The aftermath of a July 2015 helicopter crash in Colorado that killed the pilot and badly injured two others.

FLIGHT RISK

EMERGENCY HELICOPTER CREWS RACE CRASH VICTIMS TO THE E.R. AND PLUCK ADVENTURERS FROM REMOTE MOUNTAINTOPS. BUT THE MOST DANGEROUS PART OF THE JOB MAY BE THE CHOPPERS THEMSELVES.

By **DEVON O'NEIL**

AT AROUND 1:30 P.M. ON JULY 3, 2015, THREE MEN BOARDED A FLIGHT FOR LIFE HELICOPTER AT ST. ANTHONY SUMMIT MEDICAL CENTER IN FRISCO, COLORADO. PATRICK MAHANY, 64, A FORMER ARMY PILOT WHO HAD FLOWN CIVILIAN MEDEVAC MISSIONS FOR 27 YEARS, WAS AT THE CONTROLS. FLIGHT NURSES DAVE REPSHER, 45, AND MATT BOWE, 32, SAT BEHIND MAHANY IN THE CABIN. THE TRIO WAS ON ITS WAY TO A PUBLIC RELATIONS APPEARANCE IN GYPSUM, A SHORT FLIGHT WEST.

Mahany was considered a dean among mountain rescue pilots. He'd been shot down three times in Vietnam and earned a Bronze Star and Purple Heart, for taking a bullet through his armpit. He'd rescued climbers from 14,000-foot peaks and plucked avalanche victims from remote debris fields. When he lifted off in Frisco, under blue skies and in relatively calm winds, he had more than 13,200 hours of flight time.

Repsher immediately sensed that something wasn't right. He looked at Bowe and tightened his seat belt. Bowe asked Mahany over the intercom if everything was OK. Mahany didn't reply. The helicopter had begun to yaw, or spin to the left, right after it took off, likely due to a loss of tail-rotor power. It spun out of control for about 30 seconds, then plummeted from an altitude of 100 feet and smashed into the hospital parking lot at nearly 40 miles per hour.

Repsher was ejected and landed next to the fuselage, under a door. He was briefly knocked unconscious. He does not remember much, but he does recall feeling like someone dumped a five-gallon bucket of water on his shoulders—later determined to be fuel gushing from the ruptured tank. Within 3.9 seconds of impact, the helicopter was ablaze. About 20 seconds later, Repsher can be seen on surveillance footage lifting the door, then running away from the helicopter while on fire, still attached to his seat by his seat belt. He remembers someone throwing dirt on him next to a paved bicycle path.

Nearly two minutes after the crash—and roughly 30 seconds after Bowe escaped, unburned—a bystander pulled Mahany from the cockpit and sprayed him with a fire extinguisher. The chopper continued to burn until the wreckage was little more than knee high.

Mahany, who took the brunt of the impact, suffered a crushed pelvis, fractures in both lower legs and a wrist, and broke every rib. He also suffered liver and spleen injuries and inhalation burns from being trapped in the helicopter. His primary cause of death was classified as blunt force trauma, though experts theorized he would have survived if not for his internal burns.

Repsher, meanwhile, had been scorched. By the time first responders carried him to the emergency room, he was close to death. Ninety percent of his body had been burned. "I just remember being on that board, holding my arms up, watching the skin slough off my hands," he says.

Inside the hospital, he thought of his wife. "Tell Amanda I love her," he whimpered. Then a sedative knocked him out.

THE HELICOPTER THAT crashed was not just any helicopter. It was an Airbus AS350 B3e, a derivative of the B3, the only helicopter to land on the summit of Mount Everest (in 2015 Airbus rebranded it the H125). When Flight For Life debuted it at the Frisco base, known as Lifeguard 2, in August 2014, the B3e's superior efficiency cut the bread-and-butter flight to St. Anthony Hospital in Lakewood, near Denver, from 23 to 20 minutes. It was outfitted with a $150,000 autopilot system and night-vision goggles and could fly 160 mph. Any pilot who has flown it will tell you it is the world's best EMS helicopter, especially at altitude.

