

**Report on the meeting of the Flight Rescue Commission of CISA-IKAR
International Commission for Alpine Rescue
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INTRODUCTION

The 1998 International Commission for Alpine Rescue met in Obergurgl, Austria. As had been agreed upon at the 1997 conference, the Flight Rescue Commission met two days prior in Innsbruck at the helicopter base of the Austrian Automobile and Motorcycle Touring Club.

The Flight Commission felt that by hosting a pre-conference meeting, several benefits could be realized. The intent is to allow guest delegates to observe first hand the aircraft and equipment utilized by the host country. It also allows for hands on flight operations in the actual area of operation. As a result, the international delegates gain more in-depth knowledge of different types of helicopters, while at the same time being exposed to new and unique techniques and topographical areas of flight operations.

FLIGHT RESCUE COMMISSION PRE-MEETING, INNSBRUCK AND LANDECK, AUSTRIA

The pre-meeting of the Flight Rescue Commission was hosted by the Austrian Automobile and Motorcycle Touring Club (OAMTC).

We met the first day at the Innsbruck Helicopter Base of the OAMTC. The helicopter base is co-located on the airport grounds with the Tyrolean Air Ambulance facility. Tyrolean Air Ambulance is now an entirely fixed wing air ambulance company which started operations in 1963, then known as Aircraft Innsbruck. The primary operations at that time were mountain rescues with light aircraft and helicopters. Jet operations were incorporated in 1976 and in 1978 the company's name was changed to Tyrolean Airways.

Over the next two decades rapid growth led to each department becoming a separate company. In July of 1995, OAMTC acquired the helicopter portion of the operations, known as Heliair. Due to these origins and the common emergency medical nature of the flights flown by the two autonomous companies, the Tyrolean Air Ambulance logo is still displayed on the OAMTC helicopters.

The OAMTC presently staffs six rescue helicopter bases throughout Austria. Those six bases operate a fleet of eight Eurocopter AS350B2, AS355F Ecureuil (Squirrel), and EC135 helicopters. Within the coming 12 to 18 months, all six bases will be equipped with new EC135's, with a seventh as a maintenance spare.

Helicopter operations are conducted primarily from dawn to dark, with night missions flown on a critical need basis only, at this time. However, according to Gilbert Habringer, Director of Flight Operations for OAMTC and Austria's delegate to the IKAR, night vision goggles are going to be purchased with expanded night operations being the goal.

Two minor obstacles have slowed night operations to this point in time. First the rugged mountainous terrain and the many thousands of cables and power lines spanning and coursing through the steep valleys are a major factor impacting safe night helicopter operations. Secondly, to obtain the desired state-of-the-art goggles from the United States, the Austrian Minister of Transportation has to negotiate an agreement with the United States that the goggles will not be used by the military or be transferred to a nonapproved or hostile country.

While at the Innsbruck base we conducted a meeting and were introduced to new delegates to the Commission. After the meeting the delegates were given a tour of the helicopter base facility, which is housed in a portion of the Tyrolean Air Ambulance hangar. The Innsbruck facility is Tyrolean Air Ambulance's main base. Tyrolean Air Ambulance presently operates primarily throughout Europe and the Mediterranean basin, but the company operates worldwide. Like Swiss Air Rescue's worldwide retrieval of ailing Swiss nationals, Tyrolean Air Ambulance has a government arrangement to do the same for Austrian nationals worldwide. As such, the rescue helicopter is somewhat lost in the large hangar complex overflowing with Citation V's, Falcon 10's and 900's, and Dornier 328's.

After completion of our tour of the Innsbruck base, the delegates travelled about 40 highway miles west, to the new OAMTC helicopter base at Landeck, Austria. While Innsbruck is located in a deep mountain valley known for its ski fame, Landeck is located in the same, but much narrower portion of that long valley. Both bases are surrounded by steep rugged mountains (the Tyrolean Alps), that tower to over 12,000 feet.

The Landeck helicopter base is less than a year old and was very comfortable as well as functional. Located below a 1000 year old castle that guards an ancient route through the Alps, the heliport overlooks the Inn River from its picturesque mountainside perch.

After an interesting tour of the base, flights in the OAMTC's EC135 commenced. Through cooperative support from Eurocopter, flights of approximately .4 - .5 hours were afforded to each of the Commission's delegates. Pilot delegates were afforded the opportunity to fly the entire time, making landings and take offs in the surrounding mountains. Altogether approximately 12 - 15 flights and over five hours of flight time were conducted during the two day meeting.

