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On my second gun run into the area, in which I was providing suppressive fires, I broke to the right and made a pass from SE to NW breaking right over Highway 13 and was in the proocess of rejoining chalk 2 and taking his wing position, when I was struck by a SA 7 missile.

So far as I know, no one else has survived in a helicopter, anyway, this type of anti aircraft fire. I think there was a combination of things that accounts for the fact that I am alive and my pilot are alive. And I don't want to underestimate the importance of luck which was the most significant contributer to our good fortune was luck. I do feel, however, there are some things that we did, that we had not done, the luck we had would not have been able to save us. In describing the impact of the SA-7, but first let me back track a little bit, I think the single most important thing that happened was the fact that other personnel in the area, other aircraft in the area, were able to observe the missile being fired. As they observed it, they yelled, "missile, missile, missile!, over the VHF radio. I think the fact that I knew what I was hit by, and what the aircraft should do was the single most important contributing factor, outside of luck, in my survival.

I feel every unit, or every task force, that is operating in an area where SA 7's are known to be, should have an SOP on alerting aircraft when a missile is fired. They should also have posted in such position as to advise or observe 360 degrees around the flight as possible, so that these can be seen.

After hearing the words, "missile, missile!, I looked over my left shoulder, I saw the signature of the missile, I thought it was heading for my aircraft. Just as I saw the missile, I saw it hit the aircraft. Probably at the same time as it was hitting my aircraft, I was rolling off my throttle, and bottoming my collective pitch.

The impact of the missile on my aircraft did not seem to be that severe. There was concussion, but there was not as much as one might expect. I would say judging on the way it felt to me, as far as concussion was concerned, there was probably not more HE charge in the warhead of the SA 7 than there was in a 40MM grenade.

What happened to the aircraft as it hit, is the tailboom was total severed, completely severed in the vicinity of the battery compartment, which on the Cobra is directly below the exhaust stack. The aircraft, as soon as it was hit, jostled slightly, it seemed to pitch up and pitch down and from side to side. This was followed by, during the autoration, the aircraft began to spin about its mast to the right at a nose low attitude. As the aircraft descended, it spiraled, making a spiraling descent, continuing to spin slowly about the mast. The speed of the spin was, I would say, about the same angular velocity as one would experience in a normal rate pedal turn.

I did not look at any of my instruments after being hit. Shortly after I was hit, as soon as I was hit, I lost all radio communication. I had no radio communication what so ever. I did however have intercom with my front seat. Using the intercom, I instructed my pilot, CPT Cordoan, to empty the his turret weapons system, fire it out. He attempted to do so, but was unable to do it. My control movements, during the descent, were very few. Having been aware, for some time, that this could happen, I had thought, pretty well thought it through, what I would do, if I were hit by a SA-7, and my tailboom were severed. It seems to be characteristic of the missile that it does severe the tailboom, if it strikes you from the side. I felt the biggest problem that I would have with no tailboom would be the CG shift. That it would be most difficult to prevent the nose from becoming extremely low particularly in a loaded helicopter. And this would have to be the biggest problem I would have to cope with. As it worked out, that was exactly the case. I told my self, that if this were case, and prior to the crash, I told my self, that my action would be to pull complete aft cyclic and attempt to correct for the CG shift. This I did, it did not prevent a nose low attitude. Those who observed my descent said I appeared to be descending a skids level attitude, however I felt that I was nose low. I attempted to experiment with the cyclic enroute to the ground. I tried slight left and right cyclic movements which did little for me, and as far as I am concerned, were a waste of time. I feel that anybody that has the same misfortune, that I had in flight, should attempt to only pull aft cyclic. Their only concern should be CG. As far as cyclic movement should be, I bottomed the pitch and I left it that way. I made no attempt to control RPM. I made not attempt whatsoever to select a forced landing area. There was no way I could have controlled the aircraft to bring it to a forced landing area. Probably if I had selected a forced landing area, I probably would have not made anyway, even if I could have guided the aircraft to it. I'll explain the reasons for this later on.

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As I said before, the only control movement that I made, cyclic-wise, was to pull complete aft cyclic and held it there and bottomed my collective pitch and held it there.

At about 30 feet above the trees, was where I pulled my pitch. I pulled pitch at about the same rate that I would in a normal autoration, except I pulled every bit of pitch that I had. The collective was full up. As I reached the ground. This significantly slowed my descent also assisted in my CG problems. I wouldn't say that I recovered from the nose low attitude, but it recovered somewhat. It also begun a violent spin. At this point, I can't remember if the spin went to the right or the left. I do know it was violent, I do know that it was stopped by my landing in the trees.

