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THE PULSE OF THE HELICOPTER INDUSTRY

CHI Aviation

The Heavylift Specialist

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MULTI-SECTOR SPECIALIST

CHI Aviation has a fleet of 23 rotary-wing aircraft, including this Sikorsky S-92, which operates search-and-rescue missions in the Gulf of Mexico. The company spent its first 17 years focused on aerial construction in Michigan, but its operations now span the globe.
Mike Reyno Photo

AFTER 17 YEARS FOCUSING ON THE AERIAL CONSTRUCTION SECTOR, HEAVY-LIFT SPECIALIST CHI AVIATION SPENT THE NEXT 17 YEARS BRANCHING OUT INTO FIREFIGHTING, LOGISTICS SUPPORT FOR THE DEPARTMENT OF DEFENSE, EMERGENCY MEDICAL SERVICES, SEARCH-AND-RESCUE AND PASSENGER TRANSPORT. *VERTICAL* GETS THE STORY BEHIND ITS EXTRAORDINARY GROWTH.

by Oliver Johnson

Down an unassuming dirt road leading to Livingston County Airport in rural Michigan, outside the small city of Howell, sits what appears to be — at least on first glance — an equally unassuming hangar. But get a little closer, and there are clues to be found —the manicured lawns that surround the facility, the pristine parking lot, the immaculately decorated interior with hallways that feature dimensionally exact runway markings — that this is home to no ordinary utility helicopter company. It is, in fact, the headquarters of CHI Aviation — the company that made headlines and grabbed wider industry attention last year when it took over VIH Cougar's offshore contracts in the hugely competitive Gulf of Mexico, a market that's not used to having to welcome new entrants. Formerly known as Construction Helicopters, it's a company that has been more than happy to remain under the radar until its enormous growth made that no longer possible.

Founded in 1980 by Don Werner and Pete Moyer, for the first 17 years of its existence its operations were largely local, its fleet was small, and its focus was on its specialization —heavy-lift aerial construction (hence the company's name). The next 17 years saw it notch operational milestones with increasing regularity, as it broadened its scope of operating certificates, aircraft, the sectors it serviced, and where it flew. Today, it provides aerial crane, firefighting, helicopter emergency medical services, search-and-rescue, logistics support and ad hoc passenger transport services from bases in Howell; Boise, Idaho; Sacramento, Calif.; Galliano, La.; Barrow, Alaska; and Jalalabad, Afghanistan.

Vertical visited CHI's Howell facility in June to get the story behind the headlines, and find out how it got to where it is today. As luck would have it, our arrival coincided with the very latest development at CHI — during a tour of the facility from company president and owner Chris Turner, he mentioned that the company was, in fact, closing on three new aircraft that day. Those aircraft happened to be Boeing CH-47D Chinooks, part of an initial batch of 15 being auctioned off by the U.S. Army for civilian use (*see p.18*). These new additions to CHI's varied fleet, which also includes the Sikorsky S-61 and S-92, AgustaWestland AW139, Bell 205 and 212, and Airbus Helicopters AS332 L1 and AS350 B3e, brings the company's total number of rotary-wing aircraft to 23. And, as its operations swell, so, too, do its staff numbers (the figure currently sits at 197).

It's no coincidence that CHI's split history — becoming an ambitious and flourishing multi-sector operator after 17 years as a local heavy-lift construction company — coincides with Turner taking over at the company's helm. When he arrived at the company as a pilot in 1995, there were just five employees and one aircraft — a Sikorsky S-58T. One of those employees was Jim Russell, who is still with the company today as general manager.

"We rarely travelled," said Russell. "I remember the owners, when I first started, saying they didn't see a need to go more than 200 miles away because we had that much automotive construction work right here: 'It's a helicopter, it shouldn't have to travel that far.' "

Turner, a former Army Chinook pilot, met Werner while working at a competitor, and the two kept in touch as Turner's civilian career progressed. When Werner began considering retirement, he reached out to Turner to gauge his interest in purchasing the company. After two years learning the company's operations as a pilot, Turner bought the company in 1997.

CHI moved to its current headquarters in Howell, Mich., in 2005. Today, it has 197 staff working at bases around the world. **Mike Reyno Photo**

A BROADENED FOCUS

The changes in the company were almost immediate. A second S-58T was added, with Mike Jones, a fellow Chinook pilot who knew Turner from the Pennsylvania Army National Guard, brought in as the company's second pilot. Turner, Russell and Jones formed the backbone of the company as it developed over the next decade and half.

Recognizing that growth would be limited in servicing what was becoming a stagnant automotive industry in Michigan, Turner turned his attention and the company's efforts into branching out into firefighting operations. CHI gained its Federal Aviation Regulations (FAR) Part 135 Certificate in 1998, and began firefighting work immediately in Texas and Florida.

"We just kept growing from there," said Turner. "We added our third S-58, got an exclusive use contract at Shasta-Trinity [National Forest] in 2000 . . . and in 2005 we brought on an S-61. That kind of elevated us to the next step."

In 2008, CHI acquired Helimax Aviation in Sacramento, Calif., which it runs as a separate company with its own FAR Part 135, 137, 133, and 145 Certificates. Today, CHI's firefighting operations are largely completed by its Helimax affiliate and its facility in Boise. The latter base, along with four aircraft and their associated U.S. Forest Service exclusive use firefighting contracts, were purchased from VIH Cougar in April 2012. Larry Kelly, the company's director of fire operations, told *Vertical* that the Boise facility has the ability to share personnel and resources with Helimax for operational balance when needed.

The company generally uses the Bell 212 or 205 for firefighting operations, although the S-61 is also occasionally used. "I'm really excited about the CH-47s coming on and putting them on fires," said Kelly. "They lift so much weight and will be a really great addition to the fleet. But we'll also be using them for heavy construction lift work."