I was able to fly the EC135 for about a half hour. I previously had logged about 30 minutes in the Boeing 900 and was looking forward to being able to compare the two, since they are quite often the final two competitors in many EMS contracts. I found the EC135 to be very impressive. Trying to scientifically compare the two based on my short flight times would be unfair, but I can safely pass along my impressions.

The EC135 and Boeing 900 were both very smooth in flight, although I found the high speed cruise attitude of the 135 to be much more comfortable. The nose down attitude of the 900 at high cruise was much more pronounced and uncomfortable, although I believe this has been corrected in the 902.

Both are equally smooth and vibration free at high cruise and seemed to be comparable in power and performance. Both incorporate a forced trim system that initially is not appreciated by most pilots (the Austrians included), but I was told that within five hours you begin to really appreciate it. My initial impression is that the 900-902 might be more favorable to the medical crew because of interior shape and space, and Austrian comments initially confirm this, but they admit that they adapted quickly.

I found the 900 to be easier to fly due to the 135 having more sensitive controls, but Gilbert assured me that within five hours that too was second nature. Overall I would say the pros and cons were equal, with one exception that is probably soon to be rectified by Eurocopter. At the end of the day the OAMTC mechanics had to remove the tail rotor drive shaft cowl and perform a daily inspection of the drive shaft -- one thing you don't need to worry about with the Notar system.

During the flight demos, the on-duty aircraft at the base was one of the AS350B2's crewed by a pilot, a medic, and a young female doctor. At first I thought they must have had a short haul mission pending, since the rescue medic was wearing his seat and chest harness around the facility. However, Gilbert explained that this was common practice, as the crews are expected to be airborne in three minutes, and since they do so many short hauls and technical rescues, the harness is commonly worn between flights.

Statistically, each of the six bases average approximately 800 - 900 missions per year. This appears to be accurate based upon the three missions the A-Star flew in the short time we were at the base. The Landeck helicopter "Christophorus 5" logged 921 missions last year.

CISA-IKAR, OBERGURGL, AUSTRIA

After completing the flight demos in Landeck, the delegates embarked for the conference site at Obergurgl. Obergurgl is situated at about 6000 feet in a high alpine valley on the Italian border about one hour south of Innsbruck. It was within a few miles of here that the 5000 year old "Iceman" was found partially exposed in a glacier in 1991.

Opening ceremonies were conducted by this year's host, the Austrian Alpine Club.

FLIGHT RESCUE COMMISSION MEETINGS

The Flight Rescue Commission reviewed accidents from the previous year, experienced by the delegate's respective agencies.

Swiss Air Rescue K2 wire strike/crash:

After having previously dropped off a rescue man and doctor, the pilot and crewman/spotter in the rear, were returning to the site of an injured hiker high on a mountainside. The doctor and rescue man had prepared the victim for a short haul evacuation. The short haul was required since hoists hadn't been reinstalled on the K2's as a result of a fatal accident in 1997. Having already been to the site to deliver the rescuers, the K2 was ascending from the valley below with the load line hanging below the aircraft.

Just prior to arriving over the pickup site, the nose wheel of the K2 caught on a previously missed and unnoticed cable strung down the mountainside. The helicopter rotated almost 90 degrees nose down before the pilot pulled the cyclic aft to prevent inverted flight. Unfortunately the rapid maneuver required caused the main rotor to contact the tail boom and the drive shaft was severed. Immediately after getting the aircraft attitude corrected, the pilot had to cut engine power and enter autorotation to counteract the loss of anti-torque control. The crewman disengaged the load line as the pilot descended into the valley below. During the contact with the cable, the nose wheel was apparently torn off, as upon touchdown only the rear wheels and their struts softened the touchdown.

Even though the landing in a small drainage broke the struts, the fuselage was not badly damaged nor was the tail boom buckled. The crewman in back was sitting in a crash attenuating seat, and sustained broken legs but survived remarkably well. The pilot, sitting on a seat cushion and the hard pan structure of the K2 cockpit, sustained severe internal injuries which could not be overcome, and he died several hours after the accident. Had the nose wheel not been the contact point, most probably the loadline would have snagged the cable and caused a critical situation as well.

A point should be learned about minimizing exposure by lowering the load line after arriving over the pickup site. A second point not to be overlooked is the value of crash attenuating crew seats, what with the vastly different outcome of injuries to crew members sitting within three feet of each other, the only difference being the type of seat they happened to have been strapped into.

Italian Air Ambulance Allouette 3 hoist accident:

While it may be a natural conclusion after reviewing the previous short haul accident that hoist operations are probably safer and more easily managed, an accident experienced in the Italian Alps should cast doubt on that conclusion.

