

KAMAN

# *Rotor Tips*



MARCH-APRIL 1971



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## Rotor Tips

Volume VI Number 10

### ON THE COVER

*Configured for the LAMPS mission, SH-2D lands aboard a guided missile frigate. Cover by E. M. Enders, Service Publications.*

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## **THE SH-2D SEASPRITE**



The helicopter chosen for LAMPS (an acronym for Light Airborne Multi-Purpose System) will operate from ocean escorts and destroyer-type ships. Its primary missions are ASW (anti-submarine warfare) and ASMD (anti-ship missile defense). The secondary role will be utility/rescue plus all the many other tasks expected of a Fleet helicopter. Inasmuch as submarine and missile threats are of grave concern to the Navy, an immediate response to this threat is being implemented.

*By Bruce A. Goodale,  
Program Manager*

Kaman Aerospace Corporation has received a contract to modify ten of its HH-2D SEASPRITES into SH-2D LAMPS helicopters. These ten LAMPS helicopters are intended to operate from the nine DLG26 class destroyer leaders and the DLG(N)35, all of which have hangared H-2 helicopters in the past.

The first two LAMPS helicopters are HH-2D's being modified to SH-2D configuration at Kaman's Test and Development facilities in Bloomfield, Conn. The SH-2D configuration for the other eight SEASPRITES will be accomplished at the Production Facilities in nearby Windsor Locks. This modification takes place during the overhaul and modification (PAR-MOD) cycle while the single-turbine UH-2A SEASPRITES are being re-manufactured into the uprated HH-2D twin-turbine helicopters. At this time, provisions for the LAMPS equipment are incorporated and when the equipment is installed they become SH-2D SEASPRITES.

The equipment that will be installed in the SH-2D LAMPS helicopters was selected by the Navy after considering the availability, cost, weight and mission performance and, where possible, is being provided as government-furnished equipment. Some of the SEASPRITE's utility/rescue-oriented equipment is being removed to provide for the SH-2D's mission equipment. Typical examples of items removed are the loud hailer system, the fishpole rescue boom and the LF-ADF navigation system. The cargo hook and personnel rescue hoist are examples of equipment that is not removed.

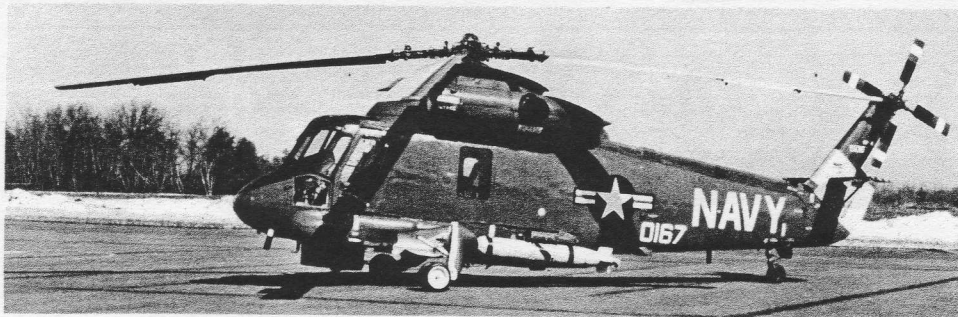
The LAMPS avionics equipment is presently installed in Kaman's System Integration Test Laboratory where interface problems are worked out before the installation drawings are given final approval. Each helicopter set of equipment will be tested on the bench prior to installation in the aircraft for ground tests, and finally, flight tests will be conducted to qualify the SH-2D for Navy evaluation.

The SH-2D SEASPRITES will be flight tested and operationally evaluated by the Navy prior to the delivery of the SH-2D's to the Fleet for shipboard operations. The Fleet activities that will receive the SH-2D's are HC-4 at NAS Lakehurst, N. J., and HC-5 at NAS Imperial Beach, Calif. Deployments aboard ships are scheduled to begin during the last quarter of calendar year 1971.



**New Role For SEASPRITE**—Top view shows SH-2D with MAD gear mounted on right side. Note radome under nose of aircraft, just forward of main landing gear. Bottom photo shows helicopter with torpedo installed.





Another torpedo can be carried on the other side....

The copilot in the SH-2D serves as the tactician in charge of launching all stores such as torpedoes, sonobuoys, and smoke markers, extending the Magnetic Anomaly Detector (MAD) gear, and handling navigation, Electronic Counter Measures (ECM) and communications. A sensor operator is seated in the aft cabin on the left, facing forward, and primarily monitors and interprets the displays, such as radar, sonobuoy data, and MAD indications. Most of the avionics is located in equipment modules in the cabin, aft of the cabin, or in the nose. The radar antenna is in a radome under the nose of the aircraft, just forward of the main landing gear. The MAD bird and winch are mounted on a pylon, outboard of the right stores station, as they were in the "Iron Barnacle" operation conducted from the West Coast last fall.

Each of the two stores stations has been moved slightly aft to accommodate a MK-46 torpedo. The left-hand cargo doorway has been replaced with a panel which has a large push-out window and an opening for lateral ejection of sonobuoys. A smoke launcher is mounted on each side of the aircraft in the flotation fairing. Also, added to the outside of the aircraft are the antennas associated with the various avionics equipment. Although Kaman's new "101" rotor system for the SEASPRITE will not be installed when the SH-2D is delivered to the Fleet, this rotor will be retrofitted as the kits become available.

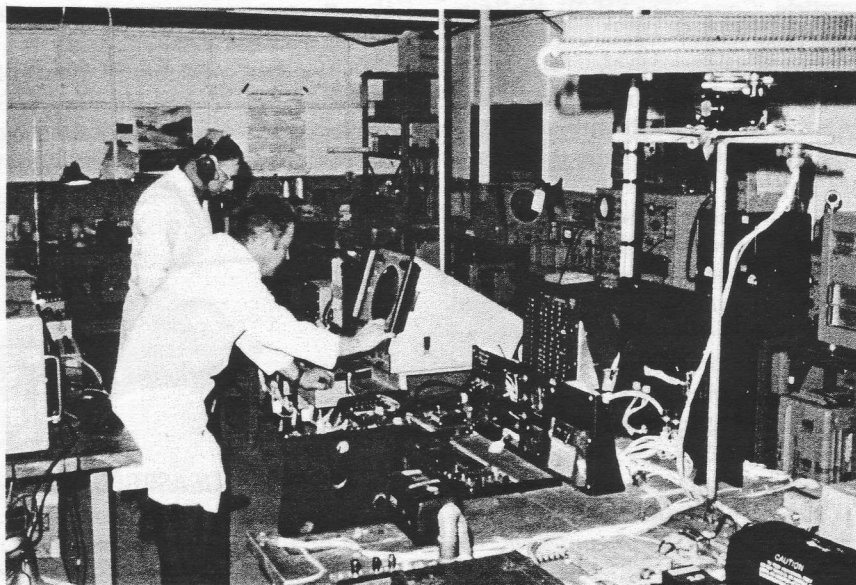
Weight-wise, the ASW mission is the more critical because the radar and ECM equipment generally associated with the ASMD mission will not be removed when performing ASW.

Mission endurance can be varied by interchanging torpedoes, or two external fuel tanks, or one of each can be carried. Each tank represents approximately 30 minutes of additional fuel. With two torpedoes, more than one hour on station can be achieved in the ASW configuration.

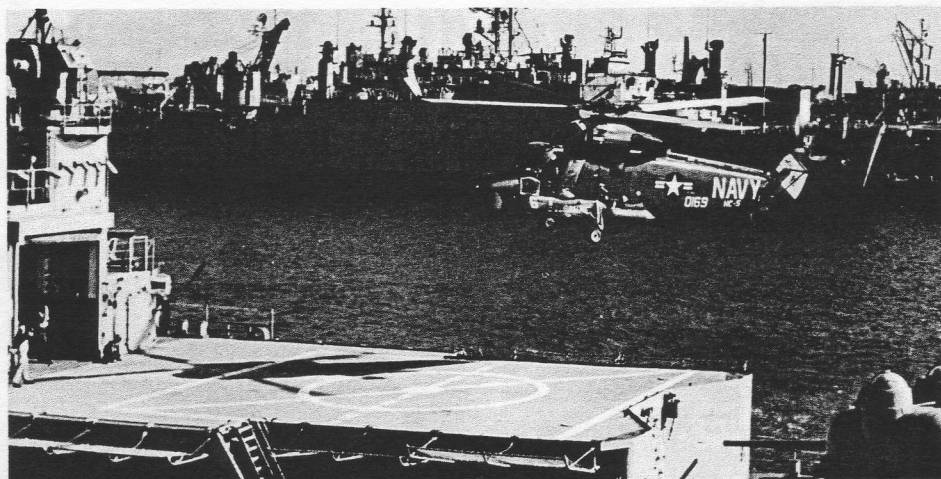
When configuring for the ASMD mission, some of the ASW equipment can be removed to accommodate more fuel. The sonobuoys and their launcher, the MAD bird and winch, and the smoke markers may be removed; the torpedoes may be replaced by external fuel tanks. In this manner, flight endurance may be extended for lengthy radar surface search.

The decks of the ten DE1040-class ocean escorts and the six DEG1-class guided missile ocean escorts are compatible with SH-2D operations, but their hangars are neither high enough nor long enough to accommodate this helicopter. Recent successful tests on the USS W. S. Sims (DE1059) have demonstrated that the decks of the 46 DE1052-class ocean escorts are also compatible with SH-2D operations, but again, their hangars are neither high enough nor long enough to accommodate the SH-2D. The Navy plans to modify the hangars on certain groups of these ships to accommodate the SH-2D—this may result in additional helicopter orders. All future SH-2D's will be modified versions of HH-2D's and the work will be accomplished during PAR. Quantities will be determined by operational planning. Since the classes of ships are outfitted differently and are intended for somewhat different missions, it is possible

Kaman Technicians Check Out LAMPS Equipment....