In the winter, Helimax has several frost patrol contracts it services in California, and some of the Boise-based aircraft are repositioned in Sacramento to cover that work. It's also a time for heavy maintenance. "Some of my guys are checked out on the Super Puma, so they'll go out to Howell and do some construction work in the winter, too," said Kelly. "Our pilots are pretty well rounded; they can do just about anything."

In 2010, CHI once again moved into new territory, when it gained its Class D FAR Part 133 Certificate and 10 or More Part 135 Certificate, opening the door for it to apply for — and win — a Department of Defense (DoD) contract to provide logistics support in Afghanistan.

"I think we've always been proactive — [looking at] what's the next step," said Jones. "Things were slowing down, and Chris said, 'Let's look at getting everything we can get, op specs wise — [such as] Class D external loads and night vision goggles — let's look at the DoD stuff and have our ducks in

CHI president and owner Chris Turner. A former U.S. Army Chinook pilot, Turner joined the company in 1995, and became owner two years later. **Mike Reyno Photo**

CHI's mechanics must be able to service a varied fleet of aircraft — both in terms of age and manufacturer. **Mike Reyno Photo**

CHI began operations in the Gulf of Mexico after it took over VIH Cougar's contracts in 2013. **Mike Reyno Photo**

One of three CH-47D Chinooks arrives at CHI's Howell base. The company purchased them through a recent U.S. Army auction, and they will now be re-tasked for civilian operations. **CHI Aviation Photo**

CHI president Chris Turner said he expected the Super Puma to assume the role of the S-61 in utility operations in the future. **CHI Aviation Photo**

The company generally looks for 1,500 hours of pilot in command time from new hires, but a good work ethic is also crucially important. **CHI Aviation Photo**

The company's three Bell 205s are based in Boise, Idaho. All three have exclusive use firefighting contracts with the U.S. Forest Service. **CHI Aviation Photo**

CHI's S-92 and AW139 — the two platforms used by the company in the Gulf of Mexico. **Mike Reyno Photo**

a row if we can get it. So we got a lot of things that we really didn't need yet."

With the contract in hand, CHI began operations in Afghanistan in December 2011, performing heavy-lift vertical reference work as well as internal cargo and passenger hauling. Since then, with just two aircraft (S-61s) operating at any one time, the company has hauled over 7 million pounds of cargo and over 100,000 passengers in the country. Its current contract runs through Oct. 31 this year, with a further option year available.

"The opening up of the DoD, because it's an exclusive club to get in . . . it kind of changed everything for us," said Turner. And the ability to meet the DoD's exacting operational standards proved more than handy when the opportunity came to expand CHI's operations into the Gulf of Mexico.

MOVING OFFSHORE

CHI's entry into offshore operations in the Gulf of Mexico was far from straightforward, requiring the company to get involved in an issue that had quickly become "a very political football," according to Turner. The issue was ownership control. The U.S. Department of Transportation found that VIH Cougar — whose offshore contracts CHI would later assume — was under what it believed to be the control of a non-U.S. citizen. More specifically, under the control of VIH Aviation Group owner and CEO Ken Norie (a Canadian). VIH Aviation Group contested the finding, but nevertheless, in 2012, Norie approached Turner to see if he was interested in becoming the majority shareholder in VIH Cougar.

"At that time, we thought my coming in would just clear up the VIH Cougar problem, and that would be it," said Turner. "But it

CHI's search-and-rescue service operates 24/7, serving oil companies working offshore in the Gulf of Mexico. **Mike Reyno Photo**

The S-61 at work in Afghanistan. In just over two and a half years, CHI has hauled over 7 million pounds of cargo and over 100,000 passengers in the country. **CHI Aviation Photo**

A CHI S-61 is unloaded from an Antonov An-124 in Afghanistan. The company began working in the country in 2011, and its contract with the Department of Defense runs through Oct. 31 this year, with the option to extend it a further year. **CHI Aviation Photo**

CHI recently upgraded the entire instrument panel in its fleet of Bell 205s. The work was performed by CHI subsidiary Preferred Avionics. **CHI Aviation Photo**

didn't, so that's why we made the transition of moving the operations over to CHI and just shutting VIH Cougar down."

The switch of the contracts from VIH Cougar to CHI took place in early 2013. "Obviously we're the little David amongst the Goliaths down there," said Turner. "But the oil companies seem to like that. We do well on our audits, because we're able to fix a problem right then and there — it's not a large corporation."

The operation, based in Galliano, revolves around the 24/7 offshore search-and-rescue (SAR) service the company provides with its S-92s and AW139, in partnership with emergency medical service provider Acadian Air Med. *(You can read the full story on CHI Aviation's SAR capabilities in the upcoming AMTC issue of Vertical 911.)* CHI also completes ad-hoc passenger transports for oil companies in the Gulf, and recently won an offshore transportation contract from Shell in Brunei.

In terms of offshore growth opportunities, Turner said SAR work in the Gulf was likely already at capacity, but that he hoped to use the company's experience in the segment elsewhere in the world. "The oil companies are putting that requirement on every place they work to have SAR, so we're hoping to take it to other places, and we've had quite a few enquiries to do that," he said.

At this year's Heli-Expo, CHI signed up for an option on two Airbus Helicopters EC175s, which are due to be delivered in 2017. Turner said the current intent is to use them as SAR aircraft, but they'll be assigned to whatever mission makes most sense at the time.

PICKING THE RIGHT PEOPLE

However, while diversification has enabled the company to grow to the extent that it has, and opened up new markets and opportunities, it also presents a challenge. At the organizational level, it's clearly more difficult to keep on top of operations across a wide variety of sectors on a global scale, than

> WE HAVE A GOOD TALENT POOL OF PEOPLE THAT WE BRING TOGETHER, WHO EACH UNDERSTAND THE SEGMENT THEY WORK IN COMPLETELY.

one based around just the one industry and location.