Not surprisingly, it is also one of the most popular in an industry that has boomed in recent years. In 2003, 545 helicopters flew EMS missions from 472 bases across the U.S. Since then, due in part to a growing number of rural hospitals closing their doors, those numbers have nearly doubled, to 1,049 helicopters and 908 bases in 2016, creating a multibillion-dollar industry within the much larger civil helicopter field. EMS work now employs 4,400 pilots and more than 11,000 medical crew members, who transport 350,000 patients each year. The choppers are everywhere—rushing heart-attack, stroke, and car-crash victims to the hospital and rescuing backcountry travelers from perilous situations, when minutes could mean the difference between life and death.

Flight nurse David Repsher suffered burns over 90 percent of his body after his chopper crashed and ignited.

Flight For Life Colorado—known as "Flights" to EMS and hospital workers—was the first civilian helicopter ambulance service in the country when it launched in Denver in 1972. It remains a standard-bearer, and Frisco is still America's highest medevac base, at 9,100 feet. When the B3e arrived, the ship was so key to Frisco's mission that Flights paid its owner, Air Methods Corporation, $120,000 a month to lease it.

Repsher checked every box that Flights looks for in a nurse. He had grown up in Silverthorne, a few miles from Frisco, and built his credentials over two decades. He worked as an avalanche technician on the Copper Mountain Ski Patrol and as a whitewater raft guide, then as an intensive-care nurse. He had arms like bazookas from rowing his 22-foot raft down the Grand Canyon, which he'd run more than 30 times, and was the guy hunter friends called when they needed someone to help pack out big game from the wilderness.

He'd seen Flight For Life's telltale orange and yellow helicopters flying between peaks since his days at Copper Mountain. "They're such a big part of this whole region, really," he told me when we met in April. "It was something I wanted to be part of." Jobs at Lifeguard 2 are hard to get and harder to leave; Repsher was hired in 2012. Thinking back to that day made him smile. "I was proud of myself," he said. His wife, Amanda, 50, sitting next to him, still referred to him as a nurse in the present tense.

But as experienced as he was, Repsher, who was earning about $60,000 a year at the time of the crash, knew little about the helicopter's safety features, trusting his superiors and Air Methods to manage that side. It was only later, after the accident, that he learned the truth: that despite cutting-edge equipment on much of the helicopter, the B3e was equipped with a plastic fuel tank and rigid fuel lines that were prone to breaking upon impact. While the components met Federal Aviation Administration guidelines, the standards themselves had been written four decades earlier—when helicopters were used almost exclusively by the military. With neither a new system nor a retrofit available on the market, Flight For Life program director Kathy Mayer wouldn't have had a choice for a safer option even if she knew how outdated the current one was, which she says she didn't.

Crashworthy safety features have existed in helicopters since the mid-1970s, but they are found primarily on military ships. The Army, alarmed that so many of its soldiers were burning to death after survivable crashes in Vietnam, eliminated those fatalities when it equipped its fleet with crash-resistant fuel

Portraits by MATT NAGER

systems. The problem persisted in the civilian sector, however, which is overseen by the FAA. In 1985, studies commissioned by the agency showed that people were dying in survivable crashes due to post-crash fires. In 1994, the FAA published a paper that stated, "...significant benefits would be achieved by incorporation of crash-resistant features" in civil rotorcraft—a category including everything from metro news helicopters to Hawaiian sightseeing choppers to heli-ski outfitters to EMS ships. Yet the FAA also noted such benefits would be bad for business: "The manufacturer who installs an enhanced fuel system may be at a disadvantage in selling its aircraft."

In 1989 and 1994, the FAA imposed rules requiring all new helicopter designs certified by the agency to include the latest safety technology in seating and fuel systems. But there was a caveat: The rules didn't apply to existing helicopter designs. This excluded the vast majority of new builds. "It'd be like DOT not making Ford put seat belts in their 2017 Mustang because it was certified in 1964," says Newman Shufflebarger, president of Robertson Fuel Systems, which manufactures crash-resistant tanks and equipment.