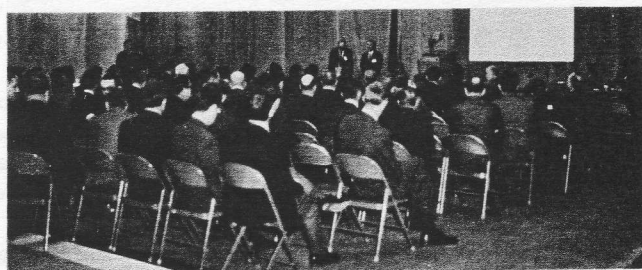




**Gathering LAMPS Data**—An HH-2D from HC-5 approaches the USS Fox, moored pier-side at the San Diego Naval Station. The helicopter is one of two outfitted in the ASMD configuration and assigned to HC-5 for trial. Two other HH-2D's outfitted in an ASW configuration are for testing by HC-4 aboard the USS Belknap. Experience gained during sea trials will be available to LAMPS program. Below, Navy and Kaman personnel are shown during a LAMPS program review.

that follow-on quantities of SH-2D's may incorporate some changes to the LAMPS equipment. As a result of recent ship compatibility tests on the DLG26 class and DE1052 class ships, a helicopter hold-down system will be added to the program. This may be extended to include a deck traversing system for ease of hangaring, and possibly some type of a helicopter haul-down system for adverse weather operations. Such systems are now being reviewed by the Navy.

Under one program, the Naval Air Development Center at Warminster, Pa., has outfitted two HH-2D helicopters in an ASW configuration and two more HH-2D's as ASMD helicopters, for trials at sea. The two ASMD helicopters are now at HC-5 and trials have started on the USS Fox (DLG33). The two ASW helicopters are for HC-4 operations aboard the USS Belknap (DLG26). The experience gained in operating the HH-2D's from those ships with ASW and ASMD equipment will be very valuable to LAMPS helicopter operations.



The LAMPS program adapts off-the-shelf avionics to an existing helicopter for operations from existing ships, in a very short time. In order for such a program to be effective, and availability of aircraft and equipment to be satisfactory, there must be outstanding logistics support, including spare/repair parts, support equipment, training, publications and tech reps. In addition, across-the-board cooperation must exist. The LAMPS program reviews already held went a long way toward achieving this; more of these reviews are scheduled to assure a highly successful program.

## AEROSPACE RESCUE AND RECOVERY SERVICE: MAN'S HUMANITY TO MAN

The Air Force's worldwide Aerospace Rescue and Recovery Service, which has saved the lives of more than 22,000 in combat, accidents and civil disasters, celebrated its 25th anniversary March 13th.

Formed in 1946, and named Air Rescue Service, the command was a consolidation of existing air-sea rescue forces from World War II. Soon afterward, ARS was placed under the Air Transport Command—forerunner of the present Military Airlift Command—and its units were located throughout the free world to protect airmen flying over-water air routes. During the Korean War ARS saved 9,680 lives and aided more than 20,000.

The service's name changed in 1966, reflecting an expanding role in space flight support, to Aerospace Rescue and Recovery Service. The Kaman built HH-43 HUSKIE, followed by longer range helicopters, took on some of the new tasks required of ARRS, replacing H-5, H-6 and H-19 helicopters. The Local Base Rescue concept came of age, and the fast-reaction HUSKIE fit the role.

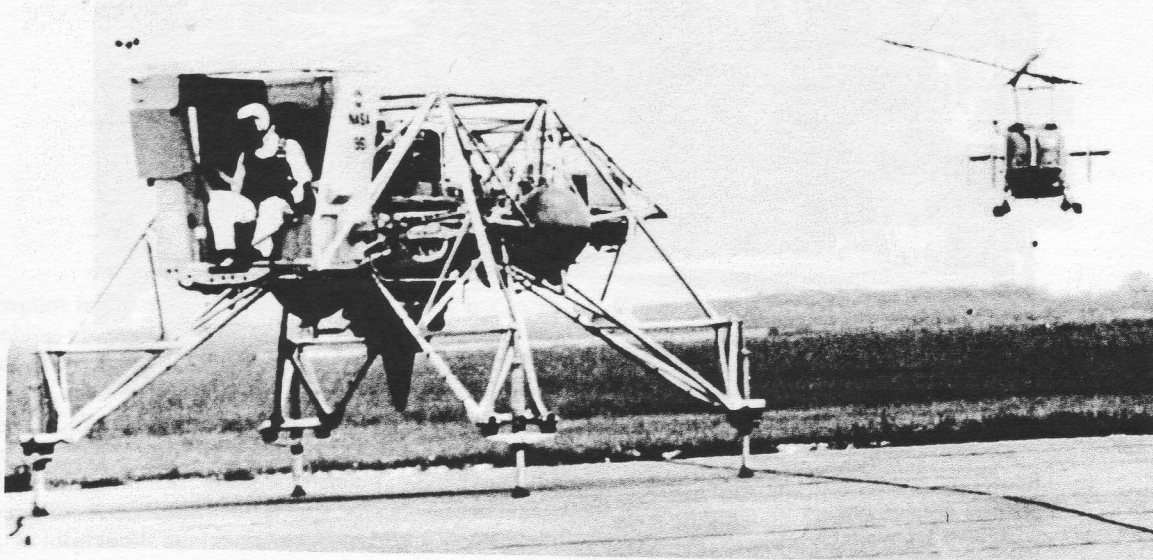
The war in Southeast Asia signaled another advance in rescue equipment and concepts. The search and rescue task force—composed of HC-130 airborne mission control aircraft, A-1 fighter escorts for suppressing ground fire, F-4 combat air patrol fighters and long range helicopters for the pickup—evolved from the contingencies of jungle warfare.

The success of the search and rescue task force can be measured by the more than 3,000 lives saved during the conflict. Of these, more than 2,000 were saved in the midst of hostile action. ARRS personnel in Southeast Asia have been presented more than 11,000 individual decorations—including a Medal of Honor and 27 Air Force Crosses—and have earned four separate Presidential Unit Citations.

Paralleling the combat development, ARRS grew with America's space program. The command supports manned space flights with large helicopters at the Cape Kennedy launch site and has specially-equipped cargo aircraft stationed around the globe for emergency recovery.



## HH-43 Crew At LLTV Crash



An HH-43 crew from Det 21, 43rd ARRSq, was on the scene just 15 seconds after a National Aeronautics and Space Administration pilot ejected from a lunar landing training vehicle at Ellington AFB, Texas., a few weeks ago. Stuart M. Present, 40, assigned to the Manned Spacecraft Center in Houston, parachuted safely away from the burning wreckage after the accident. The scene and subsequent action is described below by Capt Philip H. Kammann, information officer for the detachment. The activities of Det 21, commanded by Maj Robert A. Bunton, were described earlier in the January-February, 1970, issue of Rotor Tips. The photograph above showing the LLTV and HH-43 also appeared at that time; photographs of the ejection from the vehicle and subsequent action are on the opposite page.

On 29 January, Capt Nicholas O. Gaspar and his rescue crew were flying a routine rescue cover mission for NASA's Lunar Landing Training Vehicle. They had done this same thing over a hundred times before, and had spent many training sessions with the mockup LLTV and the 180-pound dummy, not to mention the many practice LLTV approaches. Needless to say, the crew were confident that, were their services ever needed, they would be able to respond as required. They were also aware of the potential hazards involved in this rescue coverage. The task of the Det 21, 43ARRSq rescue crew was to hover 800-1000feet downwind from the LLTV. The helicopter was also required to maintain a position that could not affect the LLTV flight, but would allow immediate access to the vehicle and extrication of the pilot in the event of a crash with the astronaut on board; or immediate access to, and subsequent medevac of the pilot should he eject. The LLTV carried 78 gallons of JP-4 and 800 pounds of hydrogen peroxide. The rescue crew was well aware of the tremendous explosion that could result if these two fuels were mixed by a crash of the vehicle.

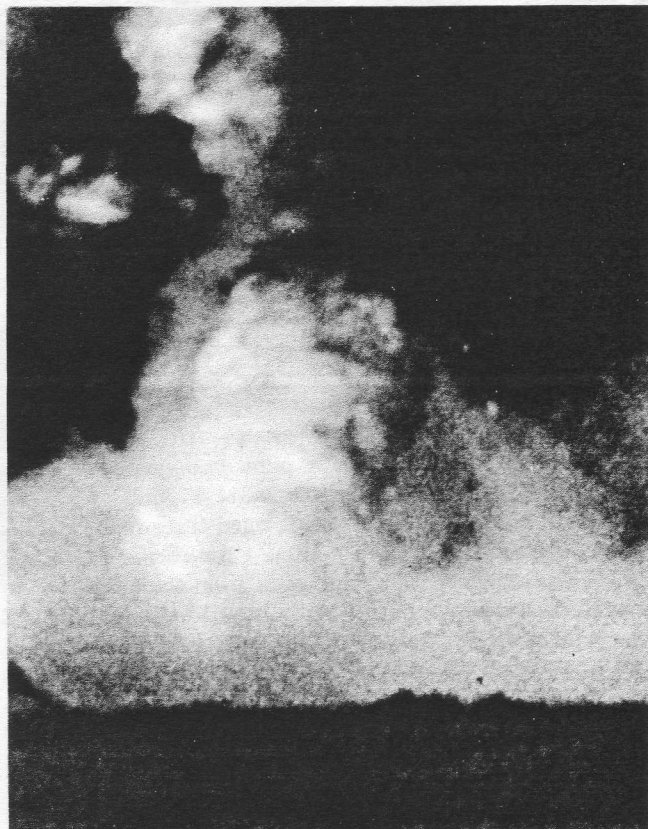
So on this morning of 29 January, the crew of Pedro 08, an HH-43B helicopter, was hovering in anticipation of a routine LLTV takeoff. In addition to Capt Gaspar, the pilot, the crew consisted of: SSgt John A. Moore and SSgt Cole E. Panning, the pararescuemen; and Sgt Harold D. Wimpey, the flight mechanic. Things began routinely enough, but three minutes into the flight the LLTV pilot encountered a flight control problem which was later diagnosed as electrical failure. The vehicle tumbled backwards out of control and the pilot ejected. Upon impact

on the taxiway, the LLTV bounced backward in the direction of Pedro 08 and exploded. It was a tremendous explosion, heard for miles, and propelled jagged pieces of metal in all directions.

Capt Gaspar, from the moment of the LLTV pilot's first difficulty, was calculating and weighing his options. Seeing the LLTV plummeting earthward, his first impulse was to make a hasty retreat. But this would expose more of his rotor disc to the shrapnel and put him in a poor position for an immediate pickup of the parachuting pilot. It would also be more dangerous to be moving if the helicopter were to be blown out of the air. So he held his low hover, even though it was close to the point of LLTV impact. With crew coordination working at 100 percent, the crewmembers kept the pilot informed of all events. No noticeable damage was suffered from the explosion, but many metal parts and fragments were seen hurtling in their direction.

