TEST PREPARATION GUIDE

BOOST YOUR LANGUAGE SKILLS TO HIT ICAO LEVEL 4

Supplementary materials provided in the brochure have an informative purpose only and are by no means exhaustive

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Tap the link to listen to the audio files:
https://disk.yandex.ru/d/AQK2OFSq_vAFQA

Audio tracks listing:

Part 1.
Interview

1. ATC job. Best and worst sides
2. Shift pattern. Handover procedure
3. Typical working day. Health requirements
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5. ATC training
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Part 3.
Speaking on aviation issues

17. Depressurization
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TEST STRUCTURE

Part 1. Interview

Part 2.1. Listening to eight short pilots' reports and replying to them

Part 2.2. Listening to two radio exchanges and reporting them

Part 3. Listening to a radio exchange in a non-standard situation and speaking on aviation issues

Watch the mock test here:
https://aeronav.aero/students/training_materials/

TEST-TAKING STRATEGIES

1. HOW TO REPORT A RADIO EXCHANGE:

Details to mention:	Verbs to describe pilot's actions:	Verbs to describe ATC's actions:	Linkers:
- callsigns - flight levels - heading - route - waypoints - problems - intentions	- reported … - requested… - intended… - clarified… - informed about… - declared… - confirmed…	- clarified… - informed about… - provided with… - ensured… - requested… - arranged…	- Firstly… - Secondly… - Next… - Besides… - After that… - Finally…

2. HOW TO CLARIFY DETAILS OF A RADIO EXCHANGE:

- ✓ Did the pilot report about…?
- ✓ Was there a problem with… or….?
- ✓ The pilot experienced a problem with… is that correct?
- ✓ Could you clarify … please?
- ✓ Did the pilot have a doctor on board?
- ✓ I didn't catch the RW / FL / problem…
- ✓ Confirm the sick passenger was female.

Sample report

Problems /intentions

BAW12 pilot reported about a medical problem on board and requested to divert to Novosibirsk.

Details (FL, problem, intentions, requests)

The crew didn't have a doctor, so they contacted with medical center. The doctors recommended to bring the patient to hospital for immediate assistance, as he was completely dehydrated.

ATC instructions

The controller instructed the pilot to descend to FL 300 and clarified what medical assistance they needed upon arrival.

 **WATCH OUT!!!**

Do not make your report too complicated for Level 4.

Pilot:
"Is there are any chance to accommodate us on RW 08L?"

Level 4	Level 5
The pilot requested RW 08L.	The pilot wondered if the controller could accommodate the aircraft on RW 08L.

Pilot:
"We have a critically ill patient and MedLink recommended us to divert to UUDD"

Level 4	Level 5
The pilot reported about a sick passenger and requested to divert to UUDD.	The pilot said that they had a critically ill patient and that MedLink had recommended them a diversion to UUDD.

3. HOW TO ANSWER QUESTIONS:

 **WATCH OUT!!!**

Do not confuse the questions:

How dangerous is the situation on board in case of …?
How may the situation develop in case of…?

COMMON REASONS	**Well,** there are many reasons for… The most common\ frequent problem is… It might happen due to…
RELATED PROBLEMS	**I suppose** it can affect the flight in many ways…
POSSIBLE CONSEQUENCES	**Actually**, we can anticipate different scenarios… It can lead to… It can result in… It can cause…
EXPECTED ACTIONS OF THE CREW	**Basically**, the pilot will report (state) the problem, assess the situation and do the checklist. Depending on the extent of damage, the pilot may request …

ATC ASSISTANCE	**In general,** ATC will find out the pilot's intentions, maintain separation, notify authorities, determine the best options for pilots to ensure safe landing and arrange for the pilot whatever is necessary. ATC must provide…
THE BEST PRINCIPLES TO ASSIST PILOTS	**I would say**, the best way is to give the crew time to assess the situation, not to press them with non-urgent messages and follow ASSIST code. It means…
ARRANGEMENTS ON THE GROUND	**As for** the arrangements, the controller may need to alert…

 **WATCH OUT!!!**

Mind the difference:

- I ensure **SAFE** separation between aircraft.
- Our main responsibility is air traffic **SAFETY**.
- If it is **UNSAFE** to continue the flight, the pilot will need to make a forced landing.
- The crew will determine the best options to land **SAFELY.**

4. HOW TO DEVELOP VOCABULARY:

PART 1. INTERVIEW

Audio Track 1

ATC Job

- My current position is an Area / Approach / Tower controller.
- I am rated as Approach and Tower controller.
- I handle/ manage/ control traffic in the upper airspace.
- I deal mostly with domestic / transit/ international flights.
- I deal with traffic in the aerodrome area.
- I have been valid for 10 years and I do 3 sectors.
- I have several sector endorsements in my sector group.