At approximately 9000 feet in mountainous terrain, a middle-aged hiker experienced a heart attack one hot afternoon this past July. A member of his party used a cell phone to summon help, and within a short time a hoist equipped Allouette 3 with a doctor, winch operator, and pilot arrived overhead. This was the winch operators first hoist mission, but he successfully lowered the doctor to the victim and in short order the doctor signalled that the victim was ready to be hoisted up to the helicopter.

The density altitude on this particular day was computed to be over 12,000 feet. As the pilot hovered over the site, now cluttered not only by members of the victim's group, but many other curious hikers, the winch operator failed to note that the doctor had clipped himself to the victim's basket.

The winch operator brought the victim up fast and of course the doctor with him, resulting in too much weight for the available power of the aircraft. Unfortunately the ascent was too rapid and the pilot could not descend due to the steep terrain and lack of rotor clearance. As a result the pilot lost directional control and settled out of control into the terrain and the crowd below. While no fatal injuries were sustained in the resulting crash, eight people were seriously injured.

While short haul power capabilities can be ascertained by the pilot before he commits to departure, hoist operations require careful coordination between the pilot and hoist operator.

K-Max heli-logging crash, Switzerland:

One of the goals of most operators that have pilots flying multiple aircraft is standardization of as much of the equipment as possible. The fatal crash of a K-Max helicopter while conducting logging operations in the Swiss Alps is an example of the consequences when this standardization isn't carried out.

The operator had several K-Max helicopters in its fleet, each of which was outfitted with an external horn that was activated by a switch located on the cyclic. The horn was used by the pilot to get the attention of ground personnel while conducting operations. Also on each cyclic was a similar switch which was wired to the cargo hook for emergency release. Each K-Max had the two switches located at the same site on the cyclic and the pilots were very familiar with the location of each.

The accident in question started with an engine failure as the pilot was lifting a load of logs out of a forested area. The ground crew said everything appeared routine until the engine noise diminished and they saw the helicopter rapidly descending toward an adjacent meadow with its horn sounding! As it autorotated to the meadow, its 150 foot cable and load of logs caught in the forest and caused the helicopter to crash out of control. The pilot sustained fatal injuries due to the aircraft's unusual attitude at impact.

Preliminary investigative results have discovered that recent maintenance work performed had caused the wiring to the horn and the cargo releases to be inadvertently switched. The assumption is that the pilot had known and used the reversed switches that day during previous sorties, but during the emergency of an engine failure, had reverted to the trained habit of the standard switch location, and with just a few seconds of altitude had sounded the horn instead of releasing the load, which might have allowed for a safe autorotation into the open meadow.

IKAR WEB SITE

The goal of reviewing these accidents is that air rescue operators around the world may learn from other's mistakes and not be as likely to repeat them. That is why the Flight Rescue Commission's major thrust this year is support of the IKAR web site. The delegates feel that through an Internet information exchange site, knowledge can be shared in a timely fashion, thereby positively impacting the number of accidents and incidents worldwide.

While still in its infancy, hopefully in the near future the website will be the international site for up to date rescue oriented data, statistics, and information.

Further information can be found at the website: www.ikar-cisa.org.

NIGHT OPERATIONS

Night operations were once again a major topic of discussion. At last year's conference in Aosta, Italy, night vision goggles and their authorized use in the private sector was the dominate resolution. Further discussions were held this year. There appears to be some reason for optimism as the American FAA appears to be open to studying and possibly sanctioning the use of night vision goggles, as does the European Joint Aviation Authorities. Silvio Refondini presented the following from Swiss statistics:

Swiss Air Rescue operates 11 helicopter rescue bases in Switzerland. Those 11 bases total about 350 hours of actual goggle mission time each year. 91% of their night flights utilize the NVG's. 92% of the Swiss pilots say they would not fly rescue missions without the goggles. Although they fly single pilot NVG operations, their strategically located bases allow for the pilot of any one base to generally not have to fly outside a radius of 70 Km from his base at night, thereby increasing the familiarity of the area in which to be conducting night operations.

For those flying in the mountains at night, the following statistics presented by Silvio should be interesting: The percentage of night vision lost with the unaided eye as altitude is gained is:

15% at 1500 meters
25% at 3500 meters
50% at 5000 meters

These statistics are further degraded if one is a smoker.

Silvio defined Swiss Air Rescue's policy toward NVG's as "the NVG's are to improve the level of safety in present operations -- they are not a tool by which to go further into the dark." This is identical to the philosophy of my own agency, the Arizona Department of Public Safety.

