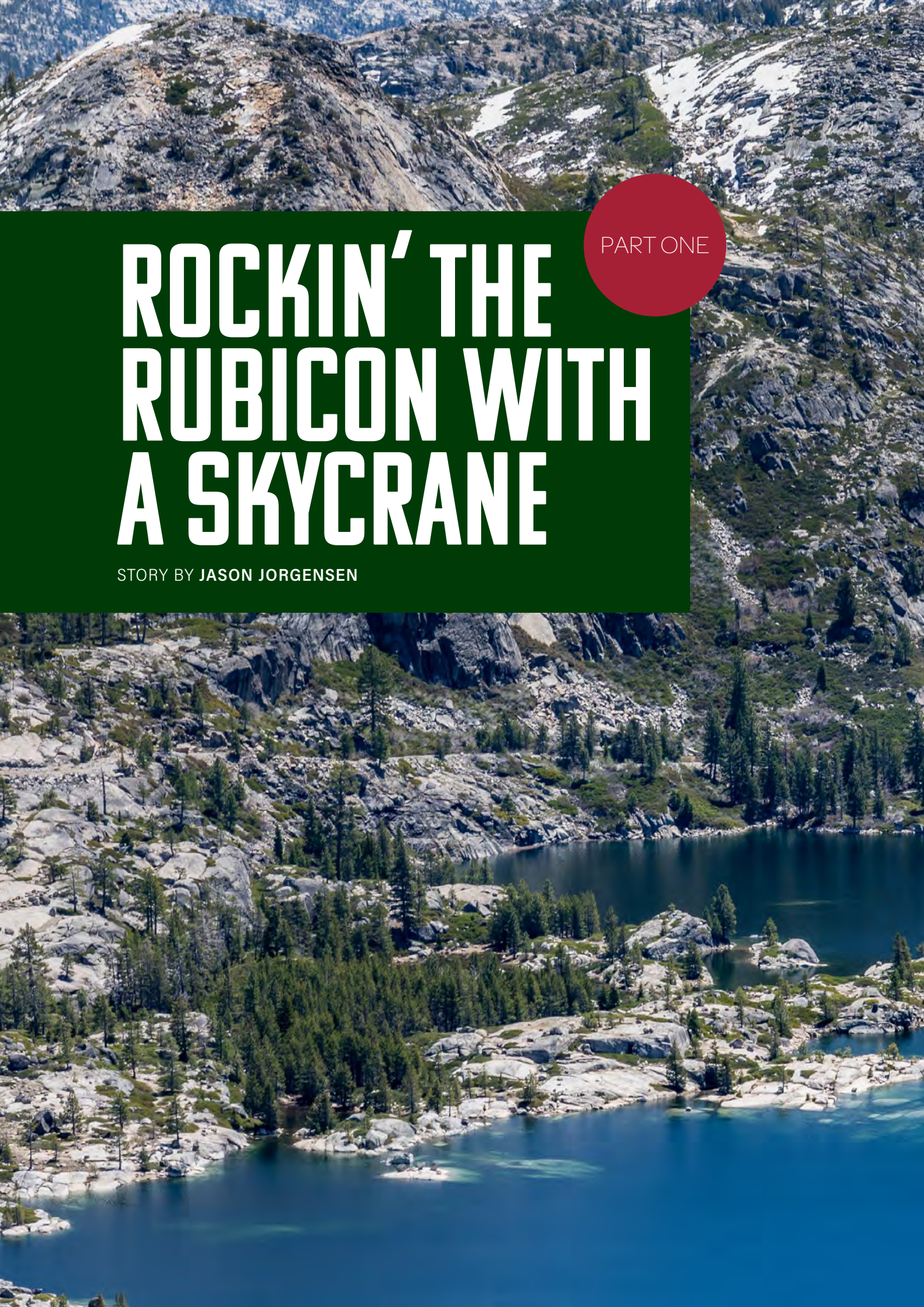

PART ONE

ROCKIN' THE RUBICON WITH A SKYCRANE

STORY BY **JASON JORGENSEN**


SIKORSKY

In a remote section of the Sierra Nevada Mountains in Northern California, volunteers, county officials and construction crews joined forces with Siller Helicopters to conduct a major maintenance project on one of the most famous off-road routes in the world, the Rubicon Trail. Jason Jorgensen visited the gravel yard which served as the base of operations and landing zone.