Best and worst sides of ATC work

- One of the best things is a convenient shift pattern.
- Besides, we have a good work-life balance.
- Certainly, it's well-paid, the money is great in this job.
- It's an absolutely satisfying job every single day.
- Among the downsides is a high level of responsibility.
- There are many professional tests and exams and strict medical requirements.
- The hardest / the worst thing for me about my job is work under pressure.
- It can be pretty stressful sometimes.

Audio Track 2

Shift pattern

- My shift pattern is very convenient.
- I have a good work life balance.
- My working hours absolutely suit me.
- Any shift can be easy or difficult. It depends on many factors.
- Morning shift is typically quite busy and time flies.
- At night, traffic is light, there are no military drills.
- It's difficult to stay awake and manage nighttime traffic.
- Personally, I prefer the day shift because I am not a morning person.

Hand-over procedure

During a handover procedure, a controller from a previous shift updates me on traffic in my sector, issued instructions about level change, restrictions, VIP flights, potential aircraft crossings, marginal weather (turbulence, wind, and icing) and our equipment capabilities. Hand-over is critical as it helps me to be fully aware of the traffic situation in my sector.

Audio Track 3

Typical working day

- An average or typical shift starts with a medical check.
- Next step is the briefing, we obtain information about weather, restrictions – anything that can affect our operations.
- After that, we take over duties from the previous watch.
- We check for any updates in the sector.

- We work on radar for about 60-90 minutes before a short break to decompress after a busy radar session.
- The shift typically ends with the de-briefing.

Health requirements

- We undergo regular medical evaluations or tests.
- The medical check before shift is a routine procedure.
- If a controller doesn't feel well, he may be suspended from duties or declared medically unfit.
- It can be pretty stressful. Nobody wants to be out of the job.
- I must be physically fit to do my job/ to perform my duties safely.
- I should have enough rest before shift.

Audio Track 4

Stress in ATC job

- As for me, I don't find my job stressful.
- However, it can be pretty stressful sometimes.
- Many factors can cause stress. For example, an emergency situation.
- I would say the most stressful for me is unscheduled military traffic in the congested airspace.
- We know how to manage stress or to cope with stress.
- Personally, for me a short nap is the best way to recover from stress. It really works.
- When you are stressed out, you can forget even simple English words and it can lead to misunderstanding.

Audio Track 5

ATC training

- ATC training is divided into three stages: ab-initio, simulator, on-the-job training.
- Ab-initio training gives the basic aviation knowledge.
- ATC simulator puts controllers in the real environment.
- Simulator sessions cover different scenarios from high traffic intensity to emergencies.
- On-the-job training is the final stage of training to get a valid controller's license.
- It is the most useful as we start dealing with live traffic under control of experienced instructors.
- We have simulator training and professional courses on a regular basis.
- Our simulator training is well-organized, I can't think of any improvement.

Audio Track 6

ATC duties

- As an area controller, I have to provide or ensure safe and orderly flow of traffic by applying separation rules.
- I scan and analyze the traffic situation in the sector to detect potential crossings.
- I give pilots instructions to climb, descend or turn.
- I update pilots on changing weather conditions and restrictions on route.

Audio Track 7

Supervisor's duties

A supervisor is in charge of all operations within the area. A supervisor must arrange the work of the shift. He makes decisions to combine or split control positions depending on traffic; and coordinates with the military unit and aerodrome services.

Audio Track 8

Teamwork

- It takes teamwork to direct the traffic from point A to B.
- Teamwork involves coordination with neighboring sectors, military units, and ground services.
- Each sector has a team of two controllers – a radar controller and a planner.
- Air traffic safety is our common responsibility.
- Controllers support each other to ensure flight safety.
- Two heads are better than one, so teamwork is critical.

Audio Track 9

Procedures

- We use / apply different procedures to manage/ control/ handle air traffic and to optimize traffic flow.
- We can use vectoring, speed control, level change and holding procedures for separation / sequencing / delaying air traffic.
- Vectoring may be needed in case of…
- Holding procedure is used for…

- We apply speed control when…
- If the separation reduces, it can lead to a near miss.

Audio Track 10

ATC Unit

- It's pretty large / it's not so big.
- It covers a large/ small area.
- The dimensions are about 750 000 sq. km
- It is split or divided into several sectors.
- It has complex terrain with seas and mountains.
- There are many civil, military aerodromes and airfields with joint operations and hail shooting positions.
- We have different types of restrictions.
- Our area is located in the southern region with the Black Sea resorts.
- There is a constant flow of traffic heading to the major southern airports.
- The Black Sea resorts are popular tourist destinations, so our area is always crowded / busy / congested.
- Dealing with high traffic intensity can be challenging, but manageable.

Audio Track 11

Traffic Intensity

- We have peaks and drops of traffic in our area.
- The traffic intensity changes from shift to shift.
- We have peak or rush hours in the morning.
- At times traffic can be very 'peaky'.
- At night traffic can be really slow or light.