After the shock wave passed, Capt Gaspar proceeded to the spot where the LLTV pilot landed. There were numerous people and ground vehicles arriving, and the Pedro crew maintained clearance in all directions: Sergeant Moore from the rear, Sergeant Panning from the right, and Sergeant Wimpey in the copilot's seat, the left. The helicopter landed near the LLTV pilot approximately 15 seconds after ejection and the two pararescuemen were out the rear doors of the helicopter and at his side a few seconds later. They did not need to give him medical aid however. A NASA doctor, who stands by at the flightline for all LLTV flights, arrived shortly after the Air Force helicopter. NASA and Ellington AFB fire departments put out the flaming wreckage of the LLTV.





**Within Seconds**—The LLTV's nose pitched up and it started accelerating backwards...the vehicle appeared to be near vertical and falling as the pilot ejected...the Weber ejection seat carried him aft in an arc...immediately afterward the LLTV slammed into the ground and exploded in a large fireball...fragments from the vehicle flew in all directions, some narrowly missing the HH-43...as the LLTV pilot's chute opened and he began drifting earthward, an object (later identified as a hydrogen-peroxide spherical tank from the LLTV) streaked past the front of the helicopter, spewing liquid...a second later the HH-43 landed and the two "PJ's" went to the aid of the downed pilot. (USAF photos)

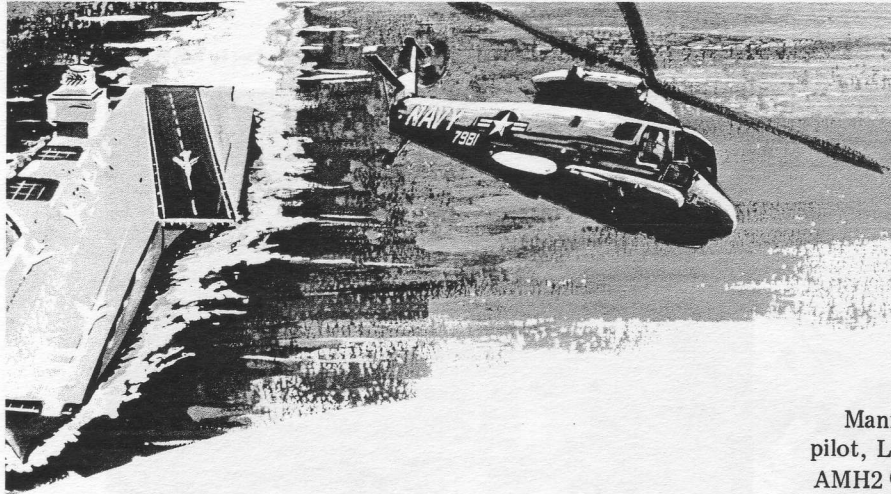


**VIP VISIT**—Dr. John S. Foster, Assistant Secretary of Defense, was introduced to SEALITE, Kaman's newest helicopter, on a recent visit to the plant. In photos: Jack G. Anderson, KAC President, greets the distinguished visitor; Vice President William R. Murray, hand up-raised, and Program Manager Bruce Goodale, back to camera, brief Doctor Foster on SEALITE.

#### ASST DOD SECRETARY VISITS SEALITE







## SEASPRITE ACTIVITIES

### 'Professionalism' Marks Det 3 Mission

In a "text book" rescue, a pilot who ejected from his crippled A-4 and landed in the water 17 miles from the USS Bon Homme Richard was rescued three minutes later by a UH-2C crew deployed aboard the carrier. AMSAN R. F. Brown leaped into the water from the helicopter to aid the survivor and both were hoisted to the SEASPRITE by ATN3 M. W. Winkler. Piloting the helicopter were Lt C. F. Jamison and Lt(jg) W. Stocco. All crewmembers are attached to HC-1's Det 3. Lieutenant Jamison said afterward that the aircrew performed "very professionally."

### America Det Saves Sailor

Six minutes after the "man overboard" alarm sounded, a sailor was rescued from the South Pacific by a UH-2C crew from HC-2's Det 66. Three minutes later he was back aboard the USS America. The survivor was located in the water almost as soon as the SEASPRITE left the carrier deck. Manning the helicopter were Lt(jg) Roy E. Hey, pilot; LCdr Philip F. Duffy, copilot; AMS3 William D. Adams, ADJ2 Philip R. Fenimore, crewmen.

### Pilot Pickup, Duck Rescue By Lemoore Unit

Two pilots who ejected from their crippled plane nine miles from NAS Lemoore, Calif., were picked up from a plowed field by a UH-2C crew from the SAR Unit at the station. The survivors, both injured, were taken to the Naval Hospital. Manning the SEASPRITE were LCdr L. H. McGlone, pilot; Lt(jg) K. Pilone, copilot; Lt(jg) Syvrud (MC), doctor; AT2 D. T. Dicks, ADR3 R. L. Brott, HM3 J. Mercer, crewmen.

In a second mission, three civilians stranded in the middle of Tulare Lake while aboard an ex-Army "Duck" were rescued by a UH-2C crew consisting of LtCommander McGlone, Lt T. M. Close, ADR1 G. H. St. Clair and ATN3 D. E. Meister. The Duck sank shortly after the men were hoisted to the SEASPRITE.

### HH-2D Makes 29,000th "Arrested Landing" On JFK

*With the U. S. Sixth Fleet in the Mediterranean....* The USS John F. Kennedy marked her 29,000th arrested landing recently. Although this record is not unequaled, the Kennedy added a different catch—the aircraft was a helicopter.

After the final recovery, the ship was one landing shy of the new record. As the helo, an HH-2D SEASPRITE from HC-2's Det 67, approached the ship, an urgent call went out, "If you can throw anything out for a hook, you can make history."

Manning the SEASPRITE were Lt(jg) Mike Casella, the pilot, Lt Dale Sokel, copilot, and AMS3 James E. Cook and AMH2 Charles K. Haggerty, crewmen. Quickly they checked their resources as the helo began the normal approach pattern for a jet aircraft. A chuckle could be heard over the Kennedy's flight communications circuit as the pilot radioed, "Angel 26 SEASPRITE, ball," which meant the helo was inbound and could make a visual landing.

As Angel 26 approached the arresting gear a crewman stood ready at the door to drop the hook—a rescue seat. Although the helicopter actually missed or bolted the number three wire, Lieutenant Casella called on the unique capabilities of his aircraft and backed up two feet for a perfect landing. After the hook runner ran half the length of the flight deck to disengage the "hook," the helo taxied out of the gear and was welcomed back aboard the Nation's newest aircraft carrier in hero fashion.

HC-2 is home-based at NAS Lakehurst, N. J. Det 67 is deployed aboard the Kennedy for plane guard and other duties.

A race against an impending sunset and low fuel state ended successfully as an HH-2D crew from the USS Kennedy rescued a Canadian tourist with a broken back from the Greek valley town of Delphi. The helo was called in from Athens, 100 miles south, where the carrier was anchored for the Christmas holidays. The Kennedy had the only helicopter in the city which could make the run. After the young man was found on a mountain ledge, it was determined that he might die from exposure if he were not taken to a hospital immediately.

The request for the helicopter was relayed from Delphi to the Canadian Embassy in Athens, then to Athena AB, (USAF), and finally to the Kennedy. The helo lifted off at 4:28 p. m., after a briefing on how to locate the small town of Delphi.

Aboard the helo were the pilot, Lt Dale Sokel; copilot, Lt Dave Hieter; first crewman, AD3 James Cook; HM1 Clifton Halsey; and medical officer, Lt(jg) Robert Legg (MC). Their instructions were simple: Fly to Delphi, then look for a grouping of white sheets and red blankets.

The 21-year-old victim apparently fell to the ledge at midnight, and was not found until 10:30 the following morning. He was on a three-month tour of Europe. Doctors at Evangelista Hospital in Athens said his back was broken in three places.

From the outset, sunset was a problem. Once darkness fell, it would be almost impossible to locate the town and identifying markers from the air. Also, the mountainous countryside was hazardous to fly in under darkness because of strong air currents. By the time the helo arrived near Delphi, it had exhausted half of its regular fuel supply. However, a strong headwind on the hour-long flight left a margin of safety, since it would be a tailwind on the return leg. (continued on next page)



## UH-2C's ON DUTY AT NAF NAPLES



**VIP FLIGHT**—Adm Horacio Rivero, commander-in-chief, Allied Forces, Southern Europe, pauses with Capt Russell E. Blalack, NAF Naples commanding officer, before boarding one of three new UH-2C helicopters acquired by the facility. All three are configured to carry VIPs in comfort.

(USN photo by PH1 James N. Roberts)

**NAPLES, Italy**—Can you get from the U. S. Naval Air Facility at Capodichino to Allied Forces, Southern Europe Headquarters at Bagnoli (a 20-mile stretch of picturesque Italian roads) in 10 minutes during the peak hour of Neapolitan traffic?

Impossible? Not any more. Distinguished visitors to this area now have the luxury of jet transportation across town by the recent addition of three UH-2C SEASPRITE helicopters to the NAF flight line.

The UH-2C, a turbine-powered, twin-engine helicopter built by Kaman Aerospace, carries five passengers and a crew of three. It will replace an older model helicopter as primary sea-air rescue vehicle for NAF.

The first two helicopters were received in mid-July and work was begun immediately by ComFairMed to add VIP

configurations to the interior. With the aircraft came the requirement for specialized training for pilots and maintenance personnel at NAF under the supervision of Kaman factory representatives Jack King and Norman Meyers.

During the transition period to the UH-2C, the SEASPRITE was flown on several mercy flights, evacuating Italian civilians from Ischia and Capri, and responded to emergency calls from ships of the 6th Fleet at sea.

In addition to providing sea-air rescue for the 6th Fleet, the helicopters are also configured with a VIP cabin for carrying personnel of the American element of NATO and distinguished visitors of the 6th Fleet.

When time is of an essence the helicopters expeditiously carry personnel between NAF, AFSouth, Gaeta, Rome and areas not capable of accepting conventional aircraft.