For this reason, Turner said it was crucially important to select the right leaders for each operational segment. "We have good people in the right places that think like the rest of the team," he said. "Obviously from the outside, this looks like a lot of growth, but these are segments we understand and we can do. . . . We have a good talent pool of people that we bring together, who each understand the segment they work in completely. Where we're growing now is more on that admin side of it. Running a helicopter is not a hard operation; keeping up with the paperwork is probably a hard operation."

Turner added that the company has been able to take advantage of synergies between the various sectors, bringing best practices from its heavily regulated offshore work to areas such as firefighting and general utility operations.

To help ensure the company's quality is maintained across the various segments, Mike Jones, the first pilot Turner hired back in 1997, now serves as CHI's director of training and standards. "Because we've got so many different aircraft, pilots, and missions, we're trying to standardize things," he said. "Probably the biggest challenge is tracking the training, making sure everyone is current on their aircraft. No-one's ever slipped through the cracks, but as we get bigger, we want to ensure that continues."

In terms of new hires, Jones said they would be brought in for a specific mission, and the requirements would depend on what that mission was. "For instance, Afghanistan: I'm looking for long line, S-61 type rating guys with Afghanistan experience," he said. "Sometimes you can't get all three, so you've got to juggle — is it easier for me to make a long line guy an S-61 pilot? Or an S-61 guy a long line guy? We've tried both different routes. Some guys work out, some guys don't.

"We've left the hour requirement pretty slim, because if we like the guy and he's got a good work ethic, we don't want to not be able to hire him because he doesn't meet the hours. But normally what we look at is Forest Service and DoD standards, which are pretty much parallel with each other: 1,500 hours of PIC [pilot in command] time."

FLEET SUPPORT

Supporting airframes that run such a broad spectrum of age and manufacturer is clearly no small feat. "You have to stay on top of it," said Steve Janos, CHI's quality assurance manager. "We've actually had to put manuals together, customer-specific standard operating procedures, so we can ensure that we are satisfying all of our customers and complying with all of the contract requirements and customer needs."

There are about 75 staff dedicated to maintaining the aircraft across the operational divisions, providing CHI with the capabil-

Some of the company's operations, such as those in Afghanistan and Galliano, have stricter entry requirements for pilot applicants, reflecting the particular challenges of those missions. **Mike Reyno Photo**

CHI Aviation began life as Construction Helicopters, operating a fleet of Sikorsky S-58Ts. **CHI Photo**

ity to perform full airframe maintenance (component overhaul is completed through approved vendors).

The company's Galliano and Afghanistan operations have dedicated maintenance teams specific to the aircraft operating from those bases as part of their contracts, but the maintenance crews working across the rest of the company's operations are tasked with working on a wide variety of airframes.

"The new airframes are all on power by the hour contracts, and it can be challenging to get the support that we want out of them," said Turner. "The legacy airframes are more labor intensive because we've got to track the parts down, but sometimes we're able to react faster on that then dealing with the OEMs [original equipment manufacturers] to get a part, because the parts are out there and we can find them."

As part of the company's desire to complete as much work in-house as possible, it established a subsidiary — Preferred Avionics — in 2000. Preferred Avionics works on CHI's own aircraft, but also has the capability to complete installs in aircraft up to light jets. "We'll move our avionics shop to wherever it needs to go," said Turner. "Last year, we brought the 205s back here [to Howell], because we did a complete replacement of the instrument panels. It was easier to do that here. But normally we do it right in the field, and these guys go with it."

CONTINUOUS DEVELOPMENT

Looking ahead, the company is clearly excited about the arrival of the Chinooks, and had already begun the hiring process for the additional pilots and maintenance staff required to operate the aircraft at the time of *Vertical*'s visit.

"When the government started auctioning them off, it was a perfect fit for us; heavy helicopters are what we do," said Turner. The first Chinook was scheduled to begin firefighting operations later this summer; the other two aircraft may be used for global aerial construction work in non-congested areas ahead of next year's fire season.

Turner also has high expectations for the utility of the Super Puma in the future heavy-lift world. "It's a good utility aircraft, and I think it's going to be the aircraft that's going to transition the S-61 out," he said. "I think you're going to see the Puma take that role in the world."

In terms of operational expansion, Turner said growth would be within the company's existing segments of operation. Geographically, while the company is now spread throughout the world, South America holds relatively untapped potential for CHI. "It's the oil-and-gas sector that'll take us there," said Turner. "We also think opportunities in Africa are going to expand with the DoD."

However, while the oil-and-gas sector and DoD contracts provide great prospects, the strict operational requirements required to work in each sector can complicate CHI's work in other segments — particularly when operating in remote areas.

"The oil companies require you have to have a workstand when you work on the aircraft — but you might be in the middle of the forest," said Turner. "When we went to Barrow, we didn't have workstands. We had to ship them up, and they didn't arrive the same time the aircraft did. It was like an Act of Congress to get it approved so that we could actually go up and preflight the aircraft."

Because of this, the company is planning to switch its utility operations to be under its Helimax subsidiary. "We'll still have the same quality, we just won't have the same auditing requirements, and it'll make our customers happier," said Turner.

And keeping the customer happy is a key focus — and the reason this company, despite operating almost in stealth mode, has not only continued to grow, but prosper. "Like I tell everyone here, I can write all the checks in the world, but the customer puts the money in the account so that your check's good," said Turner. "We have some pretty demanding customers, but it's my standard we maintain. We exceed the customer's standards."

While CHI can no longer remain under the radar, as a marker of success, that's no bad thing. And the future certainly looks bright for this company, which has uniquely established a foothold in such a diverse range of sectors. For those that have been at the company throughout its extraordinary development, it's been an interesting journey. "I've always looked at it like I'm curious to see what's around the next corner," said Mike Jones, the company's director of training and standards. "Every single year, something's different — different aircraft, different missions. The thing that keeps me going is just the curiosity of what's next."

Oliver Johnson is managing editor of Vertical Magazine. He can be reached at oliver@mhmpub.com.