- The airspace is busy/ congested/ crowded.
- The traffic is heavy/ intensive/ light / slow.
- We have regular and steady traffic flows inbound /outbound…
- It's tricky to manage traffic in a climb and descend profile.
- The closure of parts of airspace causes bottlenecks.

Audio Track 12

Operational problems

- The main challenge/ issue / problem is….
- It's pretty serious/ difficult/ challenging/ hard to deal with high traffic intensity.
- It can lead to/ it can cause/affect…
- It can disrupt regular traffic flows.
- We can expect or anticipate different scenarios.
- It depends on many factors…

Military drills	- create operational problems or constrains. - they block the busiest part of our airspace and can operate at any altitude or level. - the biggest issue is the unscheduled airborne military aircraft. It can disrupt the traffic flows.

Audio Track 13

High traffic intensity	- my sector is always busy (congested). - during peak hours I can handle up to 20 aircraft at a time (simultaneously). - it requires total concentration.
Marginal weather	- We can't control weather. - However, it affects everything we do. - Our area is prone to marginal weather. - It disrupts regular traffic flows. - The new traffic flow is not easy to anticipate. - New crossings may develop. - It can make navigation challenging for pilots. - Every deviation of marginal weather requires special attention and coordination.

WATCH OUT!!!

This way your speech will sound more natural.

It is **MORE** challenging to…	It is **LESS** dangerous
It is **MORE** likely to…	It is **LESS** risky

Audio Track 14

ATC Equipment

- I use a standard set-up for a controller/ a new controlling system.
- It allows me to be fully aware of the traffic situation and to manage traffic safely.
- In case of failures, we can call engineers to fix the problem / we use back-up or duplicate systems.
- A total black-out / outage is highly unlikely as our equipment is very reliable.
- Serious failures or faults (malfunctions) are very uncommon.
- The most critical is a communication system failure.
- The most frequent problems we face are…

Audio Track 15

Communication

- There are many reasons for miscommunication.
- The most common is equipment issues/ faults/ malfunctions.
- In can be readback errors or language problems.
- To resolve misunderstanding I have to check and clarify…
- Standard phraseology is used in routine events.
- Plain language helps to cope with non-routine situations and emergencies.

Audio Track 16

Emergencies

To help the pilot in emergency, we should follow the **ASSIST** principles:

- **A**cknowledge the nature of emergency;
- **S**eparate the emergency aircraft from other traffic. Clear the airspace beneath the plane.
- **S**ilence – impose silence if needed.
- **I**nform all concerned.
- **S**upport the pilots in any way possible. Arrange whatever is necessary for the pilot.
- **T**ime – give pilots sufficient time to solve the problem (to troubleshoot); do not press pilots with non-urgent messages.

MAKE SURE YOU CAN SPEAK ABOUT THE FOLLOWING:

Part 1 – Interview[1]

ATC Job	**Shift pattern**
· your job · ATC job: interesting / not interesting · positive /	· work schedule · round the clock operation of ATC service · your preferable shift · advantages / disadvantages of

[1] ***from www. training.aeronav.aero***

negative sides of profession
- information in your ATC license
- your unit, ratings

working a day / night shift
- typical working day
- medical check before shift
- briefing
- shift handover procedure
- debriefing

Hand-over procedure

- shift handover procedure
- questions to ask the colleague during shift takeover
- equipment check during shift takeover

Health requirements

- how to be fit for work
- health requirements for the ATC job
- strictness of the health requirements
- company's actions for maintaining your health condition

Stress in ATC job

- ATC job – stressful or not
- situations that cause stress for a controller
- how controllers cope with stress at work
- skills for coping with emergency situations

Training

- knowledge necessary for controllers' work
- controller's regular training
- regular professional courses
- role of simulator training

- how to improve simulator training in your centre
- how to obtain a rating?
- necessity of the on-the-job training
- who gives permission to work at a unit?

- how simulator training is organized in your centre
- professional education
- how to do your job well?

ATC duties

- controller's daily duties / responsibilities
- procedures used in your operating area
- how to maintain appropriate separation between aircraft
- role of aviation documents in your work
- importance of aviation documents in controller's work
- priority among ICAO and local documents

Teamwork

- role of good teamwork in air traffic control
- supervisor's functions
- who can become a supervisor?
- how your work is controlled
- how controllers assist each other

Procedures

- units and services you work with
- procedures requiring coordination
- information you issue to the pilots
- reasons for go around procedure
- reasons for revising the departure time
- arrangements in case of departure time revision
- reasons for delaying departure
- reasons for delaying arrival
- why monitor the situation in the zone non-stop?
- reasons for losing situational awareness
- consequences of the separation reduction
- controller's actions after observing a potential conflict situation