When asked why so many models were grandfathered, FAA spokesperson Tony Molinaro said the agency probably expected more new helicopter designs to be introduced after the rules were passed. The truth is that almost every FAA safety regulation is structured the same way, a result, numerous sources said, of effective industry lobbying, since it costs more to include crashworthy safety features and it's a common refrain that "safety doesn't sell."

The fact that Repsher was burned after a survivable crash did not make him all that unique, he would learn. Yet two factors placed him in a category of his own—and led to a groundbreaking outcome in a legal battle against Airbus Helicopters and Air Methods.

One, every moment of the crash and burn was caught on video.

Two, he survived.

THE NATIONAL Transportation Safety Board will tell you, as it has told the FAA, that it investigated 135 crash-and-burn accidents between 1994 and 2013, which killed 221 people and left 37 seriously injured. Only three of the 135 helicopters had crash-resistant fuel systems. "It's like collateral damage in war," one pilot told me. "It's an accepted loss rate."

The NTSB—which has no regulatory power—will also tell you that as a result of the FAA's loophole, as of 2014 only 15 percent of helicopters built since 1994 were equipped with a crash-resistant fuel system. Operators don't push to include them because they weigh more and cost more, and most pilots think they're never going to crash anyway, so what's the point?

Those safer fuel systems are built with a puncture-resistant rubber bladder inside the tank and breakaway, self-sealing valves to keep fuel from leaking after a violent impact. The goal is similar to what's required in cars, which crash far more often than helicopters do and can't leak more than six ounces in the first five minutes after impact. Grandfathered helicopter tanks, however, can gush fuel by the gallon and still be considered legal—as was the case with Frisco's B3e, which was built in 2013.

> "THIS WELL-PAINTED, WELL-FLOWN, NICE-AVIONICS-PACKAGE, GOOD-MEDICAL-PACKAGE AIRCRAFT HAD A PREHISTORIC DAMNED FUEL SYSTEM IN IT. YOUR DAMNED COFFEEPOT HAS MORE SAFETY FEATURES THAN THE FUEL SYSTEM."

Both Repsher and Bowe sued Airbus and Air Methods after the crash, alleging that a faulty design and noncrashworthy safety features caused the accident and their injuries. (Mahany's widow, Karen, a former flight nurse, opted not to litigate and instead worked to change the law.) Bowe, whose back was broken, settled his suit for an undisclosed amount in November 2017 and signed a confidentiality agreement. Repsher, who was sedated for five-and-a-half months and spent almost an entire year in intensive care, refused confidentiality and braced for a trial.

He would face a pair of industry Goliaths. Air Methods, which is based in Greenwood Village, Colorado, operates more than 300 helicopter bases serving 48 states—more than any other company. Airbus, meanwhile, reported $7.9 billion in global helicopter revenue last year, including $800 million in North America; the company spends about $4 million a year on lobbyists in the U.S. Everyone knew the suit could have enormous implications on the EMS industry.

In the days following the crash, doctors told Amanda Repsher, a nurse and paramedic, that her husband had a 10 percent chance of survival. They couldn't bear to tell her the truth: that their formula had calculated his actual chance of survival at negative 140 percent. He developed compartment syndrome, a severe swelling of tissue, and was sliced open to relieve the pressure—down his arms, legs, chest, and abdomen. His kidneys failed, eventually requiring a transplant. He endured 10 months of septic shock, which forced him to be placed on life-threatening medication. Five months in, he developed massive internal bleeding in the middle of the night. Doctors cracked open his chest—a last-ditch lifesaving procedure. Repsher laid there open-chested for two days as his pneumonia-stricken lungs struggled to get enough air from a ventilator.

To cover his burns, doctors harvested skin from wherever the fire didn't maim. They grafted from his scalp, which was spared by his helmet, five times. They grafted from his scrotum eight times. At one point Repsher, who'd been 5'8" and 180 pounds before the crash, withered to 89 pounds. Once he got the feeding tube out of his nose, it took him six months to relearn how to swallow. His fingers were immobile, and he could barely bend his elbows and wrists. His therapist made him a two-foot-long spoon, which, when attached to his hand, he could use to scoop up food, then try to steer it toward his mouth.