Here I met with air and ground crews to learn more about the significance of the Rubicon Trail, why helicopters were contracted for the project and how in just three days' time, the mighty Sikorsky S-64E Skycrane helped complete work that used to take hand-crews more a month of working 10-hour days.

Historic - but not in the Julius Caesar sense

Named after the Rubicon River which the route crosses, near Lake Tahoe, CA, the Rubicon Trail is a 22-mile route that runs between Georgetown and Lake Tahoe in Northern California and is frequently listed among the top five off-road vehicle (ORV) trails in the world. Each year, this difficult four-wheel drive route is used by more than 15,000 people who take the challenging 16-mile off-road portion of the trek which begins next to Loon Lake, traverses through the wilderness across the rugged Sierra Nevada Mountains, ending near Tahoma, along the shores of Lake Tahoe.

The trail began as a trading and annual migration route for the local Native American tribes. By the mid 1800's gold had been discovered in the foothills on the western edge of the Sierra Nevada Mountains and the Rubicon Trail had become a popular stagecoach route and was envisioned as becoming one of the primary routes from the foothills near Sacramento, CA to Lake Tahoe. Because of this, the Rubicon Trail was declared a Public Highway by the El Dorado County Board of Supervisors in 1887. Shortly after In the 1890s the trail was developed into a loosely defined "road", in order to reach the Rubicon Mineral Springs Resort and Hotel. A second resort which opened at Wentworth Springs served to guarantee a flow of traffic into the area. In 1908 the first car drove the trail and through the late 1920's the Rubicon area was a popular tourist destination for those wishing to enjoy the remote area and its popular mineral springs.

The fad of bathing in the area's mineral springs began to fade as the roaring '20's came to an end and as the Rubicon's resorts closed, the trail fell largely into disuse through the 1930s. With the focus on the world at war during the 1940s, the trail remained primarily vacant. It was in the early 1950's when owners of WWII Jeeps began to regularly frequent

the now eroded and rugged trail to put their vehicles to the test and enjoy some off-road recreation. This became a pastime that exploded in popularity after the first off-road rally of its kind; the 'Jeeper's Jamboree,' was held in 1952 as an effort to draw tourists back to the region and improve awareness of off-road vehicle activities. Today, 68 years later, the "Jamboree" is still alive and well. The highly organized annual event draws thousands of participants from around the globe to take part in the two-day traverse of the Rubicon Trail complete with expert trail guides, mechanics, camping, catering, entertainment, vendors and more.

Though the route is most widely known because of the "Jamboree", the trail's fame also ensures it plays host to several other smaller organized events and guided treks each year as well. Since it is by definition a public road, the trail is open year-round to any and all who can make the diverse and difficult off-road journey through the backcountry. All of these factors mean that the Rubicon Trail sees a very high volume of traffic every year which is responsible for bringing in more than $50 million in revenue annually to nearby local economies, but every tire and footstep has an

impact on the environment. Because of this, alongside its throngs of supporters, the trail has its fair share of opponents and controversy, especially since it is located in a state that is notoriously steeped in strict environmental laws and 'protective' activism.

BMPs: Protecting the Rubicon Trail and the environment

The forces of nature which continue to sculpt the beautifully rugged landscape of the High Sierras is further magnified by the mechanical forces of the tens of thousands of tires passing along the trail every year. This combination creates an ever changing and technically challenging course which must also be constantly maintained by its official and unofficial stewards. The trail's early dedication by the county as a public highway is largely the single most important factor that has kept the Rubicon Trail open to date, but for decades the trail has faced staunch criticism and fierce opposition seeking its closure citing the trail's negative impacts to the natural environment.

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HeliOps Global ID Poster

This is a once only collectors edition poster showcasing illustrations of some of the coolest looking helicopters around the world by renowned aviation artist Ugo Crisponi. This poster is a **MUST HAVE.**

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Keeping this historic and famous trail open for the public to use and enjoy for decades to come, falls on the shoulders of a small group of volunteers and county officials who work tirelessly behind the scenes to keep the trail passable, safe and maintained in a highly regulated, environmentally responsible manner. This is accomplished through the use of what are known as “Best Management Practices” (BMPs). These BMPs are ultimately designed to protect the waters of the state by adhering to the Saturated Soils Water Quality Protection Plan as the guiding document for the trail’s maintenance. Implementing and maintaining these protective measures along a trail which spans across the jurisdictions of multiple government agencies has in the past, proven easier said than done. To the benefit of all, in late 2019 these agencies came together and signed a Memorandum of Understanding (MOU) for the Rubicon Trail.