The second most significant thing that saved me, was the fact that I did land in trees. I had no choice over I was going to land in trees or land in an open area. It was something that fate alone could determine. As I said, there was no directional control, there was no selecting a forced landing area. But luck was with me and I did land in trees, which helped me in two ways. One, they stopped the spin of the aircraft, two they assisted in cushioning my fall.

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As far as what I did on the ground, I was on the ground for approximately 10 or 15 minutes. And I don't believe what I did on the ground is of that much assistance to anyone else. Suffice it to say, that I did land in a bunker complex; my front seat and I both made attempts to conceal ourselves until friendly aircraft got in the area, my survival radio would not operate, so we moved into a clear area and waved until we were spotted by friendly aircraft. At this point we concealed ourselves again to await pickup.

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Other things that were beyond my control, were the situation factors were the fact that I was 50% expended and that I only had 600 pounds of fuel, Had I had 100% ordnance on board, and a 1200 pound load of fuel, the situation would have been far different.

So again I conclude and say that it is my hope that this tape will do some good, and the right combination of luck and knowing what to do with the aircraft, in the event that this happens to anyone el1se, that it will result in saving somebody's life. Thank you.

On 21 June 1972 I was working on a mission in support of an Arvn airborne brigade in the vicinity of the village of Tan Khai on highway 13 approximately 6 miles south of An Loc. We were escorting a US slick unit that was tasked with extracting the ARVN airborne brigade from Tan Khai for redeployment.

In support of this, we had a heavy fire team, 3 AH-1G's Cobras. I was the AC of chalk 3. The method of support was to put one ship low with the lift flight and two ships high to provide overall area coverage. Chalk 2 and 3 in the heavy team were the high birds. I was chalk 3

On my second gun run into the area, in which I was providing suppressive fires, I broke to the right and made a pass from SE to NW breaking right over Highway 13 and was in the proocess of rejoining chalk 2 and taking his wing position, when I was struck by a SA 7 missile.

So far as I know, no one else has survived in a helicopter, anyway, this type of anti aircraft fire. I think there was a combination of things that accounts for the fact that I am alive and my pilot are alive. And I don't want to underestimate the importance of luck which was the most significant contributer to our good fortune was luck. I do feel, however, there are some things that we did, that we had not done, the luck we had would not have been able to save us. In describing the impact of the SA-7, but first let me back track a little bit, I think the single most important thing that happened was the fact that other personnel in the area, other aircraft in the area, were able to observe the missile being fired. As they observed it, they yelled, "missile, missile, missile!, over the VHF radio. I think the fact that I knew what I was hit by, and what the aircraft should do was the single most important contributing factor, outside of luck, in my survival.

I feel every unit, or every task force, that is operating in an area where SA 7's are known to be, should have an SOP on alerting aircraft when a missile is fired. They should also have posted in such position as to advise or observe 360 degrees around the flight as possible, so that these can be seen.

After hearing the words, "missile, missile!, I looked over my left shoulder, I saw the signature of the missile, I thought it was heading for my aircraft. Just as I saw the missile, I saw it hit the aircraft. Probably at the same time as it was hitting my aircraft, I was rolling off my throttle, and bottoming my collective pitch.

The impact of the missile on my aircraft did not seem to be that severe. There was concussion, but there was not as much as one might expect. I would say judging on the way it felt to me, as far as concussion was concerned, there was probably not more HE charge in the warhead of the SA 7 than there was in a 40MM grenade.

What happened to the aircraft as it hit, is the tailboom was total severed, completely severed in the vicinity of the battery compartment, which on the Cobra is directly below the exhaust stack. The aircraft, as soon as it was hit, jostled slightly, it seemed to pitch up and pitch down and from side to side. This was followed by, during the autoration, the aircraft began to spin about its mast to the right at a nose low attitude. As the aircraft descended, it spiraled, making a spiraling descent, continuing to spin slowly about the mast. The speed of the spin was, I would say, about the same angular velocity as one would experience in a normal rate pedal turn.