PETE CALLINA

RESCUE SPECIALIST AT CHI AVIATION

Pete Callina served in the U.S. Air Force for 30 years. He spent 24 years as a pararescueman, during which he completed 47 combat and 180 combat support missions in Kosovo, Afghanistan and Iraq, and he ended his service as both the 308th Pararescue Team Chief and the 920th Rescue Wing Command Chief. After his retirement from the military, he took up a post as a rescue specialist at CHI Aviation, performing search and rescue operations in the U.S. Gulf of Mexico.

Q ***What was it about that pararescue role that appealed to you?***

A The nice thing about doing rescue is you're always doing good. Even if it ends up being the enemy, and they end up being detained, you're still saving people's lives.

Q ***You took part in operations in various combat zones. Did your role differ much between them?***

A Absolutely. When you go from a jungle environment to a desert environment, the tactics are completely different. When I was training, all my instructors were from the Vietnam era — so they trained me for general combat. We went up in the mountains of Oregon, and we went to Panama and were out in the jungle, and that's how we trained — to survive in a hot and wet environment, with close quarter fighting. But where's my first war? The Gulf War — a desert environment, where everything was long range, and now there were buildings, too. So we really had to quickly relearn all our tactics.

When we went to Kosovo, there were two things that were different: there was different terrain and a different environment, but there was also an enemy equipped with top grade military hardware. We were actually getting missiles locked onto our helicopter and they were also shooting at us and hitting us. Had we gone deeper into that war, we'd have had a lot more casualties.

Q ***How did the role change over your 25 years in a pararescueman?***

A It went from a force of brute strength, and relying on your muscles with a really stripped down weapon, to a very technical, precise job. Our movements were tracked, every round we fired was accountable, and everything was scrutinized.

Q ***Your unit took an active role in the rescue operations following Hurricane Katrina. We've all heard the news reports, but what was it like on the ground?***

A For us, responding to Katrina was very interesting. Any time there had been a hurricane in Florida, our unit was deployed to it, so we thought we were the go-to guys — and we actually pushed forward before they even asked us. And it was so confusing that nobody was asking for help, because we knew those people needed help. When we showed up, we were all taken aback… it was unbelievable. There were fires everywhere in the middle of this flood — the whole dockside burned down, because they had no way to put them out.

The Coast Guard got there about the same time as us, and they were in the middle of doing their very first pickup. I was getting ready to go down and get somebody out, and I could hear the Coast Guard over the radio, and you could tell he was overwhelmed. When we heard that, we knew it was not going to be the same as we had thought. We ended up using every skill, every technique that we had, as there were people trapped everywhere. And we saw things that you're just not used to seeing. It just caught so many people off guard.

Q ***How long were you there helping out?***

A We had ancillary stuff going on for two months, but the first three weeks were solid 12-hour shifts, round the clock flying. We would actually fly our entire 12 hours and never land. We had a C-130 tanker flying above us for the whole time. We would air refuel and then go get more people and drop them off, and then go back and get more people. We pushed our crew duty days to the limit.

Q ***How many people did you rescue?***

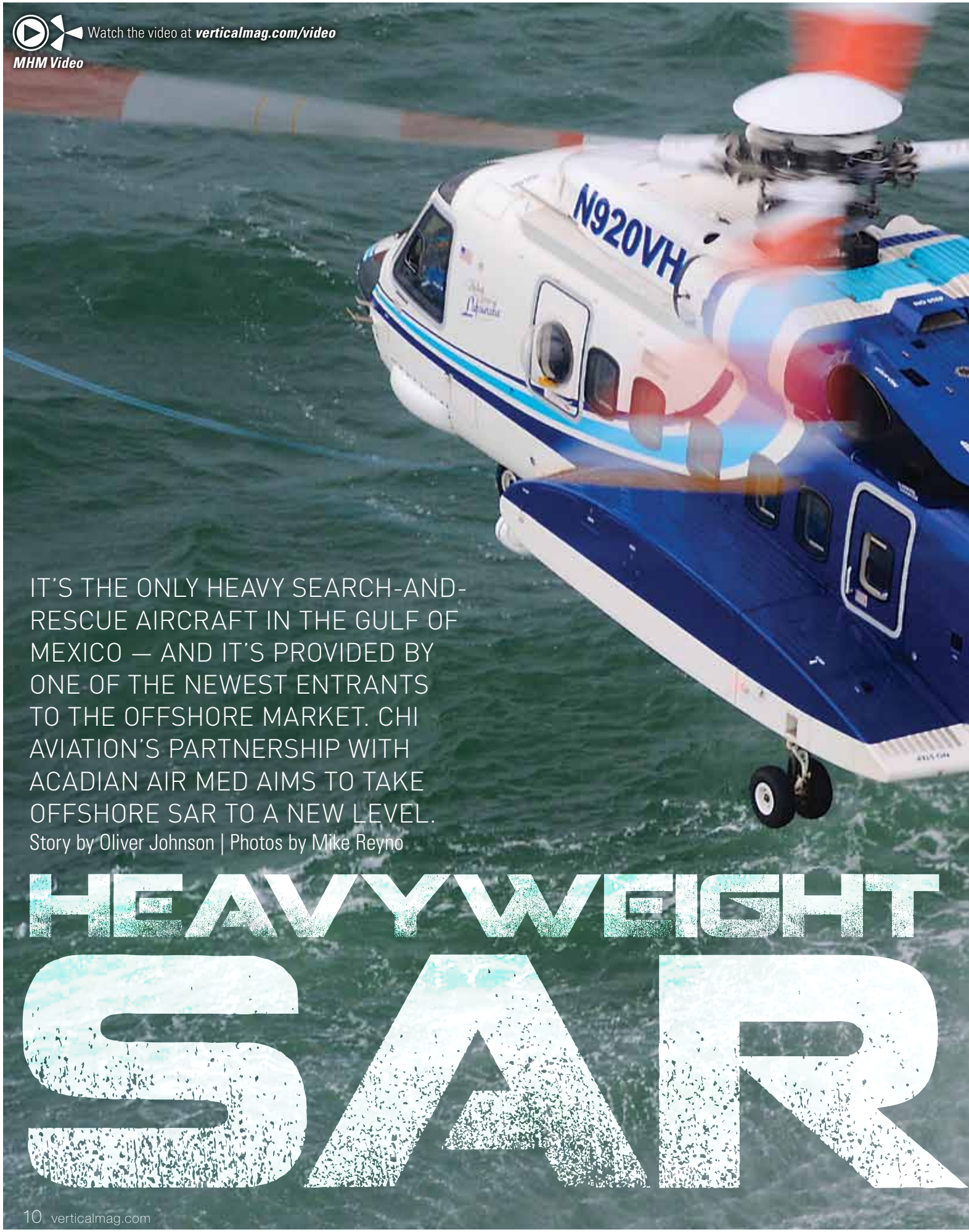
A I believe the total count was 1,200 to 1,400 — the total that we went out and picked up ourselves. I personally had 202 people. That's kind of your marker in rescue —your rescue count. People think it's a little morbid, but it's a reverse body count — it's how many you've saved.

