IKAR/CISA 2001
MAKARSKA - CROATIA
Kommission für Luftrettung
Commission pour le Sauvetage Aerien
Commission for Air Rescue

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INTRODUCTION:

The air-Rescue Sub-commission met with 37 people representing 13 countries. They were Austria, Canada, Sweden, Croatia, Slovenia, Italy, Norway, Slovakia, France, Switzerland, Germany, Poland and the Czech Republic. The proceedings were directed by the Chairman, Mr. Gilbert Habringer of OAMTC-Austria.

ACCIDENTS/INCIDENTS FROM MEMBER COUNTRIES:

At this year's meeting, no one reported any serious accidents although a number of notable incidents were presented. Sadly, shortly after the IKAR meetings three serious accidents in Italy and Switzerland occurred. These are included in the report.

Inadvertent transport, Austria: During a slinging operation in Austria, an EC-135 was preparing to pick up a patient in a stretcher. There were two attendants with the stretcher, a rescue leader and a doctor. While the load was being lifted another climber from the party was lifted up when the ice axe on his harness got hooked by the load. Once in flight, the pilot realised (from the extra weight), that something was unusual. The load including the "extra" climber was transported uneventfully down to the staging area below the accident site. Discussions followed regarding ensuring that all other patients and rescuers are clear of the site during any slinging or hoisting operations.

High-tension wire rescue France: A video was shown of an Allouette III crew simulating rescue of a person from high-tension wires. The wires were about 100 meters above ground. As the aircraft was approaching the lines, it suddenly settled, struck the wires and rolled forward nose first. Amazingly, the pilot was able to regain control before the helicopter could hit the ground and he managed to pull up and fly away. The simulated victim was uninjured.

Rescue Load tied to anchors, Switzerland: An Allouette III was picking up a stretcher on the hoist when it became apparent that the stretcher was still tied to the anchors. The rescuers

on the ground were having radio communication problems. This may have due to their helmets having been modified with helmet cams in order to shoot footage for a film. This incident reinforced the stringent requirement for reliable radio communications between all members of the crew.

Rollover, Germany: A military BH 205 had landed near the site of a motor vehicle accident when the pilot decided to reposition the aircraft. While repositioning, one of the crew members moved from the left to the right side of the cabin. In the process, the skids struck some gently rising terrain and the helicopter rolled over on its side. There were no injuries.

Rotor Strike, Germany: During a night flight exercise, a low experience pilot lost reference while looking at waving high grass as he hovered near the ground. The aircraft started to move backwards into trees. The pilot was able to land the helicopter safely.

Tail rotor failure, Slovenia: The tail rotor on a BO105 separated from the aircraft while it was cruising at 200 km/hr. The aircraft was landed safely but the machine burned. Few details of the incident were available.

Tail Rotor Failure, Sweden: A similar incident as the one described above but on a BH204.

Driveshaft failure, Canada: During an autorotation exercise on a BH 212, the two pilots on board began to notice severe vibrations while at idle. The aircraft was landed safely. The aircraft was examined and a drifeshaft failure was discovered.

Main Rotor damage, Czech republic: During a hoist exercise (type unknown) the winch operator, lost control of the cable. The cable snagged on the left skid and when it released, it went up into the rotor blades. The blades were only slightly damaged.

Crash, Italy: An Agusta 109Power crashed while doing a night interhospital transfer. The aircraft was based in Verona and crashed into Grosseto Island near the coast. The crew was flying low level along the coast due to poor visibility. The flight status was NVFR but the actual visibility conditions present at the time are unknown. The whole crew including two pilots, one doctor, one paramedic and one patient were killed. There is speculation that the use of night vision may have prevented the accident.

Cable strike, Italy: An AS350B2 struck a cable near Como. The pilot (lone occupant) was killed in the collision. No other details were available.

Cable strike, Switzerland: A military Allouette III collided with a cable at 3000 meters ASL. It appears that the wires hit the helicopter between the cabin and main rotor. The main rotor came off. The aircraft fell 30 to 70 meters to the ground and caught on fire. The wires were found wrapped between the rotor and main gearbox. The fire took five drops with a bambi buckets to extinguish. All four crew members on board were killed.