This pivotal document illustrates that the Rubicon’s jurisdictional agencies; the State Parks Department, El Dorado County, Placer County, Tahoe National Forest, Lake Tahoe Basin Management Unit (LTBMU) and El Dorado National Forest, all agree that the Rubicon Trail is important and historic and that all users of the trail should have a

seamless experience while on the trail. Through this MOU, all involved agencies are working together to achieve that goal and in doing so, have given over much of the responsibility and direction for maintaining the trail to the Park Manager for El Dorado County, Vickie Sanders.

The work done by Sanders' office typically includes servicing the restrooms on the trail, providing staff to educate users at the Loon Lake kiosk on spills, sanitation, sedimentation and safety. Her personnel also monitor the trail through the wet season to meet the conditions of the easement with the U.S. Forest Service as well as work with agencies and groups on trail activities be it volunteer or agency work. Vickie's department also is in charge of installing, maintaining and monitoring the 475 individual BMP's that have been installed on the trail so far; such as water bars, rolling dips, rock armoring, breast walls, energy dissipators, log corduroys, gabion baskets for slope protection, restoration projects, planning projects and re-routes.

It’s faster and cheaper to do it with a Skycrane

Due to the extreme scale of the forces at play, every couple of years, areas along the trail require more extensive maintenance, including the addition of hundreds of thousands of pounds of rock to maintain the necessary BMPs and install new ones. That’s when the county calls in Siller’s Skycrane to do the heavy lifting. Sanders usually writes grants every other year for the projects that will utilize the helicopter. This is because she needs to have enough work across enough sites to make the project worth the ‘mob and demob’ fees, as well as having the time to find the sources for matching funds that the grants require. It’s a big endeavor and requires a lot of work and planning to make it happen, but there are areas that they simply cannot get the rock to in any other way.

In 2010, ground based hand-crews completed similar projects along roughly 2 miles of the trail. For more than a month, the crew lived on the trail during the work week and worked 10-hour days. At some locations, like Buck Island Lake, it took the workers nearly five hours to get to the job

STATIC LOAD
5,000 LBS.

site because they would have to walk in and out. Once they were at the site they slept in tents and had a camp cook, but overall, the entire evolution was very taxing on the employees. Today, the same amount of work is completed in about three days using the helicopter. While Sanders does not know the direct costs of that 2010 project, after completing her first project using the S-64E; the Deputy Director of Transportation told her that the hand-crew project was three-times more expensive than the Skycrane to do roughly the same work.

Sanders describes the preparations for the rock lift project with Siller Helicopters, Inc. as intense, in regard to the amount of planning that goes into it. “We look at our problem areas and rate each of them. Each site has to be assessed for its needs. Will it need fencing, if so how much? What size rock should go there? If it is on a slope how will we secure the rock from just washing down, do we need to install a corduroy? Things of that nature... Once the list is completed, I arrange it in priority order and give each site a number. Then when we’re out there, there has to be someone on the ground at each site when the helicopter arrives, to provide direction as to how many loads for the site and where to drop each load.”