Q ***How would you compare the role of civilian SAR to military SAR?***

A When you get out of the military, you're totally lost. There's nothing that can prepare you for it. You were in this institution and then you're just out there. And rescue does not have very transferable skills to civilian jobs. So when you finally get a job like this, it's a huge relief.

I'll never forget the first day sitting back in the helicopter after I was done training; I felt like I found my niche again. I'm extremely happy. You still feel like you're making a difference in the world, and it's enough to keep your skills sharp and keep you in shape. I think people are sometimes a little worried about the issues they think a military member brings with them, and they overlook the amount of skill that you can't get anywhere but from the military. CHI is very veteran friendly, and I think they are very good at taking these guys, understanding their skill sets, and understanding their personalities.

This interview has been edited and condensed.



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IT'S THE ONLY HEAVY SEARCH-AND-RESCUE AIRCRAFT IN THE GULF OF MEXICO — AND IT'S PROVIDED BY ONE OF THE NEWEST ENTRANTS TO THE OFFSHORE MARKET. CHI AVIATION'S PARTNERSHIP WITH ACADIAN AIR MED AIMS TO TAKE OFFSHORE SAR TO A NEW LEVEL.

Story by Oliver Johnson | Photos by Mike Reyno

HEAVYWEIGHT SAR

A CHI Aviation search-and-rescue (SAR) crew performs a training mission in the waters of the Gulf of Mexico. This Sikorsky S-92 is the only heavy SAR platform in the region.

In among the giants of the offshore transport industry in the Gulf of Mexico, there's one operator that fulfills a unique and vital role with just two aircraft. That company is CHI Aviation, and that vital role is to provide 24/7 contract and ad hoc search-and-rescue (SAR) service to those working offshore. As for unique, it operates the only heavy SAR platform in the Gulf of Mexico — a Sikorsky S-92 — along with an AgustaWestland AW139.

CHI has been providing the service, from a base in Galliano, La., for about 18 months. Headquartered in Howell, Mich., CHI has become something of a multi-sector specialist in the heavy-lift world *(see p.56, Vertical, Aug./Sept. 2014)*. However, the move into offshore SAR wasn't something company president Chris Turner had been considering. "It was never a thought, because it's not a market you can break into," he told *Vertical 911*. "If you're not already a vendor for the oil companies, and haven't been audited by them, they won't even talk to you."

But when the U.S. Department of Transportation found that VIH Cougar, which had previously run the Galliano SAR base and aircraft, was under the control of a non-U.S. citizen, a unique opportunity to enter the market presented itself. While Canadian company VIH Aviation Group contested the finding, it decided to sell its VIH Cougar subsidiary to Turner, bringing an end to a turbulent and very political period in the operation's history.

Today, CHI has two offshore SAR offerings in the Gulf of Mexico; it services an oil company consortium (membership) contract with the S-92, and provides ad hoc SAR with the AW139. Both are operated in partnership with Acadian Air Med. CHI also provides seasonal SAR in Barrow, Alaska, with another S-92.

