The story you are about to read is a first person account of the only known successful bailout from the pilot's compartment of an H-3.

Helo Bailout:

ALIVE TO TELL

By LT M. W. DeLorey, USN

HELO bailout – with the current state-of-the-art egress systems – is at best a gamble. Most helo drivers have probably contemplated the dangers of going out their emergency exits. I am a helo copilot who actually did it and is alive to tell.

Our mission – a midair recovery of a BQM jet target drone with a specially configured H-3 – was unusual and demanded the highest concentration and flying skill. Simply stated, MARS (midair recovery system) consists of an H-3 with a sophisticated winch and two engagement poles with hooks suspended beneath the aircraft. The system is then flown into the descending parachute carrying a drone target. On contact, the winch automatically feeds out more than 300 feet of cable to absorb the shock. After the cable is payed out, the winch operator "winds" the drone up into a "carry" position for the return back to base.

Our flightcrew consisted of a highly qualified MARS pilot with more than 4500 hours, three MARS crewmen, and myself – a first tour qualified HAC with over 500 hours in model.

Preflight and launch were normal. When the drone was ready for recovery, the pilot began the final approach toward the engagement chute, starting from 10,000 feet. He set up a rate of descent similar to that of the parachute.

Just before contact, I saw the chute pass well below but left of the aircraft centerline. Because this was my first flight up front on an engagement, I assumed it was too far left to make an engagement. Then, all of a sudden, the aircraft gave a lunge, followed by a loud bang. The aircraft acted as though *it* had been snagged.

From a previous flight on which I was an observer, I remembered that the aircraft had reacted in the same way, but had smoothed out almost immediately because the MARS winch payed out cable to relieve the shock. This time, the aircraft kept wallowing and tugging. Almost immediately, one of the crewmen gave the shocking report, "It's in the tail rotor! It's in the tail rotor!"

For a few seconds, the pilot fought the controls while appraising the situation. Then he issued the lifesaving command to all hands, "Bail out! Bail out!"

The three crewmen in the aft of the helicopter realized they could be of no further assistance. They followed the pilot's orders and went out the aft cargo door. They left the aircraft between 7000 and 8000 feet and had fairly normal parachute descents.

I stayed with the pilot and went through the prebriefed emergency procedures of jettisoning the engagement poles in the hope that it would alleviate or reduce the severity of the gyrations which the aircraft was experiencing. It had no effect.

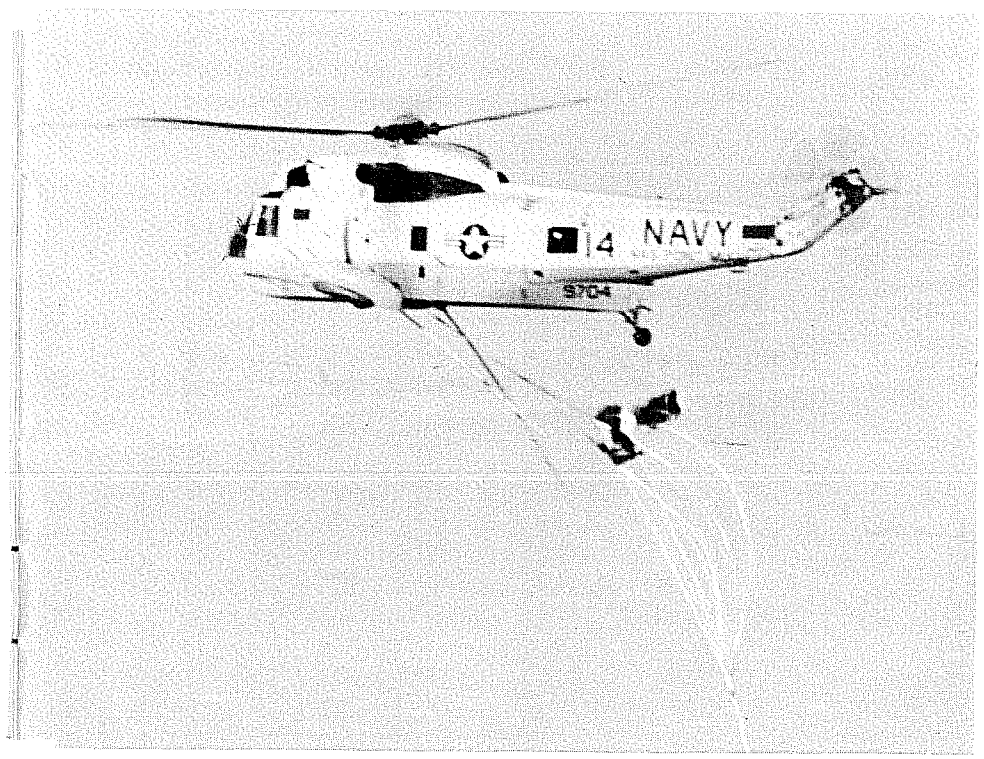
The helo rapidly started to gyrate approximately plus and minus 20 degrees in all directions with an initial vertical velocity between 5000 and 6000 feet/minute – down. We did not know then that the cable between the engagement parachute and the drone had become tangled in the tail rotor and had not separated. The result was that the aircraft had a suspended weight of 1800 pounds well aft of C.G. in addition to the inoperative tail rotor.