He was discharged August 2, 2016, the same month that a high-level FAA manager named Jim Viola told a Denver television reporter that he would not fly a helicopter without a crash-resistant fuel system, because he didn't want to "look like a fool" if it caught fire after a hard landing. In the 9News report, part of a series stemming from the Frisco crash, Viola said instead of waiting for the FAA to change the rules, manufacturers should stop producing ships without crashworthy safety features. "We try not to hamper growth," Viola said.

To that end, any proposed regulation changes have to pass through a gauntlet of industry appointees who serve on what is known as the Aviation Rulemaking Advisory Committee, which has a huge influence on whether the FAA will consider a change. "I call it regulation by permission of the regulated, because you know how the system works," says Dennis Shanahan, a former Army colonel who helped develop crashworthy features for the military and is

HUGH CAREY

Top: Repsher in 2007, rafting the Grand Canyon. Below: An Airbus AS350 B3e takes off from a helipad in Frisco, Colorado.

chairing an FAA working group on occupant safety. "You end up with a watered-down version, or it doesn't happen at all."

"All I can say is I disagree," said Molinaro, the FAA spokesman. "The industry does have safety as its number one priority."

In March 2017, the NTSB held a meeting to determine the probable cause of the Frisco crash. Investigators cited pilot error, claiming a high probability that Mahany had turned off the chopper's hydraulic switch during a preflight check and forgotten to turn it back on, leading to a loss of control at takeoff. The badly burned switch was found in the on position, but no one knows how or when it got there. Investigators also cited as a contributing factor that Mahany had failed to conduct a required hover power check. His son, Ryan, a Black Hawk pilot and instructor in the Army, believes his father was trying to save the aircraft and didn't have time to perform the hover.

But NTSB board member Robert Sumwalt argued that Airbus and Air Methods had failed to protect the pilot and crew with the design of the switch and the lack of a warning light if one forgot to reset it. Ultimately, the board sided with Sumwalt—a decision that seemed to bolster Repsher's and Bowe's legal cases. "If you design a system with traps," Sumwalt said at the probable-cause hearing, "sooner or later you're going to snare somebody."

COURTESY OF DAVE REPSHER

Repsher later learned that his crew seat was required to withstand an impact of only five feet per second, a rule written by the FAA in 1965. (He hit the asphalt at more than eight times that speed.) The agency revised the rule in 1989 to require that seats be made five times stronger, but because of the loophole, it didn't apply to Frisco's B3e. Meanwhile, the gas tank Repsher would sit within inches of, separated by an aluminum partition, was made of rotomolded plastic, which can degrade over time. "So basically," Repsher told me, "you're flying around with a sun-rotted milk jug right behind you, full of fuel."

The most damning discovery that Repsher's legal team made may have been a fundamental FAA rule from 1964. It states, simply, "The aircraft may have no design features or defects that experience has shown to be unreliable or hazardous." In light of the statistics cited by the NTSB, as well as the FAA's own findings from the '80s and '90s, I asked agency spokesman Molinaro why the FAA has allowed noncrashworthy fuel systems to persist. "I'd have to question your definition of hazardous or unreliable," Molinaro replied. "I mean, tail rotor blades are hazardous."

ONE OF THE REASONS the Frisco crash became so influential is because it occurred shortly after an eerily similar accident in Wichita Falls, Texas. At 1:55 a.m. on October 4, 2014, a Bell 206L1+ transporting a gunshot victim landed upside down in front of a hospital. The flight nurse, 27-year-old Leslie Searle Stuart, managed to evacuate the helicopter within seconds and was six feet away when the ship blew up. Stuart, like Repsher, had been doused with fuel from an outdated tank. She caught fire and sustained severe burns on 70 percent of her body. She died four days later. The paramedic and patient also perished, while the pilot escaped by kicking out his windshield.

Stuart's father, Richard Searle, spent 22 years as an active-duty helicopter pilot in the Air Force. He was well aware of the crash-resistant fuel systems on his helicopters, he says, and equally shocked to learn that his daughter's ship did not have one. "I can't tell you how angry I got that this well-painted, well-flown, nice-avionics-package, good-medical-package aircraft had a prehistoric damned fuel system in it," he said. "Your damned coffeepot has more safety features than the fuel system. You can pull the urn out of the coffeepot without it dumping hot coffee all over you."