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### *SEASPRITE Activities continued*

Several small hamlets in the vicinity, where the map only showed one, continued to make the rescue difficult. A fourth pass was made as the helo headed off towards another town in search of the "real Delphi." Lieutenant Hieter spotted the markings in a field about a half mile outside the town and the helo set down. A crowd of about 100 had gathered, and the corpsman was quickly taken to the stricken young man, who had been placed in an old World War II ambulance. Meanwhile, the HH-2D was forced to continue using upward lift because its wheels were settling into the soft soil.

Although unconscious, the patient was pronounced okay to be transferred and placed aboard the helo. Lt Hieter explained that as the man was being placed in the helo, he opened his eye. "When he realized it was a helicopter, he began to smile," said the copilot.

The return trip was made in darkness, taking about 45 minutes. The helo landed at Athena AB, where an ambulance waited to take the victim to an Athen's hospital.

### **NAF Naples Crew Braves Storm In Medevac**

A UH-2C crew from the SAR Unit at NAF Naples, Italy, braved gusting winds and torrential rains to medevac a pregnant Italian woman suffering from peritonitis on the island of Ponza.

The helo first took off at 12:15 a. m. on Jan 22 but as they crossed over the island of Ischia severe turbulence and heavy rain was encountered and the crew had to turn back. The visibility dropped to less than a mile and the wind at Ponza was reported to be 30 knots gusting to 46 knots. The helo descended to 300 feet over the water but there was no way to get in under the weather. The SEASPRITE was launched again at 6:30 a. m. as the force of the storm diminished. This time the crew was able to set down on a quay-wall on the southwest side of the island. It was here that the fishermen of the island had built a huge bonfire to guide the helo in.

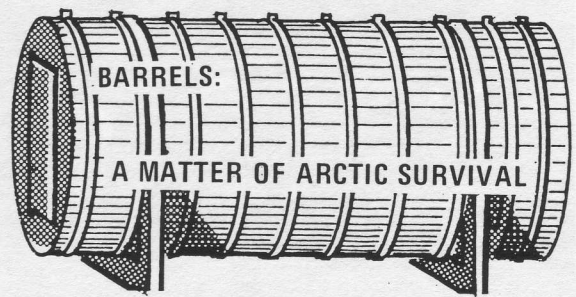
"We landed on a narrow quay-wall with the sea less than three feet from the aircraft on either side. All the Italians on the island watched us rock in the wind as we sat on the wall," said HMC J. W. MacIntyre.

Chief MacIntyre said Italian Medic Alfredo Disanto were along on the flight to administer to Mrs. Alisa DiMeglio, carrying her tenth child and in critical condition. Mrs. DiMeglio was in the seventh month of pregnancy. After landing at NAF, Mrs. DiMeglio was taken by Italian Air Force ambulance to the Nuovo Loreto Hospital in Naples.

The helo was piloted by Lt C. L. Cook and Lt B. A. Cuddeback and AD1 J. Bailey was the aircrewman. The rescue was the second this year for NAF helicopters, which flew 14 mercy missions for critically-ill persons in 1970. (continued on page 11)



From the Adak Sun  
Naval Station, Adak, Alaska



USN photos by PH1 Roger "Smokey" Burgess  
Stories by JO2 Bill Honerkamp

It's a tricky business. But for the past month, LCdr Kenneth Sterling and his H-2C helicopter have been distributing "survival barrels" around the island. The only feasible way to get the barrels to the 12 remote sites was to swing them from the belly of the chopper and fly them in.

The barrels, designed to offer hunters and hikers temporary refuge from the elements, each weigh 960 pounds. Sterling's flying was limited to days when there was little wind and no turbulence. He explained that turbulence can start the external cargo swinging. And once it does, it could cause a pendulum effect which makes the chopper uncontrollable. "Our only recourse then," he said, "would be to cut the barrel loose."

Just such a thing almost happened a couple of weeks ago when Sterling encountered some surprise turbulence as he crossed a ridge on his way to position Barrel 7 behind Scabbard Bay. Fortunately, the barrel settled down and both the cargo and the chopper came through in one piece. To lift the barrels, a special sling was devised. Strong nylon webbing attached to ears on the barrel formed a Y-shaped harness. Then steel cable linked the harness to the cargo hook on the H-2C's belly.

Aboard the H-2C with LtCdr Sterling on the photographed mission were Lt(jg) R. Faino and ADR2 G. M. Larsen. Assisting on the ground were ADR3 Teisman and ADJ3 Schroeder.





## MORE ABOUT BARRELS

*In his second story, Journalist Honerkamp describes the "survival" barrel program in greater detail. Rotor Tips is always interested in reporting life-saving activities involving Kaman helicopters.*

They're not as much fun as a barrel of monkeys or a barrel of beer, but then these barrels weren't meant to be fun: they're a matter of survival. That's why the Sportsmen's Club calls them "survival barrels." They could mean the difference between life and death out on Adak's tundra.

The barrels, about 10 feet long and four feet in diameter, have been scattered around the island to provide emergency refuge from the wind and cold for hikers or sportsmen who find themselves lost or caught in a sudden snowstorm. They are located in the most frequently traveled areas of the island.

The project was started by the Sportsmen's Club about two years ago, the brainchild of George Deatherage. With help he rounded up a dozen World War II water tanks from Quonsets around the island. They rolled the barrels to roads, then trucked them back to the base.

During remodeling, each barrel received a flat, plywood platform inside to form a floor and the 3 x 6 fir planks on

the ends were cut to accommodate a door. In short, each barrel was altered to provide a dry, cozy cabin for up to three men.

But aside from one barrel at Gannet Cove and another at Shagak Bay, the survival barrels sat here at the base until last month because there was no way of distributing them. Overland transportation was impossible and the helicopters based here at the time were dangerously under-powered to attempt flying the half-ton barrels to the sites.

With the Station's new H-2C helos, however, the job became practical and during November, most of the barrels were distributed. Most are in the island's lower areas, but two sit on passes through the mountains. All are easily located. The barrels have also been numbered, an idea which may help lost persons get re-oriented. Sportsmen can find out the locations of the barrels and then mark the numbers on their personal maps.

*(continued from page 9)*

### **Det 38 Rescues Three**

Four minutes after falling from the deck of the USS Shangri-la, a sailor had been rescued by a UH-2C crew and returned to the giant carrier. Lt Jerold A. Bonner and his crew took off in the rescue helo as soon as the "man overboard" alarm sounded. A minute later the survivor was sighted 100 yards astern of the Shangri-la and a rescue seat was lowered. Recovery was made without incident. Others manning the SEASPRITE were Lt(jg) Terrence W. Black, copilot; AN John W. Freeland, 1st crewman; and AMH3 James K. Roark, 2nd crewman. All are attached to HC-2's Det 38 deployed aboard the Shangri-la.

In other missions, two pilots were rescued from the sea by UH-2C crews from Det 38. While the SEASPRITE was flying night plane guard, a plane plunged into the water after being catapulted from the carrier deck. Seconds later the UH-2C was overhead and the downed airman was hoisted to safety. Manning the rescue helo were Lieutenant Bonner, pilot; Lt John D. Titchener, copilot; ATAN J. P. Johnson, 1st crewman; AMH3 K. L. Rafanan, 2nd crewman; LCdr Earl M. Krieg (MC), flight surgeon.

Lieutenant Titchener reported afterward that, although it was dark and the hover was conducted on instruments, three factors contributed to make it a safe and expeditious rescue:

1. The downed pilot was well-briefed in rescue procedures and cooperated perfectly with the rescue efforts.
2. Aircraft handlers on the carrier's flight deck threw their flashlight "wands" over the side of the ship and marked the rescue area.
3. All members of the rescue crew performed smoothly and calmly.

The other pilot, who "punched-out" of a crippled aircraft while landing on the deck of the Shangri-la, was rescued by a UH-2C crew consisting of Lieutenant Black, pilot; Lieutenant C. M. Hartwell, copilot; Petty Officer Johnson, 1st crewman; and ADJAN D. L. DiCataldo, 2nd crewman.

When it was seen that the survivor was entangled in his chute, DiCataldo plunged into the water to his aid. Meanwhile, the survivor's LPA-1 life vest was acting as a sail and the rotor wash from the helicopter pushed him away from the rescue seat which had been lowered. DiCataldo dove underwater repeatedly to cut the pilot free and then, after several attempts, managed to get the survivor on the seat. Once the rescuee was aboard, the seat was lowered for the UH-2C crewman.

Lieutenant Black said afterward that he believed it would have been difficult to position a rescue sling on the survivor with his LPA-1 inflated. The seat posed no problem, he said, and a safe lift to the helo was easily accomplished. Lieutenant Black added that DiCataldo did an "outstanding job" in freeing the pilot from his chute and maneuvering him towards the rescue seat.

### **Valiant Rescue Effort Made By Injured Aircrewman**

A UH-2A crew from HC-2's Det 42 responded after a plane plunged into the Mediterranean Sea a short distance from the USS Franklin D. Roosevelt. The detachment is deployed aboard the carrier.

AME2 Jerry E. Graham, first crewman on the SEASPRITE, leaped into the rough waters to aid the downed pilot who was injured, still with the plane and entangled in his parachute shrouds. Although the crewman injured his own back upon entering the water and lost the use of his legs, he continued to fight his way through the seven-foot waves until he reached the survivor. Desperately Graham sought to free the pilot, then he became entangled. Just as he managed to free himself, the plane suddenly sank—his courageous efforts had been in vain.

Meanwhile, ADJ3 Robert A. Schultz, second crewman aboard the UH-2, had entered the water some yards away and was cutting the other pilot free of his shroud lines. Lt Peter M. Madley, SEASPRITE copilot, unstrapped from his seat and assumed the duties of the second aircrewman in the cabin. The pilot of the rescue helicopter, LCdr Thomas D. LeBlanc, hovered over the injured first aircrewman and Lieutenant Madley picked him up, then returned for the survivor and second aircrewman.



# *Southeast Asia*

## **Navy "Iron Barnacle" Rescue**

The "Iron Barnacle" operation in South Vietnam and Cambodia ended sometime ago, but three crewmen from an Army helicopter gunship will probably always remember the HH-2D crew from HC-5, NAS Imperial Beach, Calif., which rescued them.

The Army helicopter was part of a hunter-killer team from the 1st Air Cavalry and flying "low bird," when the pilot reported fumes in the cockpit. Seconds later, flames were seen coming from the aircraft and then it disappeared into the dense jungle below.