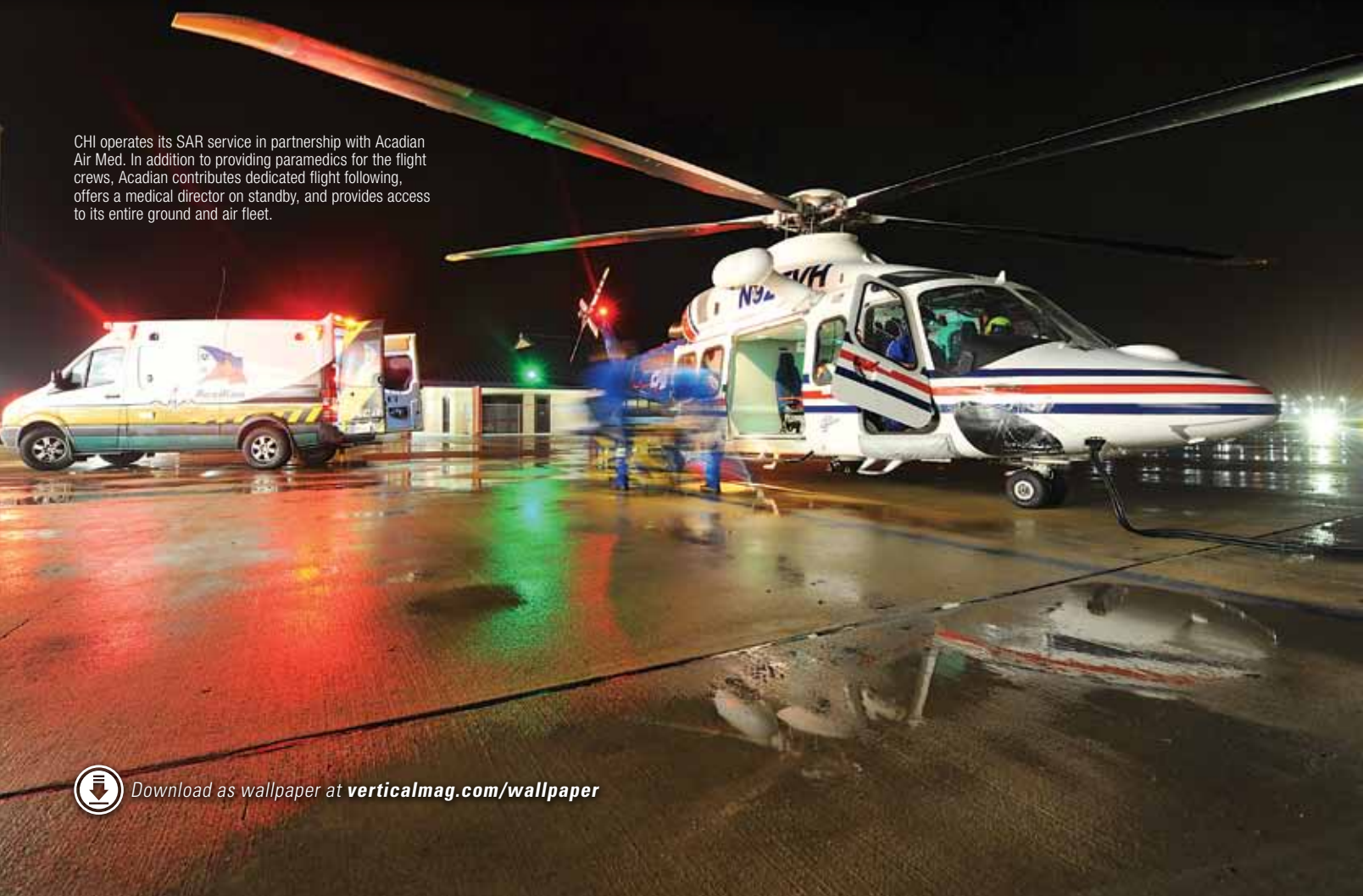
"We're just a tiny company compared to the other offshore operators," said Turner. "But the oil companies seem to like that [and] we do well on our audits."

A NICHE SERVICE

According to Turner, the secret to CHI's success in such niche industries is in selecting the right people to oversee them. In Galliano, that person is David Jacob, who serves as CHI's director of offshore operations. Jacob has been taking part in advanced life support and critical care missions as part of both the Louisiana Army National Guard and as a flight paramedic for Acadian Ambulance for over 21 years. And that wealth of experience is not unique at the base; during *Vertical 911's* visit to the Galliano facility earlier this year, Jacob noted over 90 percent of the pilots and rescue specialists working there were ex-military.

"Probably 80 of the 90 percent are all combat veterans; we've all done good medicine in bad places, so this is a dream job," said Jacob. "This is where a guy with that very specific and lifesaving skill trade can have employment, stability, and a future after a career in the military."

Arriving from across the services, from Army to Navy, Coast Guard to Air Force, the diversity in background is a boon to CHI's service, according to Jacob. "The Navy may do something better than the Army did something; the Army may



CHI operates its SAR service in partnership with Acadian Air Med. In addition to providing paramedics for the flight crews, Acadian contributes dedicated flight following, offers a medical director on standby, and provides access to its entire ground and air fleet.

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have done some things maybe better than the Navy did — so we're taking the best of each service's rescue operation, and formulating our own," he said. "That's the CHI way of doing business."

In terms of certifications, CHI's SAR service is Federal Aviation Regulation part 135 and part 133 (class A, B, C and D) certified for air ambulance operations and hoisting/external load operations, respectively, and both the S-92 and AW139 are licensed air ambulances.

The standard crew configuration for the S-92 and AW139 is the same: a flight paramedic, a rescue swimmer, a hoist operator, and two pilots. The level of expertise throughout the crews is illustrated by the capabilities of the program. A 24/7 all-weather service, it operates day or night, in visual flight rules (VFR) or instrument flight rules (IFR) conditions; can perform rescues ranging from advanced rope and confined space, to industrial rescue operations; and has critical care medical transport capabilities that include rapid sequence induction, chemical extrication, CPAP (continuous positive airway pressure), portable respiratory ventilators, and IV nitrates (more on those later).

The main SAR platform, the S-92, is equipped with forward looking infrared cameras (FLIR Ultra 8500 XR), Spectrolab XP Nightsun searchlights, and a Goodrich dual hoist (the AW139 has a Breeze-Eastern single hoist). The S-92 is also equipped with a SAR automatic flight control system (AFCS) that creates optimized search patterns, transitions from cruise flight to hover (and back again), and allows the hoist operator limited control of the aircraft when in a hover, through a hoist pendant control.

At the time of *Vertical 911*'s visit, the AW139 had just completed its night vision goggle (NVG) conformity process (the completion was done by Aviation Specialities Unlimited), bringing it into line with the S-92's night vision capability.

When a call comes in, CHI's stated launch time is within 20 minutes, but internally the crews aim to hit 15 minutes. "We're usually hitting under 15, which is unique for an S-92," said Jacob. "The only way we can accomplish that is to have quick start checklists in the aircraft. The pilots go out at the beginning of the shift and run through the checklist all the way to start, and then it's on standby — it's roped off and no one can touch it."

The volume of calls tends to be cyclical, said Jacob, but in the first three months of the year, CHI received 17 SAR callouts, and transported 12 of those (the remainder were cancelled). However, the crew maintains a high degree of proficiency through constant training — 50 to 70 flight hours a month per aircraft.