ATC Unit

- your zone of responsibility
- location of your ATC centre
- organization of work in your centre
- special features of your centre
- units at your centre
- size / dimensions of your area
- boundary between your and adjacent units
- special features of your operating area
- traffic intensity in your operating area
- intensity of international flights
- restrictions in your operating area
- controller's actions when restrictions are in force
- holding patterns in your operating area

Operational problems

- difficulties in your operating area
- equipment failures – reasons and results
- ground equipment failures
- radiotelephony communication difficulties
- reasons for readback errors
- weather conditions influencing ATC operations
- how restrictions influence your operations
- how construction works influence your operations
- cooperation with the military
- situations you coordinate with the military difficulties due military traffic

ATC Equipment

- your working place
- your equipment
- possible reasons for the equipment failure

- your actions in case of equipment failure
- sources of traffic information
- flight data necessary for handling traffic
- necessity of squawks
- situations when pilots change the squawk on their own
- reasons for miscommunication between a pilot and a controller
- how to deal with possible miscommunications

Communication

- necessity of standard phraseology
- necessity of plain English
- difference between standard phraseology and plain English
- skills necessary to pass the English test at ICAO Level 4
- effect of stress on the ability to communicate in another language

Audio Track 17

PART 3 – SPEAKING ON AVIATION ISSUES

Depressurization

Loss of pressurization is a serious in-flight emergency for aircraft. There are several reasons that may lead to depressurization: a bird strike, a structural failure, an unsecure door, in-flight explosion, metal fatigue, uncontained engine failure, malfunctioning of the air-conditioning system, electrical or pneumatic system failure (bleed air system), and bomb detonation. We can anticipate different scenarios. It

depends on the type of decompression (slow, rapid or explosive) and the stage of flight. In case of explosive decompression, the pilots need to descend without warning to the minimum safe altitude in the area. It can lead to a loss of separation and injuries to passengers and crew. During decompression, other aircraft systems could be damaged, for example, the structural damage can affect the aerodynamic characteristics of the aircraft.

Audio Track 18

Fire

Fire is the most dangerous in-flight emergency and the worst pilot's nightmare. Scenarios depend on the stage of flight, the location of fire (onboard fire or engine fire or hidden fire) and the extent of the problem (open fire or just an indication). Sources of fire can range from a short circuit to electronic devices. Fire can spread quickly, fill the aircraft, produce gas and toxic fumes. People can get intoxicated due smoke inhalation. Most likely, the crew will try to determine the origin of fire and put it out, perform emergency landing and evacuate people as soon as possible using emergency slides. Evacuation must be fast using special emergency slides or escape chutes. Controllers will have to alert fire and rescue services, ambulance and technical vehicles. It is hardly possible to prevent in-flight fire as aircraft has kilometers of wiring and carries a lot of fuel.

Audio Track 19

Fuel problems

Fuel is a must for an aircraft. Without fuel, the engines won't work. If the plane runs out of fuel while in the air, the plane must be refueled. Otherwise, the plane will crash. There are different ways of experiencing fuel problems: fuel leak, fuel freezing, exhaustion / starvation, contamination, etc. Blocked fuel lines can result in fuel starvation and total engine failure. Fuel consumption depends on many factors. For example, headwind can increase consumption and tailwind is ideal for cruising. Pilots prefer higher levels for their cruising flight because cruising at a higher flight level generally requires less fuel than at a lower flight level as air density and temperature decreases with altitude. The optimum cruising flight level depends on actual aircraft weight, air temperature and wind. Circumnavigating marginal weather, such as CB cells, can require more fuel. Pilots may describe fuel problems using such terms as: a minimum fuel status or an emergency fuel.

 **WATCH OUT!!!**

Mind the difference:

Reason	**Consequence**
Fuel problems may ***RESULT FROM*** *unplanned holding due restrictions*	*Fuel problems may* ***RESULT IN*** *declaring Pan or Mayday*

Audio Track 20

Engine failures

Generally, there are many reasons for engine failure. The most common reasons are bird strikes, ingestion of foreign objects, icing, hail, hydraulic and electrical issues, fuel emergency, oil pressure, etc. Pilots may report about an intense vibration, reduced / idle thrust, an engine stall indication, engine flame-out, engine shutdown / cutting off, oil reduction issue, a bird / debris ingestion. Actually, the situation can develop in many ways, it depends on the stage of flight, the type of aircraft (single- or multi-engine aircraft) and the extent of failures. The most critical is the uncontained engine failure because fuselage and adjacent systems could be damaged. Engine failure on a single engine aircraft can be deadly. In case of engine failures, we can anticipate different scenarios. Pilots may shut down or try to restart the affected engine and continue flight on remaining engines. Typically, pilots request lower level as the aircraft doesn't have enough thrust to maintain altitude. In the worst-case scenario, it will require a forced landing.