Lt Robert H. Clark, Jr., copilot of an HH-2D which was also participating in the search mission, carefully noted where the gunship had gone down and the SEASPRITE remained in the general area. Two minutes later, pencil flares and red smoke were spotted near the crash site. AT1 Arnie E. Hardin, starboard gunner and rescue air crewman aboard the H-2, immediately began preparing the hoist for rescue use; however, due to the type mission, no sling was aboard the SEASPRITE. Undaunted, the petty officer quickly rigged a "makeshift" rescue sling utilizing a gunner's belt and small ammo can for weight. Meanwhile, Lt(jg) Leroy Anderson, port door gunner, and the other members of the crew scanned the jungle below for signs of enemy activity.

On the first approach, the HH-2D crew was unable to effect a rescue because the hoist was equipped with a 90-foot cable and the jungle canopy rose into the air 150 feet or more. It was the type of situation often encountered during such rescues in Southeast Asia. Another gunship, in contact with the downed "bird," reported the heavy jungle growth prevented the survivors from moving toward the area where the helo was hovering.

LCdr Philip O. Olson, pilot of the HH-2D, broke hover and made a wide circle to relocate the men on the ground. A minute later, Petty Officer Hardin saw the survivors and directed LtCommander Olson over them. The wreckage and survivors were located in a stream bed deep within the jungle. A small opening was found in the 200-foot trees and the HH-2D pilot "hovered down" amongst them. Main rotor blade clearance was a scant two feet while the tail rotor, between two large trees, was missing contact by only three feet.

For 15 minutes, LtCommander Olson held the dangerous position while Hardin hoisted the survivors, one injured, aboard the SEASPRITE. Later, after completion of the mission, the HH-2D pilot was officially commended for the professional airmanship he demonstrated during the rescue and the aircrewman was praised for his skill and professionalism.

"AT1 Hardin did not hesitate for one moment. His skillful directions and coolness coupled with LtCommander Olson's skill as a pilot are directly responsible for rescuing the three downed aircrewmen and preventing their probable capture by the enemy," the report said.

## **ARRS Det 1 Saves Gunship Pilots**

Two pilots whose Cobra gunship was downed eight miles from Phan Rang AB, were rescued by an HH-43 Pedro from Det 1, 38th ARRSq, a few minutes later. When Capt Roger K. Coffey and his crew arrived at the crash site, a flooded

rice paddy, they found the two survivors between a group of trees and a dam.

To make the pickups, Captain Coffey held the HH-43 in a hover with the rotor blades close to nearby trees and terrain. Although high winds made it difficult to maintain a stable hover, both rescuees were brought aboard without incident. A helicopter gunship nearby furnished cover for the Pedro crew since enemy activity in the area was not known. Soon afterward, the survivors were delivered to a waiting medical team from the 35th USAF Dispensary.

Others manning the HH-43 were Capt Michael H. Nelson, copilot; MSgt William F. Pell, helicopter mechanic; and SSgt James W. Holden, medical technician. Det 1 is based at Phan Rang.

In a similar mission, the crew of an Army gunship which crashed in a small rice paddy five miles from Phan Rang, was picked up a few minutes later by an HH-43B crew from Det 1. Since the area was known to be frequented by enemy forces, Captain Nelson decided against the more time-consuming hoist pickup and landed in an adjacent field. SSgt Walter J. Sobanski dashed from the helicopter and helped the four survivors aboard. Seconds later the rescue helicopter was headed for Phan Rang where medical attendants were waiting. Others manning the HH-43 were Captain Coffey, copilot; and Sgt Albert F. Meta, medical technician.

## **Speedy Rescue By Nakhon Phanom Unit**

Only 21 minutes after bailing out of his crippled A-7 20 miles from Nakhon Phanom RTAFB, a Navy pilot was plucked from the dense jungle by an HH-43 crew from Det 9, 38th ARRSq. The unit is stationed at Nakhon Phanom. The forest penetrator was used by Maj Bobby S. Lay and his crew to make the pickup from the area where the downed airman had landed in the midst of trees 100 or more feet high. Major Lay said the speedy completion of the mission, classified as a "combat save," was the result of a combined effort of a number of fixed-wing and rotary-wing aircraft including C-130's, HH-53's and A-1's. He added that he believed the 21-minutes from bailout to pickup should be competitive for minimum time for a SAR effort in SEA.

Others manning the Pedro were Capt Lawrence S. Hagerman, SSgt Alvin A. Malone, SSgt Charles E. Vickers, SSgt Jerry L. Price and A1c Jean H. Boehm.

In another mission, a Det 9 crew picked up two pilots who bailed out of an F-105 after engine failure and landed in the jungle. Both made their way to a small clearing where the Pedro crew landed and took them aboard. Total elapsed time from notification of emergency to return to pad with the survivors was 26 minutes. Two combat saves were claimed.

Manning the HH-43 were Major Lay, pilot; Capt Robert P. Starnes, copilot; Sergeant Vickers, medical technician; SSgts Earl L. Miller and Edward L. Brickner, firefighters.

In a third Det 9 mission, a critically-injured Army sergeant was taken to the hospital in an HH-43 manned by Major Lay, pilot; Major Lewis, copilot; Sgt Milas L. King, helicopter mechanic; and Sergeant Vickers. To make the pickup a landing was made in a space cleared by bulldozers. The patient, who had been run over by a large piece of earth-moving equipment, was in deep shock when placed aboard the helicopter. Credit for a non-combat save was later given by ARRS.



### VNAF Pilot Aided By Det 6

The pilot of a Vietnamese Air Force plane which crashed a mile from Bien Hoa AB was picked up by an HH-43 crew from Det 6, 38th ARRSq. Shortly after launching from the base, the HUSKIE located the downed airman sitting on the wreckage of the A-1 which was surrounded by dense brush. The medical technician was lowered to assist the survivor who was injured, in shock and unable to help himself. Both men were hoisted on the jungle penetrator seat to the helicopter. A few minutes later the Vietnamese pilot was undergoing treatment in an Army hospital. Capt Roy M. Litzen was pilot of the HH-43 and Capt John W. Mack was copilot. Crewmen were SSgt Glenn A. Mumpower and SSgt Alan G. Morten.

In another Det 6 mission that day, the same HH-43 crew evacuated a military man to the Army Hospital at Long Binh. Oxygen was administered to the patient, who was in a coma, by Sergeant Mumpower and first aid was given by an Army doctor.

### Night Medevac Made By Kadena Det

After landing at night on a small baseball field in the middle of an "antenna farm," an HH-43B crew evacuated a seriously-injured airman from the island of Ie Shima. Capt Bobby L. Meadows was the pilot on the hazardous flight which began with a call to Det 6, 47th ARRSq, based at Kadena AB, Okinawa.

At the end of the 25-mile overwater flight to Ie Shima, Captain Meadows made a pass over the area with all the helicopter lights on to check the position of the antennas ringing the site. Headlights of four vehicles were used to form a landing cross for the HUSKIE. The airman, suffering severe face and head injuries, was taken aboard. A takeoff was made without incident. Other members of the HH-43 crew were Capt Robert M. Garlow, copilot; Capt

John D. Kocera (MC), a doctor; SSgt Paul Mullikin, rescue specialist; and Sgt Daryl Kubotsu, medical technician.

In another Det 6 mission, a Ryukyuan woman suffering from acute appendicitis was evacuated from Izena Shima 35 miles from Kadena AB. Manning the HUSKIE were Captain Garlow, pilot; Captain Meadows, copilot; Capt Paul Clayton (MC), flight surgeon; SSgt John H. Hazzard, helicopter mechanic; and Sergeant Kubotsu, medical technician.

### ARRS Aids After Snow Storm

An HH-43 crew from Det 2, 42nd ARRSq, Cannon AFB, N. M., was recently credited with saving the life of a heart attack victim and rescuing three men from snowbound trucks. The detachment was called after heavy snowstorms struck the Texas panhandle. Another ARRS helicopter assigned to Det 13, Reese AFB, Tex., also took part in the mission, searching over 3,200 square miles. No pickups were made, however.

More than two feet of snow had piled up and drifts often reached 15 feet, stranding hundreds of motorists on the roads and highways surrounding Amarillo. Helicopters were the only means of reaching most storm victims. The choppers flew low route checks over cars, trucks and buses—searching for those who needed emergency treatment.

The Det 2 helicopter was called on to assist an elderly man who had suffered an apparent heart attack at his farmhouse. The HH-43 landed 50 feet from the house, picked up the patient and flew him to a nearby hospital. A doctor determined that the quick response and actions of the helicopter crew saved the man's life. The Cannon crew also recovered three men from two trucks which had been snowbound for 36 hours.

Manning the HH-43 from Det 2 during the seven-hour search along roads and highways were Capt B. J. Johnson, pilot; Capt Allen Spalt, copilot; Sgt Gerald Kislek, flight engineer; Sgt James Cole, firefighter; and A1c Howard E. Bowers, medical technician.



**Farewell**—While saying his "goodby's" to detachments in the 42nd ARRSq, Col Thomas K. Potter, squadron commander, poses with members of Det 22 at Mountain Home AFB, Idaho, prior to his recent retirement. Left to right kneeling, Sgt Tony Hook, Capt James Woolace, Sgt Christopher Boyd, Sgt Loren Keiser, SSgt Gary Eberhardt, Sgt Jesus Gamez. Standing, SMSgt Robert MacMillian, maintenance supervisor; Capt Gary Dietze, Maj Gordon Hall, interim det commander; MSgt Hubert Marsh, Colonel Potter, SSgt Elmo Collins, SSgt Leslie Jeter, and A1c Vincent Gilleran. (USAF photo)



**Award Presentation**—Kaman rescue pins were presented recently to the members of two SEASPRITE crews from HC-2, NAS Lakehurst, N. J., for their life-saving efforts at sea. Participating in the ceremony were Cdr James F. Mozley, commanding officer of the squadron at the time, left, and Mr. Ed Noe, right, technical representative who made the presentations on behalf of Kaman. Recipients were, second from left to right, Lt(jg) Roy E. Hey, Lt Peter Madley, LCdr Philip F. Duffy, AM2 Jerry E. Graham and ADJ2 Philip R. Feinimore. Others who participated in the rescues but were not present for the ceremony were LCdr Thomas D. LeBlanc, ADJ3 Robert A. Schultz, and AMS3 William D. Adams. The mission accounts appear on pages eight and eleven. (USN photo)

### Det 2 Medevacs Accident Victims

Urgently needed medical assistance was provided for two injured men through the efforts of an HH-43B crew from Det 2, 42nd ARRSq (MAC), Cannon AFB, N. M. The detachment had responded to a call for help at the Melrose Bombing Range where, it was reported, a man had been seriously injured in an accident. As the HUSKIE headed for the accident scene, personnel at the site relayed information on the patient's condition to Maj James A. McCullough (MC), a flight surgeon aboard the HH-43. Soon after Capt Allen E. Spalt landed the helicopter at the bombing range, an emergency tracheotomy was performed on the injured man by Major McCullough.