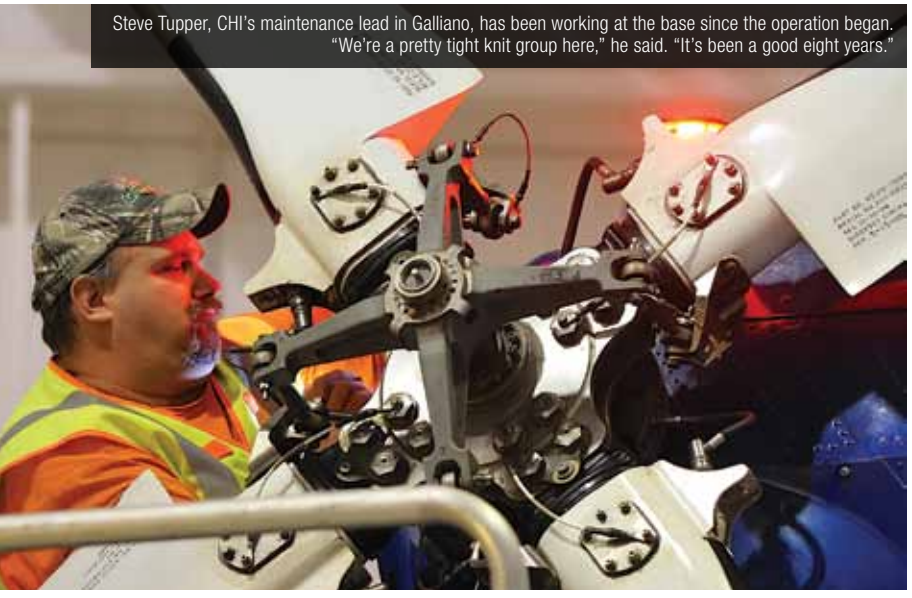
This includes practicing hoists from offshore installations, vessels, rafts or open water; conducting searches; and delivering SKAD (survival kit air droppable) kits to survivors in the water — as well as preparing for the medevacs from oil rigs that make up the vast bulk of the operation's work.

While much of this training is mandated by the oil companies — such as each pilot and rescue specialist needing to complete three open water hoisting sequences every 90 days, six SAR AFCS transitions every 90 days, two vessel hoisting sequences every 180 days, and one night hoist sequence every 180 days — Jacob said merely maintaining currency with these requirements isn't enough. "Current is one thing, proficient is a totally different thing," he said. "Proficiency is key to the operation."


CHI's primary SAR aicraft is the S-92. The operator's stated launch time is 20 minutes, but the crews are usually airborne within 15.


The crew practices a rescue from a survival capsule. Here, a crewmember is hoisted up to the S-92 in a rescue basket.

CHI's maintenance teams look after the aircraft in the first air conditioned hangar in the Gulf of Mexico. This protects the aircraft's avionics, in particular, from the damaging effects of the brutal humidity during Galliano's summer.



Steve Tupper, CHI's maintenance lead in Galliano, has been working at the base since the operation began. "We're a pretty tight knit group here," he said. "It's been a good eight years."

The power and size of the S-92 allow the crews to carry a broad array of advanced medical equipment. This can prove crucial in negating the effects of patients having to travel such great distances to reach definitive medical treatment.

AT THE CONTROLS

CHI currently has 28 pilots flying the offshore SAR mission, including those working on the second S-92 on the seasonal contract in Barrow. In Galliano, they work 12-hour shifts in a pattern of 14 days on, 14 days off, but the format of how the day/night shifts fall is somewhat flexible.

Nuri Van Hattum, who has been flying offshore SAR for almost four years, is one of the few pilots at CHI's SAR operation with a civilian background. A varied career that took in Alaska air tours, utility, emergency medical services (EMS), and bar pilot operations, provided him with the right combination of twin-engine, IFR, NVG, and offshore hoisting experience for the role. He originally joined the operation to fly Airbus Helicopters EC135s offshore in Alaska, before converting to the S-92 through an intensive month-long course at FlightSafety International a couple of years ago.

"I've flown some other big helicopters a bit, but nothing this big," said Van Hattum. "It's just a little slower and less maneuverable."

In terms of the mission, he said he loves everything about the job — except for the fact that they rarely get the chance to put their finely-honed SAR skills into practice. "The majority of what we do for actual medevac calls is fairly straightforward," he said. "Most of the rigs we serve have S-92-capable decks, so we're generally flying out and landing on a rig, picking up an injured patient, and bringing them back."

Aside from thunderstorms and the possibility of hurricanes, he said the main concern in operating the Gulf was the heat and humidity. "It gets brutally hot going into the summertime and we run into humidity and power issues, especially with the SAR aircraft where we're always thinking about single-engine hover performance."

IN THE CABIN

There are 13 CHI personnel trained as rescue specialists, and they're usually qualified in at least two of three cabin positions — hoist operator, rescue swimmer, and/or paramedic. While the crew contains a paramedic from partner Acadian Air Med, because of the dual qualification of the rescue specialists, there could be up to three trained paramedics on any given call. "The dual qualification gives us the flexibility in our operation to cover multiple positions," said Jacob.

Justin Stout is a relatively new rescue specialist with CHI. He had been a rescue swimmer in the U.S. Navy, where he flew in a Sikorsky SH-60 Seahawk, before he began civilian life at his family's bakery.

"I did three years as a civilian, which was pretty tough, and then Dave [Jacob] found me," he said. "I absolutely love this job. It's tough to find something that makes you feel like you did when you were in the military."

Comparing his current role with his experience in the military, he said the sheer size and power of the S-92 stood out. "This thing's a beast, it's a dream compared to what the military's using in my opinion," he said. "It's a workhorse, and we've seen that since I've been here."