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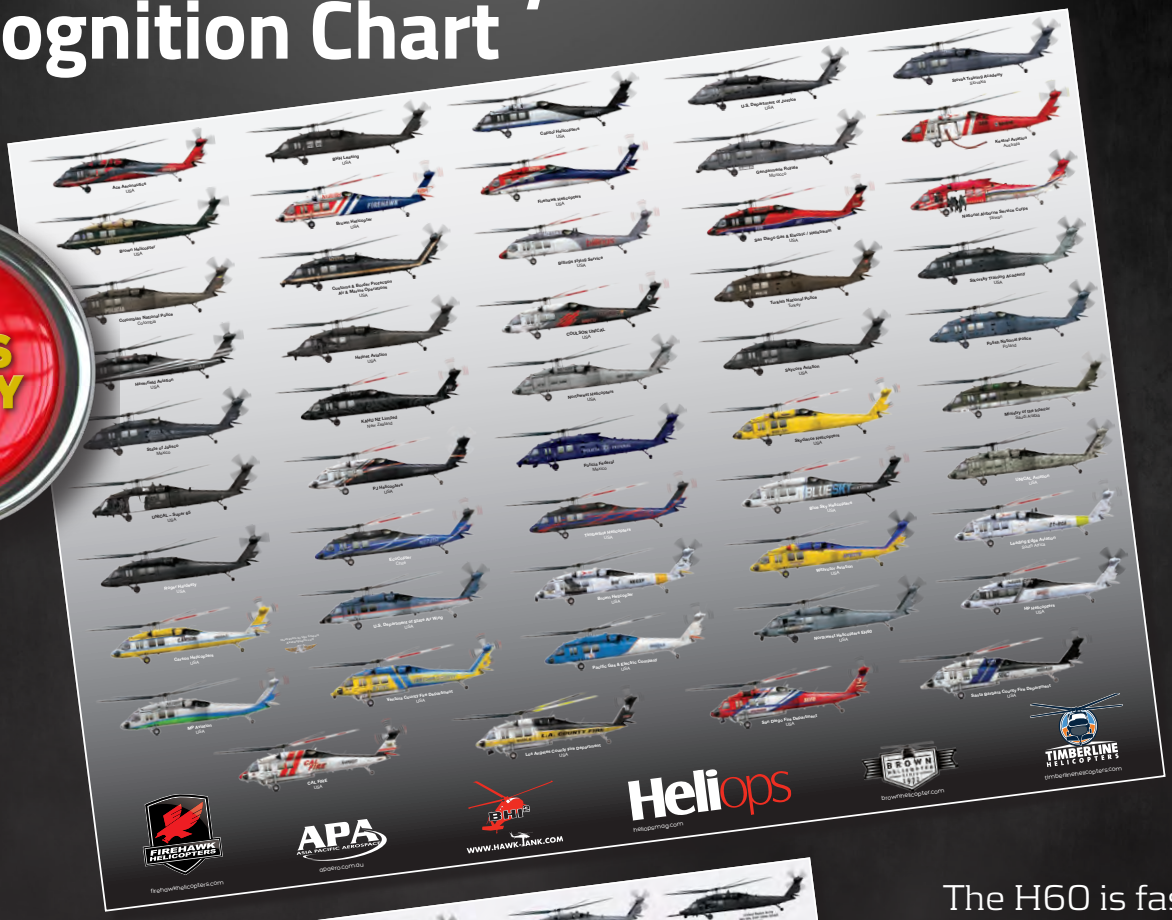
H60 Civil & Military Recognition Chart



The H60 is fast becoming the utility machine of choice in the civilian world – these two posters showcases both the civilian and military operators of the type around the globe. Have you had an involvement with the Hawk world – if so then this one poster you must get for your squadron, office, hangar or man-cave.

As the work at one site is completed, the Skycrane is already maneuvering to pick up another load, so there must also be someone at the next worksite ready to receive it. Meanwhile, the person from the completed site moves on to yet another site. Continuing through the whole project in this manner; Vickie, her Trail Lead, and the rest of the ground crews have to always be thinking ahead, staying a few steps ahead of the helicopter in order to not waste valuable flight time. “You also have to be ready to move on to a different site and abandon one if something comes up, sometimes situations arise at one site that push another off the schedule entirely.” she explains, “The reality is that the helicopter is the only way to get some of the work completed. Without it, we would not have the ability to complete the work needed to armor the trail and protect the resource.”

Off to an early morning start

The first day of the rock lift began as all of the ground personnel mustered together at the gravel yard, located near the Gerle Creek Reservoir, just after sunrise. Upon arrival, Vickie Sanders and her Trail Lead, Justin Williams, met with the communications volunteers, personnel from Doug Veerkamp Engineering as well as with Siller’s ground crew; lead by Eric Daeumler, Siller’s Project Lead. Soon after, the ground personnel made short work of preparing the LZ at the gravel yard (“rock-pit”), and a few minutes later, the sound of helicopters approaching up the densely forested valley announced the arrival of Siller’s helicopters. First to over-fly the LZ was Pilot Curt Daggy in the company’s lovely and sporty Hughes 500D, followed smartly by Pilot Don Anderson and Co-Pilot Steve Livingston in the massive S-64E Skycrane.