At the same time, it was learned that a second man involved in the accident was suffering from shock and he was treated by the flight surgeon. Both survivors were then placed aboard the HH-43 and taken to the hospital. Other members of the helicopter crew were Sgt Michael G. Rochon, flight mechanic; and SSgt Gary G. Manthe, medical technician.

### Det 15 HH-43B's Rescue F-4C Crew

Det 15, 40th ARRWg, Zaragoza, Spain, launched two HH-43B's when an F-4C disappeared from Radar Control after taking off in rainy, overcast weather. The alert helicopter, "Pedro 47," scrambled as soon as "beeper" signals were received by the control tower indicating that the F-4C crew was in distress. Manning the HH-43 were Maj David B. Hightower, pilot; Maj Dennis M. Chase, copilot; Capt A. A. Roman-Franco (MC), flight surgeon; TSgt Larry J. Hutchins, medical technician; SSgt Joseph Walenta and Sgt Willie Smith, Jr., firefighters.

Taking to the air a few minutes later was "Pedro 83," piloted by Capt Leo P. May. Copilot was Capt Benjamin P. Lorge; helicopter mechanic, SSgt Ronald R. House; medical technician, Sgt Donald R. King; and firefighter, SSgt Gilberto San-Miguel. Both helicopters were under GCA control (IFR).

Pedro 47, while enroute to the crash site, established voice contact with the F-4C crewmembers who had ejected from their disabled aircraft. The navigator said he was "O.K." and that he could hear the helicopter but couldn't see it. The F-4C pilot advised that he had a broken leg and arm and needed medical assistance. He also said that he

could see the HH-43 and directed the helicopter to turn left. Major Hightower made a descending turn through a break in the cloud deck below and landed near the survivor. The flight surgeon, medical technician and a firefighter went to the aid of the downed airman who had landed on the ridge of a steep ravine and was suspended by his parachute harness. Pedro 47 then took off, picked up the F-4C navigator and returned. Pedro 83 also landed, the navigator was placed aboard and taken to Zaragoza AB Hospital. He had suffered a broken leg, numerous superficial cuts and abrasions, and was in shock.

Meanwhile, the pilot was treated for his injuries and then taken to the hospital. Capt Roman-Franco said afterward that had the pilot not been located and recovered before nightfall, he would have succumbed to his injuries.



**1000-Hours**—Lt Lloyd L. Duncan, right, is presented a Kaman 1000-hour plaque by Capt D. C. Stanley, commanding officer, NAS Lemoore, Calif. Lieutenant Duncan, aviation safety officer and a SAR pilot at Lemoore, logged his 1000 hours in H-2's produced by Kaman. Another pilot who recently accumulated 1000 hours in the H-2 is Lt Michael Graham of HC-4, NAS Lakehurst, N. J. At Laredo AFB, Texas, Capt Ronald P. Wojack also qualified for the award a few weeks ago. Captain Wojack, attached to Det 10, 43rd ARRSq (MAC), logged his time in HH-43B's and HH-43F's. (USN photo by PH2 J. R. Phillips)



## HC-4 RECEIVES HH-2D's



*Delivery of the HH-2D's to HC-4 marks the beginning of a new era for the squadron. Recently, Lt Tim Sullivan, Public Affairs Officer for HC-4, wrote a complete run-down in the "Lakehurst Station Break" of HC-4's changing role. Portions of the article dealing with the HH-2D and related subjects appear below:*

The times they are a-changin' and probably no place is changing faster than HC-4. The Navy is trimming back, paring off excess baggage and the squadron is doing its share. But at the same time we are expanding, receiving new aircraft, new personnel and a new mission.

In the years to come HC-4 will continue to provide support to non-aviation ships the world over, but at the same time we are getting into the antisubmarine warfare business. This means sending detachments out to work aboard destroyers, something we have not done in the past.

The new mission, and it will be a big one, will demand a drastic increase in the size of the squadron. Already the flood is beginning. Old UH-2A-B helicopters are being sent steadily back to the factory. In return, the Kaman plant sends new twin-engined HH-2D models. Four are in the barn today and more are coming soon. More pilots are receiving orders to the squadron and of course so are many more enlisted men. HC-4's Operations Officer, LCdr C. L. Duffie, foresees a marked increase in the squadron's size this year. Needless to say, NAS Lakehurst and the surrounding area will feel the effect....

Actually antisubmarine warfare is only half of our new mission. HC-4 is deeply involved in LAMPS, the Navy's newest program. LAMPS is an acronym for Light Airborne Multipurpose System. The new concept involves not only antisubmarine defense, but also protection against hostile surface craft. Based aboard destroyers—mighty small flight decks—sonar equipped "Hukeys" (HH-2D's) will listen for subs. Missile-bearing Hukeys will protect the fleet from

**A NEW ERA AT HC-4**—When two new shiny twin-engine HH-2D model helos landed in front of Hangar Three on a clear, cold windy afternoon in late November, it marked a milestone for the "Scootermen" of HC-4 stationed at NAS Lakehurst, N. J. Heretofore the squadron accomplished their mission of operating off non-aviation ships with single-engine aircraft. Eventually, each UH-2A/B helo will be sent to Kaman Aerospace Corporation for conversion into HH-2D models. The "Delta" marks the fifth different aircraft flown at one time or another by the squadron. On hand to accept the aircraft logbooks was Cdr E. W. Hille, HC-4 commanding officer. Others present for the brief ceremony included, left to right, LCdr H. J. Fox IV, HC-4 maintenance officer; Lt F. H. Peirce, HC-4 assistant maintenance officer; Mr. Ed Noe, Kaman technical representative; Cdr E. W. Hille, HC-4 commanding officer; LCdr J. K. Trimble, VRF-31 ferry pilot; LCdr R. C. Westfall, VRF-31 ferry pilot; CW02 J. B. Pridgen, HC-4 production control officer; Cdr J. M. Lang, HC-4 executive officer; and Lt J. K. Connors, HC-4 maintenance/material control officer. (USN photo by Lt R. J. Haggerton)

surface threats. And of course the utility capability will be preserved.

In the early stages of the program, the HH-2D's will be used to evaluate the feasibility of LAMPS. There is a lot involved in putting a helicopter aboard a destroyer and giving it a new mission.

If the initial stages of the program are successful the Navy will press ahead with development of a specially designed LAMPS vehicle.

....So keep your eye on LAMPS. It should be an interesting program to watch, and much of it will unfold at NAS Lakehurst, N. J.



# HUSKIE HAPPENINGS

## Det 14 Evacuates Two

Two F-4C crewmembers who ejected at low level over the Bravo Bombing Range, Avon Park, were evacuated by an HH-43B crew from Det 14, 44th ARRSq, MacDill AFB, Fla. Maj Edmond O. Lyman landed the HUSKIE at the edge of a forest and the survivors were helped aboard by Sgt Louis T. Mastroni, Jr., a medical technician, and MSgt Jerome M. Casey, helicopter mechanic. First aid was administered by Sergeant Mastroni on the flight to the hospital. The other member of the HH-43 crew was SSgt Bruce J. Bell, an airborne firefighter.

## Det 5 Makes Life-Saving Flight

An HH-43B from Det 5, 40th ARRWg, Hahn AB, Germany, was rigged as a "flying hospital" in order to save the life of a military patient who had suffered massive internal injuries in an automobile accident. Due to the serious nature of the injuries, the patient was medevaced from Hahn to the USAF hospital at Wiesbaden. The HUSKIE, carrying equipment for giving whole blood transfusions, breathing assistance, drains and so on, made the flight in 27 minutes. Afterward, medical personnel wholeheartedly agreed the mission was a "save." Pilot on the mercy flight was Maj Robert J. Bennett. Capt John W. Christianson was copilot and SSgt Arthur L. Wood, helicopter mechanic.

Also aboard were SSgt Donald L. Doench, medical technician and Capt Eugene E. Kercher (MC), flight surgeon.

## Det 12 Honored By ARRS-MAC

Det 12, 47th ARRSq (MAC) recently received the ARRS Unit PRIDE (Zero Defects) and Military Airlift Command Achievement Awards. The unit, which is based at Andersen AFB, Guam, was honored for having the best managed and most successful Detachment Cost Reduction program for fiscal year 70 in Aerospace Rescue and Recovery Service.

Ten cost reduction suggestions amounting to a total of \$33,000 were submitted and approved. This is an exceptional accomplishment, especially in view of the fact that Det 12 had a late start. It was activated Sept 15, 1969, therefore only had nine months in which to compete for this annual award. Det personnel are shown below.

BrigGen Frank K. Everest, Jr., ARRS commander, congratulated the personnel for their outstanding contribution to the accomplishment of the ARRS mission. The awards were forwarded to the det commander, LtCol Byron H. Lawrence.

Maj Thomas F. Madden is the Cost Reduction Officer for Det 12. In addition to the annual awards, the detachment also received the Commanders PRIDE award for both the first and second quarter of calendar year 1970.



DET 12 PERSONNEL—Kneeling, front row, left to right: SSgt Lester J. Berry, SSgt Terry R. Garoutte, TSgt Robert D. Freels, Maj John R. Cassarini, SSgt John W. Coleman, A1c William P. Armentrout. Standing, back row, left to right: Sgt Joseph S. Dazikoski, SSgt David M. Cobb, TSgt William P. Tracey, Sgt David Solis, Capt Allan C. Spitler, Maj Thomas F. Madden, LtCol Byron H. Lawrence, Maj Harry W. Kruppenbach, SMSgt Frayser C. Holler, SSgt Charles Morgan, and SSgt Richard Spencer. (USAF photo)



## Det 5 Receives 40th ARRWg Award

Detachment 5, 40th ARRWg located at Hahn AB, Germany, has been selected as the 1970 recipient of the 40th ARRWg Commander's Trophy. Commanded by LtCol Robert W. Hastings, Det 5 succeeds Det 10 of Aviano AB, the 1969 winner.

