EMERGENCY SITUATIONS

Answer the questions. You can use the information below.

1. What types of emergencies do you know? Give examples.
2. What kind of reports can you expect from pilots in such situations?
3. What are possible consequences of a PAN situation/a MAYDAY situation?
4. How should ATC respond to an emergency call?
5. When do air traffic controllers impose radio silence?
6. What services and equipment should be activated?
7. How can an emergency affect ATC work?

Emergency is a serious event that requires immediate actions. Emergency situations can be distress and urgency. Distress is a dangerous situation requiring immediate assistance. An aircraft in distress sends signal MAYDAY three times and sets SSR (secondary surveillance radar) code 7700. Urgency is a potential distress situation that requires timely assistance. In case of urgency an aircraft sends PAN-PAN three times. The pilot declares an emergency transmitting emergency signals on frequency in-use or on special emergency frequency 121,5. An emergency aircraft always has priority over other traffic.

Emergency situations may develop as a result of one or more factors, for example, technical malfunction, fuel shortage, pilot incapacitation, aircraft damage and others. If an emergency happens pilots must assess the situation and complete the checklist. They need time to determine the nature of problem, solve the problem if possible, and make a decision about further intentions. Pilots may declare an emergency. The controller must be aware that pilots are very busy and have limited to correct or improve the situation.

In the event of emergency the controller can expect a diversion to the alternate, rerouting, short cut, emergency descent, forced landing at the nearest suitable aerodrome, return to the departure aerodrome, fuel dumping (слив топлива), go around, aborted take-off, holding, passenger evacuation after an emergency landing as quickly as possible, blocked runway and closed airport. It depends on the stage of flight and type/kind/sort of the problem.

In case of emergency, the controller’s workload increases due to additional/extra coordination and communication with other units. Emergency traffic requires priority and it can lead to delays. Under such circumstances the controller can experience stress, strain and time pressure. The controller has little time to take/make a decision. The controller must provide necessary assistance to the pilot, provide priority, alert all services and units concerned.

EMERGENCY SITUATIONS

Emergency
↙ ↘
Distress (MAYDAY) ***Urgency (PAN PAN)***

REASONS FOR EMERGENCIES

It can happen due to … / Pilots declare an emergency in case of …

- smoke or fire on board
- minor or major aircraft technical malfunction (e.g. engine failure, electrical issue, communication failure, hydraulic problems, navigation system fault, etc.)
- decompression
- aircraft damage
- bird/debri***s*** strike or ingestion into the engine
- fuel leak or fuel shortage
- hazardous weather (e.g. thunderstorm, hail, lightning, severe turbulence, etc.)
- sick/ill passenger on board
- pilot incapacitation
- disruptive/unruly passenger on board
- bomb threat / bomb warning / bom***b*** alert / bomb scare
- hi-jack (ing), etc.

POSSIBLE RESULTS/CONSEQUENCES

We can expect … / It can lead to … It can cause….. It can result in…..

- emergency descent
- rerouting
- deviation from the flight planned route
- diversion to the alternate aerodrome
- return to the departure aerodrome
- holding (to do necessary checks)
- fuel jettison/fuel dumping or fuel burning (to reduce landing weight of the aircraft)
- forced landing/out of the field landing
- belly landing
- ditching
- priority/prior landing
- low pass/fly-by (to inspect the aircraft from the ground)
- go around
- aborted take-off
- immediate passenger evacuation after landing
- blocked runway or closed airport, etc.

EXPECTED PILOT ACTIONS

Pilots will …

- assess the situation
- do/complete a checklist
- request time (to solve the problem)
- make a decision (to continue to the destination or initiate a diversion/return)
- declare PAN or MAYDAY
- inform all concerned (including the cabin crew, passengers and the company)
- require emergency services and equipment standing by/on stand by

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ATC ASSISTANCE

ATC will … / ATC must … follow ASSIST CODE/PRINCIPLE:

- ***A - ACKNOWLEDGE*** - acknowledge emergency status (e.g. Roger, Mayday) and nature of the problem, clarify problem if unclear, get information about intentions and type of necessary assistance
- ***S - SEPARATE*** - separate the aircraft from other traffic, give it room to maneuver, clear the airspace
- ***S - SILENCE*** - impose radio silence if the frequency is congested, keep the frequency clear (not to disturb the pilot with unnecessary transmissions)
- ***I - INFORM*** - inform the supervisor and other units, services concerned such as authorities, adjacent sectors, landing aerodrome, emergency services
- ***S - SUPPORT*** - support the pilot, provide maximum navigational and informational assistance to the pilot, provide rerouting, diversion and priority
- ***T - TIME*** - give pilots time to work on the problem, keep the radiotelephony to minimum

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SERVICES & EQUIPMENT

Pilots may require… / Controllers must alert …

- emergency services (to help the crew evacuate passengers from the emergency aircraft)
- search & rescue teams (to find and save people in case of out of the field landing)
- fire brigade (to extinguish possible fire)
- medical service (to provide first medical assistance to the injured people and transport them to hospital)
- technical staff (to inspect the aircraft for possible damage)
- towing equipment/a tug/ a tractor (to remove the aircraft from the runway if it’s unable to move)
- stairs/steps and busses for passengers