JOINT MEETING: This year, half a day was spent in a joint meeting with another sub-commission. The Air Rescue and Terrestrial Rescue met for a morning session. A number of interesting presentations were made. Three of them were very relevant to air rescue.

Canyon rescues: A combination hoist and longline system was presented by a German Military using a BH205. A rescuer rappels from the helicopter into a slot canyon once the helicopter is positioned in a hover. The hoist with a rope clamp is then used as a raising

system to bring the rope back into the aircraft. As the rope is brought in, it is fed through a belay inside the cabin. This system could be used where it is not possible for the pilot to lift the load straight out of the canyon such as when overhead lines are present.

Parapente incident, France: The French presented an incident from a few years ago involving the helicopter rescue of an injured parapenter. The rescue was performed with an Allouette III. When the last rescuer was hoisted to the aircraft, a very close incident ensued. The rescuer had packaged the victim's parapente and clipped the still packaged reserve parachute to his harness on 5-mm perlon. When the rescuer approached the cabin, the reserve chute deployed! This immediately caused so much drag that the helicopter was pulled over on its side and control was almost lost. Fortunately, the 5-mm perlon broke and the parachute was released. The pilot regained control and the rescuer was brought into the aircraft safely. The force exerted by the shock was enough to bend the arm on the hoist!

Improvised super long line slinging, Slovakia: A video presentation of a high angle alpine face rescue was presented by the Slovakian Mountain Rescue. A ground rescue team lowered a rescuer 150 meters down on cable to a climbing accident site on a steep broken face. Once at the scene, the climber was found to be deceased. Since the rescue team did not have a ground cable winch to bring the rescuer and victim back up, they decided to use a helicopter. A locally available AS350 was called in to extricate the rescuer and victim. The crew used a long line 110 meters long. The pilot and spotter had considerable difficulty placing the line at the accident site. Once the load was hooked up and in flight, it started to swing in a circle of approximately 40 meters diameter. The pilot was able to maintain control and land the load safely on a flat area some distance away from the mountain. This incident generated considerable discussion later from the Air-Rescue commission members.

DISCUSSIONS: There was a considerable amount of discussion on the various roles of the members of helicopter rescue crews or Helicopter Emergency Medical Services (HEMS) crews. The crew concept is important in recognising the various roles that are required to complete a rescue mission. The discussion focused on the requirement in some operations for a second crew member (non-pilot) to always be riding in the co-pilot seat. In these instances, the crew member is there to assist the pilot with navigation, communications etc. The alternative is to have a second pilot in the second seat. The Norwegian delegate reported about their (partly negative) experience with two pilot operations. The disadvantage is that the second pilot is usually inexperienced and in fact, often, less experienced than the Rescue Crew Member. They feel that it is preferable to have the experienced crew member in the cockpit. They intend to move back to single pilot operations with the rescue crew member assisting the pilot. Most delegates consider this to be the best solution, especially for high elevation mountain rescue operations. This led to the discussion that this sub-commission should be used to influence JAR OPS 3 and 4 as it pertains to two pilot operations.

There was also discussion on the definition of "rescue crew member" or Helicopter Emergency Medical Services (HEMS) crew member. Crew members not only have the responsibility as technical rescuers but also have the responsibility to ensure safe operation in and around the helicopter. For this reason, many countries use the designation of "medical passenger" if a physician is on board. This recognises the full time responsibility that the physician has for the patient(s) being rescued.

There was discussion on the amount and frequency of training that is required for helicopter rescue crews. For example, Norway has professional crew members that certify yearly for helicopter operations. In addition, crew members must participate in dunker training every 2

years and in winter survival every 3 years. They must also have Padi (diving) certification, mountaineering experience, and two years experience in a pre-hospital care setting. There seemed to be consensus that regular training and certification was critical. Many countries require this through their aviation regulatory bodies.

PRESENTATIONS:

Night Vision Goggles, Rega: Thomas Barfuss of Switzerland gave a presentation on the use of night vision goggles (NVGs) for emergency flying by Rega in Switzerland. Before requesting a night mission and calling out a rescue pilot, an extensive questionnaire is used to evaluate the urgency of the mission. 26% of all missions flown by Rega are done at night. There is a significant reduction in depth perception with NVGs and the field of vision is reduced to 42%. The NVGs are to be used to enhance VFR missions and are not intended to be used for "impossible missions". The NVGs are to be used by the pilot only. When the crew member on the left side no longer has VFR conditions, then the pilot must abort the mission. Slinging operations are not done under night conditions due to the inherent risk of a long-line under the aircraft. Hoisting operations are done but the pilot will flip up the goggles during this operation.