He added that the tighter requirements of the civilian world also meant that the training was more frequent. "In the Navy, you've got 45 to 50 rescue swimmers in one squadron, and only a few helicopters to operate because you're on deployment, so there's

no way to maintain the currencies," he said. "Everybody's getting their training here, and we're doing it a bit more often — so it's all fresh."

A SUCCESSFUL PARTNERSHIP

While Acadian Air Med provides paramedics for both the S-92 and the ad hoc AW139, its partnership with CHI actually runs much deeper. Acadian also provides 24/7 dedicated flight following with certified emergency medical dispatchers who can provide pre-arrival care instructions, as well as coordinate aviation logistics, weather, hospitals, medical control, and other auxiliary services for CHI's flight teams. CHI also has access to Acadian's ground and air fleet if further patient transfer is necessary, and is able to resupply its medical stocks from Acadian units. Finally, the crews have around-the-clock access to a medical director on standby.

Tony Cramer, a registered nurse and critical care flight paramedic from Acadian, has been working with CHI for just over a year. "We see a lot of trauma-related accidents," he said, "because of the heavy machinery and equipment that they have offshore. Then there's medical [calls] — and it can be anything from kidney stones, to appendicitis, to a heart attack."

The key difference in the patients seen in the offshore world as compared to onshore EMS is the time it takes to reach them, said Cramer. Though many rigs contain high-level medics, that isn't always the case.

"Say it's a patient with chest pain," he said. "Well, you're already an hour or two into the event, so they're going to need more aggressive treatment. Same with trauma patients; we're not going to make the golden hour if it takes us an hour to get there and an hour to get back… there's nothing we can really do about that. You just have to watch them very closely and your treatment has to be very aggressive."

The program has developed some capabilities to negate some of the effects of the delay, where possible. For example, when the crews are transporting someone having a heart attack, they're able to carry the IV pumps, patient monitors and 12-lead electrocardiogram (ECG) that are often only found inside an ER, and those monitors can be synched through cellphones to the receiving hospital. This means the crew is often able to bypass the ER and take the patient straight to a catheterization lab, saving valuable time.

Another of the operation's particularly impressive medical capabilities, provided through its partnership with Acadian, is chemical extrication. This is the use of a hypnotic agent (etomidate) and heavy sedatives to facilitate the removal of a limb that's trapped in a piece of machinery. According to Cramer, in such situations, the medical team can only give so much pain medication without dropping the patient's vital signs so low that it becomes counterproductive — and such a dosage still wouldn't be enough to prevent a very painful extraction.

"We give them this medicine and it knocks them out," he said. "You may be awake — most of the time you're not — but you won't remember it. It's like amnesia. It still hurts, but you just don't remember it."

Reflecting on the switch from onshore to offshore operations, Cramer said his current role was more dynamic. "The patient care is sometimes very critical patient care, and then you get to do some rescue type work as well," he said. "It doesn't get much better than that!"

HOME BASE

CHI's Galliano base contains the first air-conditioned hangar in the Gulf of Mexico — which the maintenance team has found to be a crucial aid in keeping the aircraft in a constant state of readiness.

"Our reliability is high — it's about 97 percent," said main-

Two crewmembers practice a line transfer at the hangar. CHI has 13 of its own rescue specialists as well as four paramedics from Acadian Air Med working at its SAR operation. Almost all the rescue specialists have a military background.

Both aircraft are full compatible with night vision goggles, and the crews spend many hours training at night to keep high proficiency for those missions.

The operator also has an AgustaWestland AW139 in Galliano for ad hoc SAR missions. Like the S-92, the aircraft has a crew of five: two pilots, a hoist operator, a rescue swimmer, and a paramedic.

tenance lead Steve Tupper, who has been working at the Galliano operation since its beginning under VIH Cougar eight years ago. "It's the humidity that kills these machines outside — it just wreaks havoc on the computer systems."

But before the aircraft are taken in to the hangar, they are given a full saltwater flush, an engine rinse, and wiped down — daily. The meticulous cleaning regime also includes a weekly polish. These measures help protect the aircraft from the worst of the corrosive environment in which they operate.

Inside the hangar, each aircraft has its own dedicated maintenance team and separate tools. While all of the 20 maintenance personnel in Galliano are qualified to work on both aircraft types, the four avionics technicians are the only ones able to cross over between the two within a 24-hour period — a measure mandated by the oil companies.

The aircraft are on original equipment manufacturer (OEM) maintenance support contracts for more predictable maintenance costs and support, but major maintenance requires planning well in advance of schedule.

"If anything major is coming along and we're 20 hours or 25 hours out, I let operations and the oil companies know — because the oil companies always want to know — and then they'll actually prepare another aircraft, if they need heavy-lift like an S-92," said Tupper. "It's a juggling act — not because they're a SAR aircraft, but because we're a 24/7 operation."

Just as the oil company requirements for proficiency from the pilots and rescue specialists are fairly exacting, so are the standards for excellence from the maintenance team. All are factory schooled, and then undergo week-long recurrency training every 12 months.

"What we're seeing in the Gulf is that North Sea standard of operation," said Tupper. "That's where that 15-minute launch standard came from — the North Sea. It's all being absorbed down here."

A TRANSFERABLE OPERATION

Looking ahead, Jacob said CHI's SAR program certainly has the capability to grow — and military cutbacks may provide new opportunities for the company, which could result in an increased level of service for the end user. "Just look at the Coast Guard," he said. "They're having to respond to calls that are further and further away, and in the Gulf of Mexico they're flying the [Airbus Helicopters MH-65] Dolphin — which is very limited on range and space; the medical providers are basic, so the care a patient would receive would basically be limited to advanced first aid; and they're transported to the closest hospital they come across. We can transport patients to the most definitive care facility."

But growth domestically may just be the tip of the iceberg.

"We like this segment," said CHI president Chris Turner. "This segment will take us to other places in the world, because the oil companies are putting that requirement on every place they work to have SAR. So we're hoping to take our SAR program to other places, and there's been quite a few enquiries that we've had to do just that."

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