Audio Track 21

Hydraulic problems

Several aircraft systems depend on hydraulic power: flaps, slats, gears, brakes, autopilot, etc. Examples of hydraulic issues in flight include a hydraulic system overheating, a hydraulic fluid leak, a loss of hydraulic pressure, jammed flaps or slats, or a complete loss of hydraulic systems. It can cause problems to the secondary flight controls and affect aircraft braking, autopilot and gear extension or retraction.

Problems with hydraulics can be critical during take-off or landing and can result in a runway excursion or a post-crash fire. In case of hydraulic system failure, pilots may request to hold somewhere to run checklists and to determine the best option for a safe landing.

Audio Track 22

Landing gear problems

Landing gear problems usually take place during takeoff and landing and may result from either hydraulic system failure (extension/retraction problems, steering issues, overheated brakes, hydraulic fluid leak, loss of one of the hydraulic systems) or a mechanical damage due to a bird strike, a RW incursion, piloting errors and so on.

Unlocked or not fully extended landing gear can result in: gear-up landing, total gear collapse, airframe damage, a runway excursion and post-crash fire. In case of a gear problem, the crew will need extra holding time to solve the problem and assess the gear status. Pilots may perform a manual emergency gear extension. To verify the gear position, pilots rely on the indications and may request to carry out a low-pass for technical personnel to inspect the landing gear position visually. Most likely, pilots will require rescue and fire services on standby. The controller may anticipate that runway will be blocked after landing as the plane may be unable to taxi and vacate the runway under own power. In case of total gear extension failure, the pilot will be forced to make a belly landing. In such an event, thew runway will be covered with a foam carpet to reduce the impact and to prevent post-crash fire.

Audio Track 23

Technical problems

Technical problems on board may involve engine issues, fuel problems, pressurization issues, electrical malfunctions, hydraulic faults. Serious technical problems are uncommon because modern planes are highly reliable. Every system on a plane has a back-up or a redundancy system. A regular technical maintenance helps to minimize the risks of technical emergencies on board. However, small technical failures do happen. Sometimes a minor problem can quickly develop into an emergency. The possible scenarios depend on the stage of flight, the nature of problem, and the extent of damage. In the best-case scenario the pilot will assess the situation, do the checklist and troubleshoot the problem, and continue the flight. In the worst cases a technical problem can cause an aircraft return or a forced landing. If it is unsafe to continue a flight the pilot will decide to divert to fix the problem.

Audio Track 24

Natural Disasters

Hurricanes, earthquakes, floods, volcanic eruptions are becoming more frequent due to climate changes. Each region has its own challenges. Natural disasters are likely to slow down airport operations, delay or cancel flights, disrupt schedules, result in crowds of stranded passengers and be costly for operators. Aviation assistance to regions affected by natural disasters includes search and rescue operations, evacuation / transportation of people and goods.

Audio Track 25

Medical problems

Heart attacks, food poisoning, breathing difficulties, strokes are the most common medical problems. In case of a minor medical problem flight attendants can provide the basic first aid. The pilots may also call the MedLink service and get recommendations from doctors on the ground for a sick passenger. Serious life-threatening problems will require a diversion to take the patient to hospital. The pilots will assess the situation and make the decision about a possible diversion. The pilots will consider such factors as the condition of the patient, the MedLink recommendations, the distance to the planned destination, endurance, specific aircraft services and actual weather at the airport. The controller needs to know the pilot's intentions, the nature of a medical problem, age and gender of the patient, the number of affected passengers on board, and the type of required medical assistance - a regular ambulance or a reanimation / resuscitation team.

Audio Track 26

Air Ambulance

Air ambulance helicopters are used for urgent medical transportation of critically injured patients. This is the best solution to transport patients over a long distance or a complex terrain. Air ambulances are fitted with the medical equipment to care for ill patients.

Audio Track 27

Pilot's incapacitation

Pilot's incapacitation means the inability of a pilot to perform normal duties during a flight. The possible reasons are a physical injury, hypoxia, heart attack, fumes inhalation, a laser attack and others. The first sign for controllers can be a loss of communication, no compliance with instructions, and even a loss of separation. Actually, in the worst cases it can lead to fatal consequences. However, for multi-crew aircraft the inability of one pilot may result in additional workload for other crew members. To prevent possible incapacitation there are such measures as constant crew training for this scenario, correct control of pressurization system, ensuring safe conditions for pilots.

Audio Track 28

Air Rage

The term "air rage" means disruptive or violent behavior on the part of passengers and crew of aircraft. There are several reasons behind air rage including queues, delays, alcohol and drugs, mental problems, overbooking, stress and fear of flying. Unruly and abusive passengers may cause disturbance on the plane and will distract the crew from safety related duties as they will have to restrain/subdue the troublemaker. Many flights are affected by serious passenger misbehavior every year. This behavior may force crew to divert as the unruly passenger may cause harm to aircraft and its occupants and must be removed from the plane. Disruptive passengers may face fines and even a prison term.