Obstacle avoidance Radar: Alan Browne from Amphitech International in Canada presented a new radar system for obstacle avoidance for rotorcraft. He presented statistics where out of 250 civil accidents, 32% were obstacle collisions. 93% of these occurred in daylight. The system works on radio frequencies unlike its competitor, Hellas, which operates on laser technology. The system has currently received a Canadian STC on a BH212. Mr. Browne showed a video demonstration of how the system works including how the warning lights in the cockpit are displayed.

Long line extensions, Austria: A system with an EC135 was presented where the rescuer at the end of a fixed sling rope will rappel down to an accident site. This is used in high angle situations where the pilot will optimise the helicopter positioning for clearance. The rescuer can then rappel the extra distance down to the site. The load can then be lifted out on the lengthened sling rope. This system has also been used in Sweden.

Database, Norway: The Norwegian Delegates presented the system they are using to register and archive their missions. The developer of the system intends to develop the program further for commercial sales.

Helicopter rescue in Croatia: The Croatian Mountain Rescue Service presented their training approach to helicopter rescue. They are working in co-operation with the Croatian Air Force and the Police who provide the aircraft. The helicopter types in use are the hoist equipped, Russian built, MI-8 MTV from the Air Force, the hoist equipped BH212 and the BH206 both from the Police. The Mountain rescue service has structured its training so that only highly experienced rescuers will get involved in helicopter rescue training and operations. The helicopters are based throughout the country and operate on a 15 minute response time.

FIELD DEMONSTRATIONS: A complete day was dedicated to demonstrations on nearby Biokovo Mountain, which is inland from Makarska. A number of the demonstrations included helicopter rescue simulations. Mountain rescue and coastal rescue applications were demonstrated. In addition, one of the highlights for the pilots on the Air Rescue Sub-Commission was the opportunity to fly any of the three aircraft brought in for the field day.

The Air Rescue Sub-Commission gratefully acknowledges and thanks the Croatian Air Force, the Police, The Croatian Mountain Rescue Service and all our all hosts for this informative and pleasant day.

The first demonstration was done in the sea and visible from the beach. The MI8 was used to extract people from the water using the hoist.

Two high angle rescue scenarios were demonstrated with extraction of rescuers and victims done by helicopters. In the first scenario, rescuers descended to an accident site on a cliff and then proceeded to lower the victim down to lower angled terrain.

Rescuers and victims were then extracted by using the hoist on the BH212.

In the second scenario, rescuers were hoisted to the top of a cliff with the MI8.

They then lowered down with ground rescue techniques approximately 80 meters to an accident at the base of a cliff. A patient was packaged and readied for evacuation. The helicopter evacuation was performed with the MI8 in the following way. The MI8 hovered above the top of the cliff and a sling rope was lowered down from the centre of the aircraft.

The rescuer at the top of the cliff attached this sling rope to the static line that the rescuers had used to reach the victim.

The rescuers at the accident site could then “reel“ in the sling rope until the ring was at their level. This rope was then locked off inside the aircraft. Once the rescue load was attached to

the ring, the helicopter could lift the load up and away from the cliff to a nearby staging are. This operation presumably required careful communications between crew members inside the aircraft and rescuers on the ground.

The third demonstration was the deployment of a search dog-handler and dog using the hoist on the MI8. Once clear of the hoist, the handler sent the dog harness back up on the hoist. While it was brought up, the harness was spinning around and it nearly got caught in the blades.

RECOMMENDATIONS: This year, there were no recommendations from the Air rescue Sub-commission. However, there was some talk of developing guidelines for mountain rescue operations that are planning to develop helicopter rescue capability as part of the rescue service. These guidelines would include examples of Standard Operating Procedures, training requirements for pilots and rescuers etc. There would also be a resource list of operations with specific expertise for hoist or sling rescue operations with light or intermediate aircraft.