The Wichita Falls crash led to a recommendation from the NTSB to FAA administrator Michael Huerta that was delivered, coincidentally, less than three weeks after the Frisco crash. The NTSB had been recommending that the FAA mandate crash-resistant fuel systems for 30 years, but the timing of this recommendation added a level of urgency, and the FAA formed a working group to look into it.

By then, word had spread through Colorado's Flight For Life crew that the B3e fuel system was hazardous. "We were literally dumbfounded that we didn't have the safest possible fuel tanks," said Katherine Hillig, a former flight nurse who was based at Children's Hospital and had flown with Flight For Life for eight years. "You had this expectation that you were going to be put in the best possible hands."

Multiple sources said they didn't discuss the issue in public because they feared for their jobs—which is not uncommon in the helicopter industry. "It's dirty laundry," a former Flight For Life employee said. He spoke on the condition of anonymity because he still works in the industry. "You don't talk about anything negative about Flight For Life at all. Nothing. That was the culture."

On February 1 this year, a month before Repsher's case was scheduled to go to trial, Airbus and Air Methods settled for a combined $100 million—$55 million from Airbus and $45 million from Air Methods. It was the largest pretrial settlement in U.S. civil court history, but aside from local news outlets and trade publications, it received little media coverage.

Nine days later, a sightseeing helicopter run by Papillon Airways, a Las Vegas–based aerial-tourism outfit, spun out of control and crashed in the Grand Canyon, igniting a fire that would leave five British tourists dead. The helicopter, a derivation of the Airbus AS350 series that was built in 2010, did not have a crash-resistant fuel system. Because of the loophole, it was not required to.

TWO WEEKS AFTER the Grand Canyon crash, I flew to Las Vegas to attend the annual Heli-Expo staged by Helicopter Association International, one of the largest and most powerful trade organizations. Traditionally the convention serves as a time for the industry to pat itself on the back, and in some ways that was true this year too. Manufacturers announced hundreds of millions of dollars' worth of orders and debuted new products on the sprawling floor of the Las Vegas Convention Center.

The event took place not far from where the doomed Grand Canyon flight had taken off. Most by then had seen the post-crash fire on video, captured by a bystander and broadcast on television and online. The year 2018 was already on pace to be the deadliest in civilian helicopter history—and that was before another sightseeing helicopter crashed in New York City and killed five tourists on March 11, though that incident did not involve a post-crash fire.

Nervous unease combined with big business made for a strange atmosphere in the convention center. At one exhibit, women in high heels passed out popcorn to potential helicopter buyers. Next door, salesmen hawked fire-retardant flight suits. I struck up conversations with pilots and crew members about the state of occupant safety, particularly fuel tanks. One pilot, who flies AS350 B3e's for U.S. Customs and Border Protection, told me he would be heavily in favor of mandating

crash-resistant fuel systems. "Every time I get into one of those egg cartons to fly, I'm thinking about that plastic gas tank behind me," he said, then declined to give his name.

An air-medical crew member from Tennessee, who also declined to give his name, said he thinks the FAA will eventually eliminate the loophole and pass a stiffer rule, albeit begrudgingly. "It will be written in blood," he said. "Every FAA rule is written in blood."