Audio Track 29

Drones

A drone is an unmanned aircraft that can be remotely controlled. UAV in aviation stands for unmanned aerial vehicle. A drone can fly a range from 1 km up to 2000 km. Drones can strike a windshield or get into the engine. Pilots must report ATC about location, altitude, distance, maneuvers, size, shape and other details. ATC service should warn other pilots. Current rules restrict drone operators from flying within 5 miles of an airport and above 400 feet.

Audio Track 30

Near miss

Near miss is a loss of safe separation between aircraft during the flight. In worst cases near miss can develop into mid-air collision. Actually, there are many reasons for a loss of separation: heavy traffic, military training, poor coordination between adjacent sectors or units; high workload, distractions, misunderstanding between pilots and controllers. Near miss can also result from misunderstanding: incorrect use of standard phraseology, poor language skills or read-back and hear-back errors. To warn of potential collision with other aircraft there is both onboard and ground equipment. However, not every aircraft has a transponder. So military aircraft can be invisible for a controller. TCAS is only able to interact with aircraft that have a correctly operating transponder. Finally, ATCs have conflict alert system to detect potential conflicts and to prevent near misses.

Audio Track 31

Wind shear

Wind shear is a sudden change in wind speed and direction over a short distance. It is dangerous during final approach and touchdown. It can result in the aircraft suddenly losing height and airspeed or touching down short of the runway making a hard landing. Wind shear can occur horizontally or vertically but the most common type is vertical. At higher altitudes, wind shear is mostly related to turbulence. Wind shear can also generate turbulence. To predict windshear pilots, use weather radar and GPWS (Ground Proximity Warning System). The best ways to prevent encountering wind shear is to avoid it where possible. It's rather difficult to reduce the risk of wind shear as we can't control the weather. However, wind shear forecasting, use of ground and airborne wind shear warning systems helps to minimize the risks / to lower risk levels. Many airports are now equipped with a Low-Level Windshear Alerting System and a Terminal Doppler Weather Radar.

Audio Track 32

Marginal weather conditions

Dealing with bad weather is the biggest challenge for controllers and pilots as aircraft can't fly their usual routes. Every deviation requires special attention and coordination. It can increase communication as the ATC needs to clarify details of avoidance actions. New crossings may develop due to the disrupted traffic flows. Our area is prone to thunderstorms due to specific terrain with seas and

mountains. Marginal weather is the common problem for us especially in summer. Lightning strikes can damage aircraft's skin and also interfere with the aircraft's electrical systems. Hail can cause structural damage to the aircraft and its engines and crack the windshield. Thunderstorm clouds contain lightning, precipitation, hail, extreme turbulence, ice, microbursts, winds, all of which can be hazardous to planes. Turbulence can cause aircraft to lose control or experience speed fluctuations. The pilot may be unable to maintain the assigned level. ATC should assist pilots by issuing information about possible location of adverse weather areas and how to circumnavigate this area. ATC should request pilots to report when clear of weather and able to resume the flight plan route.

Audio Track 33

Bird strikes

Aircraft collisions with birds present a safety threat to aviation. Airports present wide and open spaces which attract birds. The seriousness of this emergency depends on: the size of the bird, the speed of the aircraft at impact, where it hits the aircraft. The most dangerous strikes are to the windshield and engine. It may make safe landings difficult. This may lead to loss of control, or even structural failure. A bird strike may crack windshield, cause an engine failure (single or multiple engines), hydraulic problems, electrical problems, gear problems, crew incapacitation. Ornithological services are responsible for the bird situation at the airport and should keep birds away from the runway.

Audio Track 34

Difficulties in radiotelephony communications

All aircraft maintain two-way communication with appropriate ATC unit. A lot of factors can affect safe pilot-controller communications. It might be heavy accent, non-standard phraseology, hearback or readback errors, calsigns confusion, stuck mike and radio equipment malfunctions. In case of communication failure, the aircraft will attempt to re-establish communication using other frequencies and nearby aircraft. The plane should maintain the last assigned FL, set squawk 7600, continue position reports over compulsory waypoints until communication is re-established. The controllers should determine if this is a partial communication failure (one-way loss of communication), or a complete communication failure (two-way loss of communication) by instructing the pilots to acknowledge instructions by some maneuver which can be observed on the radar display, or to transmit a special signal or a specified SSR code.

WATCH OUT!!!

Active Voice	Passive Voice
Controllers **USE** both plain English and standard phraseology	Plain English **IS USED** in non-routine situations.