The award was established in 1969 and is presented annually to the unit of the 40th ARRWg demonstrating sustained superior performance in the accident-prevention program, operational mission reliability, significant missions accomplished during the year, maintenance reliability, morale, timely administrative actions and self-help projects. All units assigned to the 40th ARRWg are considered for the award and selection is made by the entire wing staff.

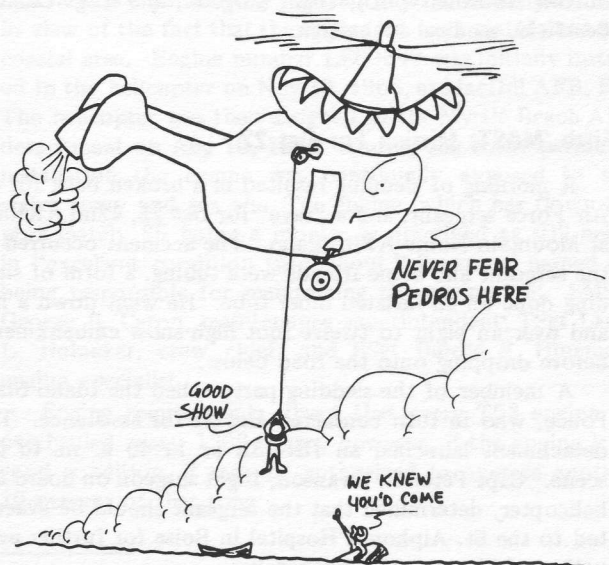
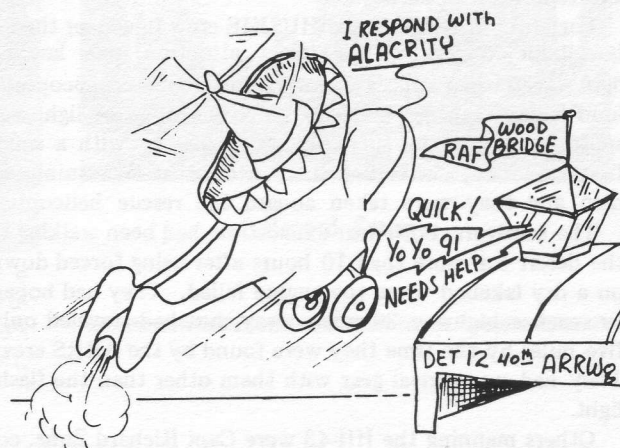
In commenting on the award, Colonel Hiram Griffin, 40th ARRWg Commander, asked Colonel Hastings to convey his heartiest congratulations to each member of Det 5. "Their singular achievements have made this award possible and I urge you to keep up the good work," he said.

## Luke Unit Aids Injured Hiker

A hiker, seriously injured when a large rock fell on him, was evacuated from the rugged Cave Creek Wilderness Area by an HH-43B crew from Det 15, 42nd ARRSq, Luke AFB, Ariz. Due to the terrain, Maj Elmer L. O'Banion set the HUSKIE down approximately 300 yards from the accident scene and a ground party led TSgt Peter J. Lee, the medic, and Sgt John M. Visnesky, helicopter mechanic, to the bottom of a small canyon where the victim was lying.

Sergeant Lee's examination revealed the possibility of a severe back injury—as well as multiple abrasions and contusions on the patient's left arm, wrist and shoulder—so all necessary precautions were taken. Due to the almost perpendicular canyon walls, the crew elected to make a Stokes

litter pickup. The patient was placed on the litter with the assistance of three young men at the scene and then hoisted to the helicopter which Major O'Banion held in a hover overhead. After the flight to the hospital, the Major commended Sergeants Visnesky and Lee on their "well-coordinated team effort which resulted in the expeditious evacuation of the victim." Copilot on the mission was Major Richard R. Cowles.

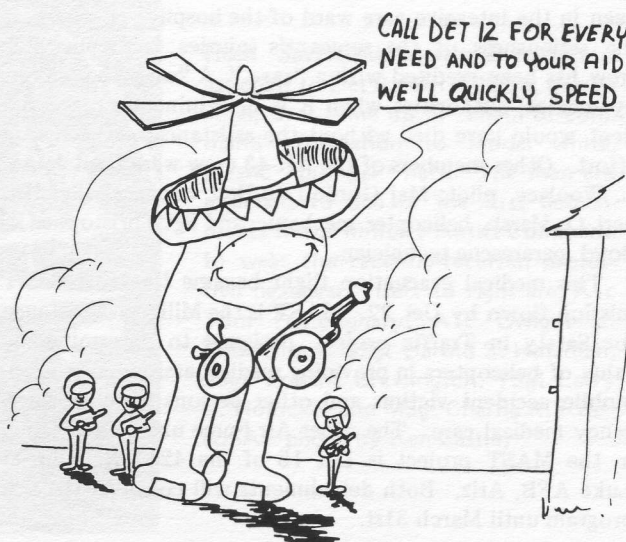


Captains Jones and Allen thanked their rescuers as soon as they were plucked from the cold waters of the North Sea by an HH-43B crew from RAF Woodbridge, U. K.—but then they decided that wasn't enough. The next day the two fighter pilots showed up at Det 12, 40th ARRWg, with magnums of champagne for Maj John H. Larson, who piloted the HUSKIE, Sgt Terry H. Richardson, the flight engineer, and SSgt Regis J. Freed, aeromedical specialist.

Distribution of the "bottles of bubbly" marked a happy ending to what could have been tragedy but for ARRS efforts. The HUSKIE crew had scrambled with a fire suppression kit after word was received that an F4-C with one engine afire was headed for the base. Seconds later the other engine caught fire and the crew ejected over the sea while on radar final.

Major Larson immediately diverted to the helipad, discharged the two airborne firemen and picked up the flight engineer. An HC-130 from the 67th ARRSq, also at RAF Woodbridge, assisted the HH-43 crew in locating the downed pilots. Soon afterward the two survivors were hoisted to safety. A Jolly Green helicopter crew also arrived on the scene to aid if needed.

(After reading about the champagne presentation, Kaman's Bob Allen, an illustrator in the Technical Publication's Section, decided the mission rated additional recognition. His cartoon version, featuring "Pedro"—the HUSKIE's alias of Southeast Asian fame—appears on the right.)



## Nellis Det 14 Saves Two

Launching at 2:05 a. m. in response to a call for assistance, an HH-43B crew from Det 14, 42nd ARRSq, Nellis AFB, Nev., began searching for a downed Piper Tri-acer with two persons aboard. The light aircraft had crashed in a desert-mountainous area 45 miles north of the base. Another civilian light airplane, conducting a route search for the missing plane, had spotted a flickering light and reported the position.

For an hour or more the HUSKIE crew flew over the inhospitable terrain. To attract attention, the landing light was flashed and calls were made over the helicopter's loud hailer. Finally, in the darkness below, a tiny light was spotted—one of the survivors was signalling with a small flashlight. Maj Keith Ricks landed near the two uninjured men and they were taken aboard the rescue helicopter.

The survivors, both near exhaustion, had been walking in the desert for more than 10 hours after being forced down on a dry lakebed when the engine failed. They had hoped to reach a highway 20 miles away, but had traveled only five miles by the time they were found by the ARRS crew. They had no survival gear with them other than the flashlight.

Others manning the HH-43 were Capt Richard Zima, copilot; SSgt Thomas Churchill, helicopter mechanic; Capt Burton Routman (MC), flight surgeon; and TSgt Charles Bearfield, medical technician.

## Fifth 'MAST' Mission For Det 22

A morning of sledding resulted in a broken back for an Air Force sergeant, and a "save" for Det 22, 42nd ARRSq, at Mountain Home AFB, Idaho. The accident occurred as the sergeant and some friends were tubing, a form of sledding done on an inflated inner tube. He went down a hill and over an eight to twelve foot high snow embankment, before dropping onto the road below.

A member of the sledding party called the Idaho State Police, who in turn contacted Det 22 for assistance. The detachment launched an HH-43B at 11:40 a. m. to the scene. Capt Peter H. Swanson, flight surgeon on board the helicopter, determined that the sergeant should be evacuated to the St. Alphonsus Hospital in Boise for further evaluation of his suspected broken back.

At the hospital, the sergeant's condition was found to be critical. He suffered a broken back and has continuously been in the intensive care ward of the hospital. Because of the seriousness of the sergeant's injuries, the helicopter crew has been credited with a "save." A "save" is credited by medical authorities when it is determined that the patient would have died without the assistance of the rescue effort. Other members of the HH-43 crew were Capt James L. Woolace, pilot; Maj Gordon L. Hall, copilot; MSgt Hubert O. Marsh, helicopter mechanic; and Sgt Christopher L. Boyd, pararescue technician.

This medical evacuation flight became the fifth MAST mission flown by Det 22. MAST is the Military Assistance for Safety in Traffic project, designed to determine the value of helicopters in providing medical assistance to automobile accident victims and other persons needing emergency medical care. The other Air Force unit participating in the MAST project is Det 15 of the 42nd ARRSq, at Luke AFB, Ariz. Both detachments will continue the test program until March 31st.

## Det 12 Chalks Up Another "First"

Det 12, 42nd ARRSq, George AFB, Calif., has added another to its list of "firsts." A couple of months ago the detachment became the first local base rescue unit in the United States to receive an HH-43F and was also the first to ferry a HUSKIE 2800 nautical miles across country. Now, Det 12 has become the first to record "stateside saves" with the HH-43F.

The mission began when the San Bernardino County Sheriff's Office notified the detachment that a 12-man rescue team was stranded in the vicinity of Ontario Peak. The team had gone into the San Gabriel Mountains to search for an injured hiker, however, helicopters which had taken the men into the mountains were unable to retrieve them due to dense fog in the area. "Pedro 58," the detachment's HH-43F, took off and headed for the mountainous area. Maj James L. Wissert, Det 12 commander, was pilot, Maj Lyle A. Beck, copilot; and SSgt John L. Hatch, helicopter mechanic. Sgt O. C. Gray from the Sheriff's Office accompanied the crew and provided two-way radio communications with the men in distress.

Eight of the rescuees were located in a box canyon in a small rocky clearing surrounded by tall pine trees at the 6,000-foot level. Due to the rocky terrain, a low hover was maintained and three of the individuals were picked up. During the pickup, Major Beck noted that a landing could be made at a small spot about 10 feet from the hover area. The three rescuees were taken to a road a few miles away.