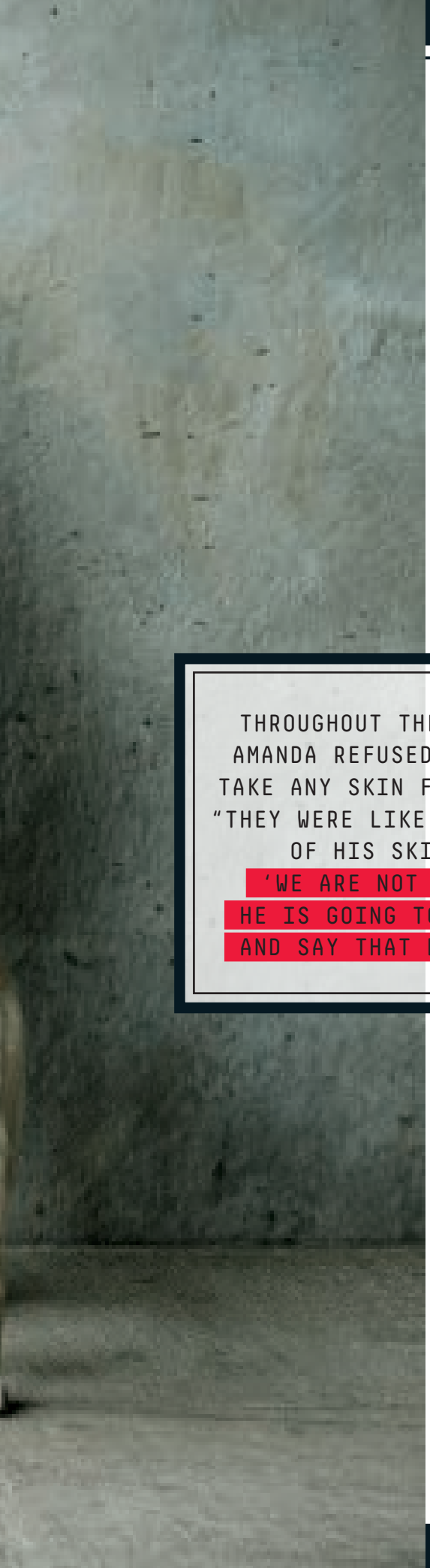
The biggest presence in Vegas, as usual, belonged to Airbus. Everyone's convention badge hung from an Airbus-sponsored lanyard. The daily Heli-Expo newsletter ran multiple stories per day about Airbus' latest sales and designs. The company initially offered an interview with Airbus North America president Chris Emerson, but ultimately granted an hour with spokesman James Darcy, who alternated between speaking on and off the record. Darcy told me Airbus developed and is now including crash-resistant fuel systems on all of its new helicopters in the U.S.—even though some operators still request them without—"because it felt like the right thing to do." I asked Darcy why it wasn't the right thing to do 10 years ago. He said Airbus is conditioned to listen to its customers and adhere to FAA rules. The about-face "wasn't driven by customer demand, and it wasn't driven by a safety regulation," he said. "It was simply a business decision that we as a company made."

After we spoke, I wandered over to the showroom floor, where a crowd had gathered around a shiny Los Angeles Police Department AS350 B3e. I introduced myself to Stuart Lomax, the pilot, who has flown for the LAPD for eight years. He was wearing a green jumpsuit with a sidearm and badge and had his hair slicked back. He told me the B3e has far more horsepower than the Bell Jet Rangers he trained on. "That's like a VW Bug," he said of the Jet Ranger. "This is like a Ferrari."

I asked if its fuel system was crash-resistant. "It would have to be," Lomax replied. "All that stuff is regulated by the FAA." Lomax went on to explain that the skids are designed to absorb energy in a crash and split outward, and the seats are made to withstand so many g's of force. "There are a lot of systems in place," he said.

Eventually I asked if anyone would know for sure whether it had a crash-resistant fuel system. "I guarantee..." Lomax began. He spotted an Airbus technical rep and called him over. I repeated my question. "No," the rep answered. It had an older system, just like Flight For Life's B3e.

Due to Repsher's settlement and the run of high-profile tragedies, the industry is seeing substantive changes in occupant safety for the first time in decades. Some manufacturers have developed retrofit kits and are selling them at or below cost. Kurt Robinson, president of Robinson Helicopter Co., a Torrance, California–based chopper manufacturer, said his perspective intensified after meeting a burn victim. He decided he would never fly without a crash-resistant fuel system again—



Repsher, who has undergone 51 surgeries since the crash, with his wife, Amanda, and dog, Turq.

and is working to retrofit the company's entire fleet worldwide. "I get really mad at an owner who tells me he still hasn't complied, because I know the difference," he said.