Once both aircraft had landed and shut down, greetings and introductions were exchanged. It was already time to start briefing for the operation ahead because daylight was burning, and now bad weather was being forecasted to arrive midway through the multi-day operation. After the safety and planning briefings were completed, Chris Whitman, Siller’s Truck Boss unloaded the helicopter’s rigging so that

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This poster showcases the history of the 160th Special Operations Aviation Regiment (Airborne) from the beginning to current. From the original Little Birds through to the latest MH-47G and MH-60M this poster is a “Must Have” for anyone with an interest in the 160th.


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Helicopter Crew Chief, Aaron Dent and the two Mechanics; Humberto Castro and Jay Calderon could begin the process of rigging the Skycrane's hook with the longline and lower hook while Lupe, Siller's Fuel Truck Driver, made sure that the Crane's Jet-A was topped off.

Trail crews split into teams and Pilot Curt Daggy began flying them out to their respective work locations on the trail using the Hughes 500D. Flying the 500 in support of the Rubicon project is something that Daggy greatly enjoyed. Throughout the entirety of the operation, he was always available to shuttle crew members, and items like replacement radios, food and water from location to location. This proved to be a challenging task at times, not only in simply locating where the personnel were among the tall trees and large rocks along the trail, but also in finding a suitable place nearby in which to land the nimble Hughes. Most importantly, Daggy was always on standby to provide medivac if needed. A task which frequently meant that once he found a safe landing site near where the crews were working, he would often stay out on the trail with the crew so as to be available at a moment's notice, at least until he and the 500 were needed elsewhere on the job. Curt is also

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BELL 429 COLLECTION POSTER

The HeliOps Bell 429 operators poster showcases most of the 429s operating around the globe. From EMS to VIP to Utility you will find them here. This is a must have for your office, hangar or man-cave if you are involved in the Bell 429 world.

an experienced Command Pilot in the S-64 as well, so his knowledge and insight as to what the pilots in the Crane need from the ground crews could also at times prove useful as well. At the end of each day it was up to Daggy to ensure that everyone was recovered safely from the trail and returned to the LZ, a responsibility that he also enjoyed and took great pride in having.

Those are some BFRs!

Once the trail crew teams were out in place and communicating back to the gravel yard, the Skycrane took to the air and positioned itself to start hauling rock in cycles that lasted from 60 to 70 minutes between fueling. Each project site along the trail would take at least one, to as many as six or more loads of various sizes of rock - small, medium, large and 'Big F-ing Rocks' (BFRs)… loads of these different sizes of rock were specifically called for by the crews for each work location along the trail. The three to five trail-crew teams located along the route decide where best to place the rock and if the pilot was "on his game" he could quickly and precisely place the rock exactly where it was needed.

For this project Siller's S-64E was configured with a hook and a 150-foot longline with a "double nubbin" lower hook that weighs 170 pounds. Hooking up to the lower hook, would be one of the two steel rock buckets, each of which was rigged with four cables. The two front cables attached to the

front of the bucket were hooked into one side of the lower hook and the bucket's two back cables were hooked into the other side of the lower hook. Each bucket holds up to 4 yards (3 cubic meters) of material and alone weighs 2,400 pounds. When combined with the weight of rigging this brought the tare (unladen) weight to about 3,000 pounds. The target weight of each lift was between 10,000 and 12,000 pounds, which meant that even in these high-density altitude conditions, in each load, the powerful S-64E was delivering between 7,000 and 9,000 pounds of rocks to the crews on the trail.

It would be too violent on the aircraft and dangerous for the ground personnel to drop nearly four and a half tons of rock from an airborne bucket. Thus, the filled bucket is actually 'set' on the ground where the erosion has occurred or where problem areas need to be corrected. As the Skycrane arrives at the drop location, a company spotter on the ground talks the pilot through flying the bucket into the 'set' position. There is a lot of information that is being relayed from the ground to the pilots 'on a set,' including any hazards on the ground or in the air. Things look very different from the spotter's perspective than from the pilot's point of view, so they work together over the radio to identify any and all potential hazards. **HO**