Audio Track 35

UFO

UFO stands for unidentified flying objects. Pilots may spot some flying objects. It can look like a bright light, some flaring or brilliant balls of light. The object can be stationary or moving, veering or circling. Possible origins of these phenomena might be some satellite or a meteor, or some drones, atmospheric effects or just a rocket launch. Reports about sighting UFO usually contain information about the location, speed, direction of movement. A controller should be aware of such sightings to inform and alert other pilots in the vicinity. UFO reports have become more common due to Elon Musk's launching StarLink. Pilots often report about satellites spaced at the same distances.

MAKE SURE YOU CAN SPEAK ABOUT THE FOLLOWING:

Part 3 – Speaking on Aviation Issues [2]

Unknown Object in flight

- explanation of the term 'UFO'
- possible appearance of such objects
- possible origin of UFO
- frequency of facing UFO
- information contained in pilots' reports about UFO
- possible dangers posed by UFO

[2] ***from www. training.aeronav.aero***

- why to inform ATC service about sighting UFO
- controller's actions in case of a UFO report
- why to investigate incidents connected with UFO
- situation connected with a UFO you have had / heard about

Drones in aviation

- explanation of the term "drone"
- operating characteristics of drones: time airborne, flight range
- possible dangers posed by drones
- frequency of near misses between drones and aircraft
- frequency of reports about drones from pilots
- information contained in pilots' reports about drones
- why pilots inform ATC service about drones
- controller's actions in case of a drone in the zone
- measures to stop drones flying over airports
- measures to reduce the risks that drones pose to aircraft
- why to investigate incidents connected with drones
- situation connected with a drone you have had / heard about

Technical problems on board the aircraft

- the most common technical problems in flight
- effect of technical problems on the flight
- pilots' requests and actions in case of a technical problem
- technical problems that cause an aircraft diversion
- technical problems that cause an aircraft return to the departure aerodrome
- technical problems related to the electrical / hydraulic system / engine failure

- kinds of technical problems assessed as emergency
- controller's actions in case of emergency on board an aircraft
- the best principles of ATC assistance to the pilot in distress
- arrangements on the ground for a successful landing of emergency traffic
- services alerted in case of emergency
- equipment and vehicles prepared on ground in case of an emergency landing
- situation connected with a technical problem you have had / heard about

Engine failure

- the most common reasons for an engine failure
- related malfunctions in case of an engine failure
- dangers posed by an engine failure
- possible consequences of an engine failure
- pilots' requests and actions in case of an engine failure
- controller's actions in case of an engine failure
- the best principles of ATC assistance to the pilot in case of an engine failure
- arrangements needed on the ground for successful landing in case of an engine failure
- special vehicles required upon arrival in case of an engine failure
- situation connected with an engine problem you have had / heard about

Fuel emergency

- terms used to describe the fuel status
- development of the situation in case of fuel problems on

board
- factors that affect fuel consumption in flight
- how weather affects fuel consumption
- weather conditions that increase fuel consumption
- how wind affects fuel consumption
- the best wind for the flight en-route
- wind that increases fuel consumption
- factors that lead to fuel starvation
- fuel problems due to low outside temperature
- possible pilots' actions in case of too low fuel temperature
- pilots' requests and actions in case of low fuel endurance
- dangers of a fuel emergency
- controller's actions in case of fuel emergency
- situation connected with a fuel problem you have had / heard about

Fire on board an aircraft

- factors that lead to fire on board an aircraft
- situation development in case of fire
- dangers posed by fire on board
- pilots' requests and actions in case of a fire emergency
- effect of a fire emergency on ATC operations
- effect of a fire emergency on aerodrome operations
- services alerted in case of a fire emergency
- controller's actions in case of a fire report
- difference between an emergency evacuation and a normal disembarkation
- effective ways of preventing fire on board an aircraft in the future
- situation connected with fire on board you have had / heard about

Bird strikes at the airdromes

- dangers posed by birds at an airport
- aircraft parts mostly damaged due to bird strikes
- seriousness of damages due to bird strikes
- aircraft systems that suffer from bird strikes
- consequences of bird strikes
- pilots' requests and actions after a bird strike detection
- controller's actions in case of a bird strike
- reasons for checking RW in case of a suspected bird strike
- what the crew consider in case of a report about birds near the runway
- reasons for birds to inhabit the airports' territory
- services that monitor the birds' environment
- services that are responsible for the bird situation at the airport
- active and passive means to prevent birds at the aerodrome
- protective measures against bird strikes at the airdrome
- situation connected with a bird strike you have had / heard about

Passenger-related medical problems

- the most frequent health problems on board an aircraft
- effect of a medical problem on board on the flight
- pilots' requests and actions in case of a medical problem on board
- controller's actions in case of a medical problem on board
- information necessary for an effective assistance to a flight with a medical problem

- reasons for using air ambulances
- reasons for using helicopters for emergency medical transportation
- necessity of priority for special medical flights
- situation connected with a medical problem you have had / heard about