I did not look at any of my instruments after being hit. Shortly after I was hit, as soon as I was hit, I lost all radio communication. I had no radio communication what so ever. I did however have intercom with my front seat. Using the intercom, I instructed my pilot, CPT Cordoan, to empty the his turret weapons system, fire it out. He attempted to do so, but was unable to do it. My control movements, during the descent, were very few. Having been aware, for some time, that this could happen, I had thought, pretty well thought it through, what I would do, if I were hit by a SA-7, and my tailboom were severed. It seems to be characteristic of the missile that it does severe the tailboom, if it strikes you from the side. I felt the biggest problem that I would have with no tailboom would be the CG shift. That it would be most difficult to prevent the nose from becoming extremely low particularly in a loaded helicopter. And this would have to be the biggest problem I would have to cope with. As it worked out, that was exactly the case. I told my self, that if this were case, and prior to the crash, I told my self, that my action would be to pull complete aft cyclic and attempt to correct for the CG shift. This I did, it did not prevent a nose low attitude. Those who observed my descent said I appeared to be descending a skids level attitude, however I felt that I was nose low. I attempted to experiment with the cyclic enroute to the ground. I tried slight left and right cyclic movements which did little for me, and as far as I am concerned, were a waste of time. I feel that anybody that has the same misfortune, that I had in flight, should attempt to only pull aft cyclic. Their only concern should be CG. As far as cyclic movement should be, I bottomed the pitch and I left it that way. I made no attempt to control RPM. I made not attempt whatsoever to select a forced landing area. There was no way I could have controlled the aircraft to bring it to a forced landing area. Probably if I had selected a forced landing area, I probably would have not made anyway, even if I could have guided the aircraft to it. I'll explain the reasons for this later on.

During the descent, RPM built, as it built, I felt feedback forces in the cyclic and the collective. The cyclic tried to pull itself forward, I pulled it back and I was able to keep it against the rear stop during the entire descent. The collective attempted to push it self up, I was able to keep it on the bottom, until my pitch pull.

Also during the descent, a couple things I tried to do, were trying to fire out my turret, I was able to see that I was not able to adjust my CG. I attempted to jettison my wing stores, my wing store jettison did not function. I suspected, as I thought about this prior to my accident that it would not, since the wing store jettison circuit breakers and your electrical power is largely located in the forward portion of the tailboom.

So my wing store jettison capability was lost, having determined this, I attempted to fire out the remainder of my ordnance. I was 50% expended at the time. My ordnance, my 2.75 inch rockets, could not be fired. With these three unsuccessful attempts, the turret, the wing store jettison, the rocket firing, all these failing, I abandoned all further hope of slowing my rate of descent, by getting rid of extra weight or by shifting my CG by getting rid of extra weight in the wrong places.

As I said before, the only control movement that I made, cyclic-wise, was to pull complete aft cyclic and held it there and bottomed my collective pitch and held it there.

At about 30 feet above the trees, was where I pulled my pitch. I pulled pitch at about the same rate that I would in a normal autoration, except I pulled every bit of pitch that I had. The collective was full up. As I reached the ground. This significantly slowed my descent also assisted in my CG problems. I wouldn't say that I recovered from the nose low attitude, but it recovered somewhat. It also begun a violent spin. At this point, I can't remember if the spin went to the right or the left. I do know it was violent, I do know that it was stopped by my landing in the trees.

The second most significant thing that saved me, was the fact that I did land in trees. I had no choice over I was going to land in trees or land in an open area. It was something that fate alone could determine. As I said, there was no directional control, there was no selecting a forced landing area. But luck was with me and I did land in trees, which helped me in two ways. One, they stopped the spin of the aircraft, two they assisted in cushioning my fall.

On impact there was no fire, the engine had continued to run. I had rolled of the throttle to the flight idle position initially, however I did not attempt to make further attempts to shut the engine down. If I had it to do over again, I would probably do that. I would probably attempt to shut the engine down, if I would have had time to do so.

My concerns were, fire and my ordnance exploding, however my impact was soft enough that the fuel cell, I do not believe the fuel cells were broken, and therefore the fire was not a factor, as it had been in other cases where people come down as a result of a SA 7 strike.

As far as what I did on the ground, I was on the ground for approximately 10 or 15 minutes. And I don't believe what I did on the ground is of that much assistance to anyone else. Suffice it to say, that I did land in a bunker complex; my front seat and I both made attempts to conceal ourselves until friendly aircraft got in the area, my survival radio would not operate, so we moved into a clear area and waved until we were spotted by friendly aircraft. At this point we concealed ourselves again to await pickup.

Other significant things, I think that contributed to the success here were, number one I had only had 600 pounds of fuel on board the aircraft at the time of the crash, and I was 50% expended. I had fired all of my outboard pod, and I beleive, a few of my inboard rounds.

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