"Bail out!" the pilot called again over the ICS.

I undid my straps. Before I pulled my ICS cords, I gave a call to the controller on the ground over UHF.

"Mayday! Mayday! Tail rotor gone! We're bailing

An H-3 with a sophisticated winch and two engagement poles with hooks suspended beneath the aircraft.



The system is then flown into the descending parachute carrying a drone target.

out."

I unplugged and jettisoned the emergency exit window which tumbled free. I tried to get up on the seat to dive out the window, but the helo was gyrating so wildly that I couldn't. I could only sit on the sill.

It didn't seem possible that only 30 to 40 seconds had elapsed since we had been on our final approach to the parachute. Now, the helo was doomed, passing through 6000 feet, with the pilot bravely fighting for time to give all of his crew a chance to escape. Three crewmen were already clear, and I was sitting on a windowsill.

I remember feeling a very strong slipstream and looking aft. The tail rotor was stationary with parachute

shroudlines streaming from the hub. I was grateful that I would not have to worry about hitting the tail rotor on bailout, but I was still acutely aware of the menace of the main rotor blades.

Despite this being my first jump, I didn't hesitate. I pushed and pushed to get clear but only moved about 6 inches. Something was holding me back. The bottom of my parachute might have caught on the windowsill, or my flight suit might have snagged on an emergency exit retaining tang. Fortunately, I was able to reach the top of the window opening, pull up to my original position, and reexit successfully.

"Almost" is usually not good enough in naval aviation, and when I almost cleared the sponson, the point was confirmed.

The yaw and gyrations of the aircraft carried me aft. I remember hitting the sponson support with my upper body. I was twisted around and carried backward through the triangle formed by the stubwing, fuselage, and sponson support.

I ended up lying on my back, head aft, on the stubwing, wedged between the fuselage and the sponson. I should have slid off the stubwing because it is fairly streamlined, but something caught somewhere and virtually locked me in position.

After struggling, I realized that I could not move in any direction. I resigned myself to the inevitable possibility that I was going to "buy the farm."

During the descent in my supine position, I had no visual reference except the side of the aircraft, the main rotor, and the blue sky. I was expecting impact with the water, but was grateful that I would not know when.

Twenty seconds had elapsed since I had initially exited the window. At this time, the helo, passing through 3500 feet, went completely unstable and pitched 90 degrees nosedown – possibly due to the pilot trying to bail out. I was hurled from my supine position into a standing position against the sponson support.

If the helo had been on the deck, I would have been in a normal standing position on the stubwing. But with the helo like it was, I was horizontal, parallel with the surface of the water.

Instinctively, I had locked my left arm around the support when I hit it. I wanted to let go because I was being doused from head to foot with JP-5 venting from the No. 1 tank. But I hung on because I was being pulled towards the rotor head which was still turning.

Clinging in this position, I decided to let go the next time I felt I would not be pulled through the plane of the main rotors. While waiting, I was able to see out below my visor to find the parachute D-ring. I grabbed the ring with my right hand and waited.

I had become completely disoriented with regard to altitude. I felt I was at 5000 to 6000 feet with enough time to wait a few seconds, but – unknown to me – the helo had entered an unstable descent in excess of 13,000 fpm. When I finally felt myself being pulled in the direction away from the rotor head, I let go and was flipped backwards off the stubwing.

Because my visor was covered with JP-5, I could not see how far from the helo I was. I waited about 3 seconds, then yanked the ripcord. Chute opening shock was extremely severe. I saw stars, and the force fractured my pelvis.

I didn't have time to worry about the first shock because less than a second later, I felt another. This one broke my leg and caused some internal injuries. I didn't know what the second shock was until I realized I was wet. I was under water!

What can be learned or reemphasized from this type of accident?

The most important point is that in aviation you have to be ready. Little did we, while on final approach at 9000 feet, expect to be in our chutes and the helo in the ocean less than 90 seconds later. You must always be physically and mentally ready.

For me, the emergency equipment and its proper use saved precious seconds. If my visor had not been down, I might have hesitated a fatal extra second because of the fuel in my eyes. And if my chute had been loose, my injuries would definitely have been more severe or might even have rendered me unconscious with fatal consequences.

Why has so little progress been made towards allowing the crews to make emergency escapes in the safest and fastest possible manner? Work is being done on ejection type seats for helicopters, but it's not enough. At the present time, a helicopter pilot has only two options during a catastrophic high altitude emergency: bail out or autorotate. Both choices are hazardous, but the odds of success can be improved.

We can and must improve the helicopter crew's chance of success should they have to bail out. ◄

(See also "Escape Systems: Who Needs Them? Helicopters Do!" by CWO R. F. Williams, USMC, in the DEC '71 APPROACH. Next month, APPROACH will present Part II of LT DeLorey's story – his survival and rescue experiences. – Ed.)

What we think of now as "the good old days" were once known as "these trying times."

Ace L.