Hydraulic system failure

- the most common causes of a hydraulic system failure
- problems related to a hydraulic system failure
- possible consequences of hydraulic problems on board
- dangers posed by a hydraulic failure
- stage of flight when a hydraulic problem can arise
- how a pilot gets to know about a hydraulic malfunction on board
- pilots' requests and actions in case of a hydraulic system failure
- controller's actions in case of a hydraulic system failure
- the best principles of ATC assistance to the pilot in case of a hydraulic system failure
- arrangements needed on the ground for successful landing in case of a hydraulic system failure
- special vehicles required upon arrival in case of hydraulic system failure
- situation connected with a hydraulic system problem you have had / heard about

Landing gear malfunction

- stage of flight when a landing gear problem can arise
- the main reasons for a gear malfunction
- the effect of a gear malfunction on the flight
- the consequences of a nose gear problem
- how a pilot gets to know about a landing gear problem

- pilots' procedures to investigate the problem
- pilots' requests and actions in case of a landing gear problem
- controller's actions in case of a landing gear problem
- reasons for inspecting gears from the ground
- services alerted in case of a gear malfunction
- runway preparation in case of landing with a gear problem
- situation connected with a landing gear problem you have had / heard about

Unruly passengers

- explanation of the term "air rage"
- possible contributing factors to passenger's misbehaviour on board
- pilots' requests and actions in case of an unruly passenger on board
- reasons for diversion in case of unruly passenger behaviour
- ways to cope with unruly passengers on board
- information necessary for an effective assistance to a flight with an unruly passenger
- people responsible for handling such passengers during flight
- cabin crew training for dealing with unruly passengers
- ground services activated in case of an unruly passenger on board
- ways to prevent air rage incidents
- air rage - a growing problem
- situation connected with unruly passenger behaviour you have had / heard about

Pilots' incapacitation

- possible reasons for pilots' inability
- when such a situation becomes critical
- multi-crew aircraft: why easier to avoid serious problems
- reasons for pilots and cabin crew to have good mental and physical health
- ways to identify pilot incapacitation
- the first indication of total flight crew incapacitation
- cabin crew's assistance for the flight crew in case of captain incapacitation
- related problems in case of in-flight pilot incapacitation
- controller's actions in case of pilot incapacitation
- reasons to stop pilot's license in case of health problems
- situation connected with a pilot incapacitation you have had / heard about

Natural disasters

- types of natural disasters
- natural disasters that can influence flights
- effect of natural disasters on flights
- pilots' requests and actions in case of a natural disaster
- natural disasters possible in your zone of responsibility
- danger posed by natural disasters to aviation
- natural disasters causing airport closure
- aviation assistance to regions affected by natural disasters
- emergency ATC procedures in case of a natural disaster
- situation connected with a natural disaster you have had / heard about

Difficulties in radiotelephony communications

- kinds of difficulties during pilot-controller communication
- possible reasons for a communication failure
- SSR code used in case of a communication failure
- controller's actions if a pilot does not reply
- explanation of the term "one-way communication failure"
- explanation of the term "two-way communication failure
- procedures to determine one-way or two-way loss of communication
- possible pilots' actions in case of a total communication failure
- arrangements in case of traffic with a communication failure
- situation connected with communication problems you have had / heard about

Wind shear

- stages of flight when windshear affects an aircraft most
- possible results of wind shear
- dangers posed by wind shear
- What may happen to the aircraft experiencing severe wind shear?
- similarity between wind shear and turbulence
- possibility of predicting windshear
- possible pilots' actions in case of wind shear
- controller's actions after receiving pilot's information about wind shear
- measures to reduce wind shear influence in aviation
- situation connected with wind shear you have had / heard about

Marginal weather conditions

- effect of bad weather conditions on controller's work
- weather phenomena affecting operations in your zone of responsibility
- factors influencing the choice of appropriate strategies
- operating practices for dealing with thunderstorm activity, turbulence and periods of excess demands due weather
- how to get prepared for dealing with adverse weather
- damage that an aircraft can get in case of lightning strike / hail / thunderstorm / severe turbulence
- controller's assistance to aircraft in adverse weather conditions
- measures to make controller's job easier under adverse weather conditions
- situation connected with adverse weather conditions you have had / heard about

Near miss

- near miss incidents - a serious problem in aviation
- possible reasons for near miss
- how misunderstanding between pilots and controllers leads to near miss
- equipment that helps pilots to keep situational awareness
- aircraft not equipped with transponders
- why to inform pilots about military flights in the area
- equipment that alerts controllers to a potential conflict between aircraft
- reports that pilots and controllers file in case of a near miss
- information included in near miss reports

- reasons for investigating near miss incidents
- ways of preventing near miss incidents
- situation connected with loss of separation you have had / heard about

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Proof reading:

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