Air Methods is in the process of installing safer fuel systems on all 150 of its Airbus helicopters, at a cost of $15 million. Papillon Airways, whose helicopter crashed in the Grand Canyon, announced an order of 40 retrofit kits in Las Vegas. Tempe, Arizona–based Robertson Fuel Systems, which sells the industry's most robust retrofit at a cost of up to $120,000 each, has had to hire more staff to keep up with demand. "I've already been asked can I triple production in the first year, and we're three months in," the company's president, Newman Shufflebarger, told me.

Meanwhile, Karen Mahany got sick of waiting for the industry, or the FAA, to act. In 2016, she began meeting with members of Congress, spurring them to introduce legislation that would close the FAA loophole and require all newly manufactured helicopters to install crash-resistant fuel systems. It was passed by the House in April and was awaiting Senate approval at press time. "I still am angry that we didn't correct this a long time ago," U.S. Representative Ed Perlmutter, the Colorado Democrat who carried the legislation, told me. "It makes no sense."

> THROUGHOUT THE GRAFTING PROCESS, AMANDA REFUSED TO LET THE DOCTORS TAKE ANY SKIN FROM DAVE'S FOREHEAD. "THEY WERE LIKE, 'WE NEED EVERY INCH OF HIS SKIN.' AND I SAID, 'WE ARE NOT TOUCHING HIS FACE. HE IS GOING TO LOOK IN THE MIRROR AND SAY THAT HE CAN SEE HIMSELF."

The accident is a sensitive subject at Flight For Life, where Patrick Mahany remains a constant, if slightly controversial, presence. There is a saying among pilots: "One 'oh, shit' in a helicopter wipes out a lifetime of 'atta-boys.'" Pilots tend to be a self-confident, even macho lot, and some of Mahany's former colleagues maintain that the fuel system never would have been an issue if Mahany hadn't crashed in the first place. "I'd rather have the power than a safe fuel tank," especially at altitude, said Bud Wheeler, who flew for 32 years in the Army before joining Flights in 2013. (He has since retired.) "Because that means I'm less likely to crash when I get up there and need the power."

Others say that's exactly the point: Even stellar pilots crash, but no one deserves to burn for their mistake.

REPSHER, now 48, likely would have walked away from the crash if not for the fire. He had one broken rib and four minor fractures in his back. Instead, when I met him in April, he was preparing for his 51st major surgery, an average of one every three weeks since July 2015. Inside, he was still "D-Rep," the rugged mountain man and lifesaving rescuer. Outside, he looked frail yet resolute.

He is two inches shorter now. His life expectancy was reduced from 79 to 64. His body still has not fully sealed three years after the crash, with open wounds on his right Achilles and left shin, where the fire burned his flesh down to the tibia. His left nostril is deformed, his lips sag, and he can't sit still for very long before his skin tightens. He lost the tips of his thumbs and three fingers, so tying his shoes takes a while.

Still, throughout the grafting process, Amanda refused to let the doctors take any skin from his forehead—one of the only places where he can still sweat. "They were like, 'We need every inch of Dave's skin.' And I said, 'We are not touching his face. He is going to look in the mirror and say that he can see himself.'" During his recovery, Amanda kept a sticky note above her computer that read, "You don't know how strong you are until you have to be that strong," a mantra that rang true for both of them.

Repsher's greatest gift to his profession may come later, when he plans to visit conferences and implore air-medical crews to demand better helicopter safety. "Because the only way it's going to change," he told me, "is if crews start saying, 'No, I'm not getting in there until it's safe.'" He doesn't obsess about his plight or dwell on his fate. "My approach is that there's only one way to go, and that's full steam ahead," he said. He ice-skated again in June and is able to hike, although he can't be exposed to the sun. Someday he hopes to ski and bike and camp on sandy riverbanks like before. After living in a one-bedroom apartment near University Hospital for two years, he and Amanda were finally expecting to return home to Silverthorne in July.

Repsher has spent months poring over his lawyers' discovery, an exercise that confirmed how important it was to reject a confidentiality agreement. "The stuff we learned in depositions and from the experts, it's horrifying," he said. "The industry is so renegade, and there's no oversight from anyone."

Will he ever get in a helicopter again? Maybe, he said. He misses flying. He always felt safer working in the air than he did on the ground. But a lot has to change first. "If these companies can't afford safety features," he said, "then they shouldn't be in business."