**Hovering manoeuvres, advanced piloting and restricted areas:** • Take-off and landing, (detachment and touchdown) • Taxiing, arrival at the take-off point • Stationary hover with frontal/crosswind/tailwind • Rotation in a stationary hover, 360 degrees to the left and right (rotation on the spot) • Forward, sideways and reverse hovering maneuvers • Simulated engine failure in hover • Quick stop against the wind and with the wind • Landings and take-offs in descending terrain or in unprepared areas • Starts (different profiles) • Crosswind, rearwind start (if possible) • Take-off at maximum weight (real or simulated) • Approaches (different profiles) • Take-off and landing with limited power • Autorotation (basic autorotation, maximum range, low speed, with a 360-degree turn) • Autorotation landing • Practical forced landing with regained power • Power check, reconnaissance technique, approach and departure technique	
3	**Navigation - procedures during the flight:** • Navigation and orientation at different heights, map reading • Maintaining altitude/relative altitude, speed and direction and observing airspace, setting the altimeter • Flight monitoring, logbook, fuel consumption, maximum flight time, approximate time of arrival, assessment of error in maintaining the prescribed line of route and return to it after yaw using navigation instruments • Observation of weather conditions, planning route variants • Maintaining the prescribed road line, determining the position (according to NDB or VOR), identification of radio navigation aids • Cooperation with air traffic control authorities and compliance with regulations, etc.	
4	**Instrument flight procedures and manoeuvres:** • Level flight, direction control, altitude/altitude control • Turns at angular velocity 1 in level flight with a change of direction from 180 degrees to 360 degrees left and right • Climb and descent, including turns with angular velocity 1 on the indicated course • Leading out of unusual positions • Turns in level flight with up to 30 degrees of bank with up to 90 degrees of direction to the left and right	
5	**Procedures in abnormal and emergency situations:** • Engine malfunction, including control failure, carburetor/engine icing, oil system • Fuel system malfunction	

	• Malfunction of the electrical system • Malfunction of the hydraulic system, including approach and landing without the hydraulic system working, as required • Malfunction of the main rotor or torque balancing system (FFS only or theoretical overview) • Fire drills, including smoke control and extraction, as required	
6	CRM elements, i.e. workload management, decision-making, development of resistance to stress and other factors	
7	Refresher training on the knowledge of the areas of performing operations	
8	Training in Standard Operating Procedures for Operations (SOP HR Training): • Training to master all operational procedures included in the SOP, • Training in task preparation, helicopter preparation, documentation keeping, ground operations, • Training in cooperation with task specialists, • Mastering practical skills in patrolling power lines. • Training in the post-emergency procedure on board a helicopter in flight and while patrolling power lines. • Mastering the skills of conducting pre-flight briefings	

Task specialists undergo training in the principles of performing operations, the duties of a task specialist, the rules of behavior in an aircraft and behavior in emergency situations. Task-oriented specialist training has no expiration date. However, when the procedures covered by the training program change, the task specialist must undergo supplementary training.

Subject	Duration (h)
Rules for performing the operation	3
Duties of a task specialist	1
Rules of conduct in an aircraft	1
Emergency behaviour	2
Emergency equipment	1