Gilbert Habringer hopes to incorporate the NVG's into OAMTC's night operations to enhance the safety of their existing program.

FLIGHT DEMONSTRATIONS

The OAMTC flight crews conducted flight rescue demonstrations on the slopes surrounding Obergurgl. Helicopter evacuation of stranded chairlift passengers was accomplished via the EC135's hoist as well as via short haul techniques utilizing their Eurocopter A-Star and Twin Star helicopters.

A cliff rescue demonstration utilizing short haul and hoist techniques was conducted from a large vertical face overlooking the town. The demos were very impressive and the ease of recovery utilizing the EC135 and its hoist was most impressive by its simplicity and quick turnaround.

Perhaps the most impressive fact was that the hoist had been installed on their EC135 less than two weeks earlier, and this conference was the first public exposure the crews had experienced with it. They performed flawlessly and the OAMTC should be commended on its dedication to training and safety.

DELEGATE NOTES

1998 was the 50th anniversary of the IKAR. It was also the 125th anniversary of Slovakia's Mountain Rescue Organization. They have been a member of the IKAR for the last 30 years.

The Polish Mountain Rescue and Air Rescue Service distributed information on their cooperative efforts in the mountains of southern Poland.

The Polish Air Rescue Service is organized around four regional fly teams which belong to the overall national Medical Means of Transport (Kolumna Transportu Sanitarnego). The Medical Means of Transport belongs to the Ministry of Health, and they are financed by the Polish government.

The first mountain rescue flight was conducted in the Beskidy Mountains in 1963. The system is going to be modified soon, which may help acquire badly needed improvements in the system as well as technical development.

Presently two types of helicopters are used for mountain rescues, the Mi-2 and W-3 Sokol. The helicopter is crewed by

a pilot, mechanic and two or three rescuers, which includes a doctor if needed. The four helicopters are not based in the mountains, and response time from their four bases in southern Poland varies between 20 and 60 minutes. As of September 1998 they had conducted 45 missions utilizing helicopters, which was only five percent of all rescue operations in the Polish mountains.

CONCLUSION

1998 saw delegates from over 18 countries gather in Obergurgl to share their knowledge. The number of countries participating increases each year, and I believe that the organization will continue to grow.

Presently the Flight Commission is represented by pilots, winch operators, and helicopter rescue specialists. The goal of the Commission is to share knowledge and enhance safety on the international mountain rescue scene.

When originally formed, the Flight Rescue Commission addressed only the Alps as a topographical region. This is no small feat by itself, as the Alps stretch for almost 1000 miles through Europe. In 1997 alone, there were over 300 recreational related fatalities in the Alps. To put this in perspective, imagine 300 recreational fatalities in the Rocky Mountains from Glacier National Park, Montana to Santa Fe, New Mexico.

However, the Commission now hosts delegates from regions as far as the United States, Canada, Norway, Croatia, and Tadjikistan, and reviews issues pertaining from sea level to 20,000 feet.

1998 also saw the conceptualization of an international ground rescue school, to be based in Aosta, Italy. The Flight Rescue Commission president, Silvio Refondini, plans future round table discussions on creating an international school for flight rescue training, the idea being to offer a coherent and structured aerial oriented training program to flight crews and rescue specialists.

As 1998 draws to a close, I would like to mention my thanks for the support received from our sponsors. Most notably, I would like to thank Mr. Dale Christman and the Boeing Helicopter Company, without whose support the United States would be hard pressed to participate on an annual basis.

Please visit the IKAR web site and let me know your thoughts and comments on making all our rescue missions safer and more successful.

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LAST BUT NOT LEAST...

As the president of the Flight Rescue Commission, I would like to thank you Dave for his remarkable paper work. This is the first report on the Webb and we are looking forward to continue on this very same way.

I would like to give a further information concerning the IKAR Management Team. The decision has been taken in Obergurgl not to make neither a change of the IKAR presidency, nor within the commissions presidencies and this until the 2000 Meeting at the Grand Canyon (USA). Concerning our Flight Rescue Commission, the present candidate to replace myself is Gilbert. Habringer of Austria.

I would like to thank you all of those friends and colleagues from all around the World who share the same goal of life saving. Those unknown as well as those best known in the Flight Rescue World Business who take part in our yearly meeting. I would like in the same way to say a last "Hello" to those of us who have made their last take-off and ensure their families and relatives that if we keep silent, we will keep their memory deep into our heart.

Have a nice X-mas and receive my very best wishes for 1999.

Your president, Silvio Refondini