The helicopter then flew to the 8700-foot level on Ontario Peak and landed on the hard-packed snow. Four other members of the ground party were picked up and airlifted to George AFB. After refueling, the HH-43F returned to the first site, picked up the five remaining persons and took them to the road where vehicles from the Sheriff's Department were waiting.

The survivors were all hungry and tired but otherwise unmarred by their experience. Personnel from the Sheriff's Office said, however, that it was doubtful whether the four men at the 8700-foot level could have made it through the night had they not been rescued. This was due, they said, to fatigue, lack of food, and the fact that snow and water in the area made wood damp and it was impossible to build a fire to keep warm. Four saves were credited.

The HH-43F used was formerly HH-43B serial number 59-1556. It was designated an "F" after being fitted with the more powerful T53-L-11A engine at Kaman's Bloomfield, Conn., facility. At the present time, HH-43F's are operational in Southeast Asia, Iran, Burma and Morocco. Those in Southeast Asia, in addition to the new engine, are outfitted with special equipment, including armor plating.

## MILESTONES

Two pilots attached to Det 7, 40th ARRWg (MAC), Torrejon AB, Spain, recently passed important milestones in their flying careers. Capt Ronald I. Pass logged his 2,000th flying hour in the HH-43B on 4 January. Capt Kenneth E. Ernest was recently cited by the Military Airlift Command for achieving 2500 hours of safe flying.

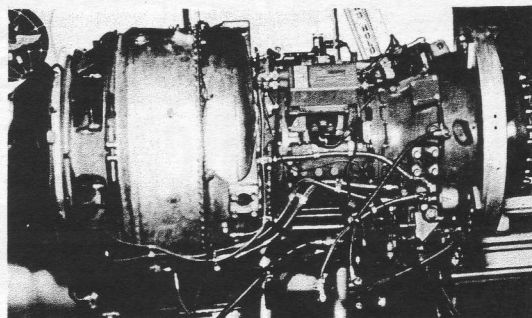
Maj Keith H. Ricks, Det 14, 42nd ARRSq, Nellis AFB, Nev., recently logged his 2,000th hour in the HH-43.



## DET 8, 44th ARRSQ, SETS ENGINE ENDURANCE RECORD



**Milestone**—LtCol Bruce C. Bowden, second from right, Det 8 commander, congratulates Maj Harold Pickering after record-breaking flight which saw 1301th hour logged on the HH-43's turbine engine. Looking on is Capt Walter S. Hogle, Jr., left, copilot, and TSgt Larry L. Holocker, crew chief. (USAF photo by Amn Richard Mazauskas)



**Record Setter**

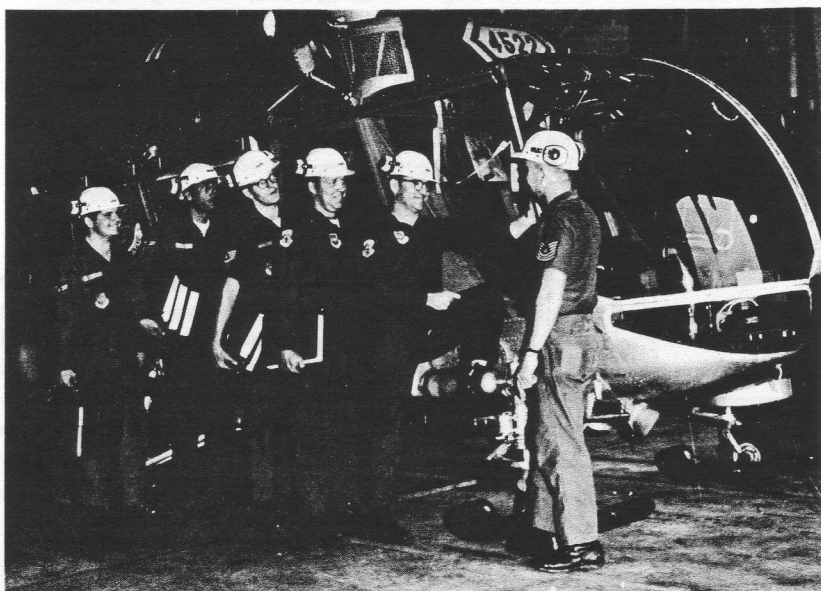
When HH-43B number 62-4522 landed at Myrtle Beach AFB, S. C., recently it became the first HUSKIE in Air Force history in which a Lycoming T53-L1B turbine engine had operated for 1,301.5 hours without overhaul. Piloting the Kaman-produced helicopter on its last mission before the engine was removed for overhaul was Maj Harold Pickering and his copilot, Capt Walter S. Hogle, Jr. On hand to congratulate them after the flight was LtCol Bruce C. Bowden, detachment commander.

The record-breaking engine, serial number LE00549, is the first of its type to operate more than 1,300 hours. A limited number of T53 engines have, according to official records, attained 1,200 hours before requiring an overhaul.

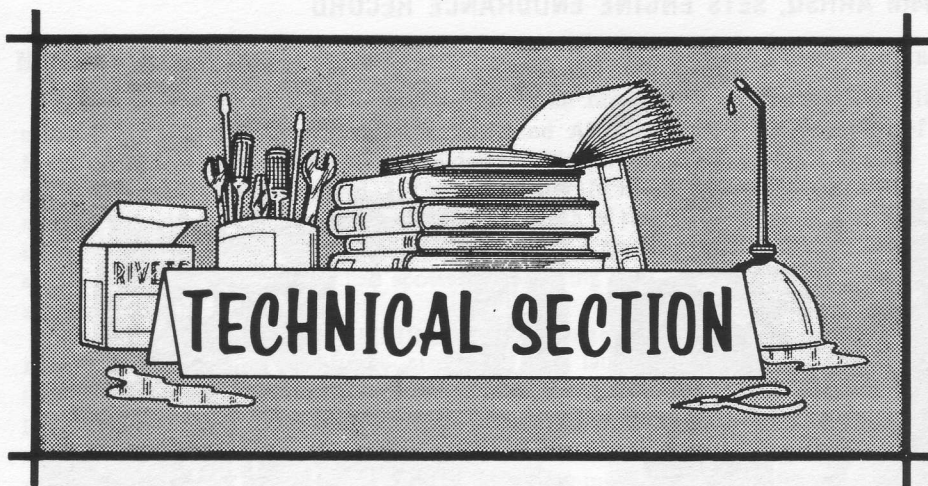
Capt James W. Albright, a pilot assigned to the detachment, said "preventive maintenance and the care given by Det 8 maintenance personnel" were responsible for the engine setting such an outstanding record. The captain added

that it was a particularly "extraordinary" accomplishment in view of the fact that the engine has been maintained in a coastal area. Engine number LE00549 was initially installed in the helicopter on Nov 10, 1966, at MacDill AFB, Fla. The helicopter was then assigned to the Myrtle Beach AFB detachment on Aug 10, 1968. During the entire period of installation the engine was continually exposed to salt water spray and sea air. The engine, which has flown approximately 25 hours a month, is described as still being in "excellent condition throughout." Personnel named as being responsible for maintaining the engine are: SMSgt George B. Caron, maintenance superintendent; TSgt Larry L. Holocker, crew chief; and SSgt Darold S. Hinzman, engine specialist.

Engine requirements direct that every T53 engine be overhauled every 1200 hours, however, if the engine is in good condition, it may be authorized to operate another 10 percent of that time.



**Head Savers**—Maintenance personnel assigned to Det 8, 44th ARRSq, Myrtle AFB, S. C., line up in "chain of command" formation to model white, plastic "bumper" hats. The men are attached to one of the first detachments in the Military Airlift Command to wear the recently-received protective headgear. Left to right are, A1c Tom DeLoughary, A1c Dwight L. Touchstone, SSgt Darold S. Hinzman, SSgt Erskine Brewington, TSgt Larry L. Holocker and MSgt Charlie R. Ross. (USAF photo by Ken Castle)



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## AUX BATTERY PROCEDURES

The aux battery is a source of supplementary power for the electric throttle system and is used to stop-cock the engines in the event of complete power failure. It should be noted that the battery provides 24 vdc power to the throttle system whenever the starter switch is depressed and regardless of the main battery voltage. The additional power is, of course, dependent on a properly serviced aux battery.

The procedures consist of two parts, both of which require removal of the battery from the aircraft. Part One is concerned with inspecting the battery and it should be accomplished at least every 14 days. Part Two details a reconditioning procedure which should be accomplished at least every 56 days. It is anticipated that most batteries now in use will require induction into the reconditioning cycle.

The following procedures are to be performed by qualified personnel only.

### Aux Battery Procedure (Marathon Batteries): Part One, Inspection. Perform every 14 days.

1. Visually inspect case and cover for dents, corrosion, and damage. Repair as necessary.
2. Inspect connector for security, corrosion, or damage. Repair or replace as necessary.
3. Inspect for cell surface wetness, corrosion, discolored cell connectors, cracked cells, wet neoprene liners, wet potting compound, or loose terminal nuts. Evidence of any of these conditions necessitates induction of battery into reconditioning cycle.
4. Remove vent plugs. If difficult to remove or if threads are crossed, the full reconditioning cycle must be accomplished. Wash vent plugs in warm, pure distilled water. (Hospital distilled water may contain additives to improve taste qualities; be sure to use PURE distilled water.)
5. Place battery on charger and charge at the 1-ampere rate for 30 minutes. Each cell should read 1.50 volts or

more. If cell(s) do not reach 1.5 volts within 30 minutes, induct battery into reconditioning cycle.

6. Check electrolyte level; it should be 1/16-inch above plates. Use leveler (Figure 1). Use only pure distilled or de-ionized water. Replace vent plugs and, using a screwdriver, check that all plugs are watertight.

7. Check load voltage. (Figure 2) Connect discharge device for 5 minutes, then read cell voltage under load—each cell should be at or above 1.2 volts. A reading below 1.2 volts is cause for induction of battery into reconditioning cycle. Remove discharge device.

8. Check current leakage. With meter, read positive terminal of battery to case (ground)—reading should not exceed 15 ma for the uncoated battery case (2 ma for the epoxy-coated case); repeat for negative terminal. A reading above these values is cause for induction into reconditioning cycle.

9. Replace battery cover.

10. Install battery in aircraft.

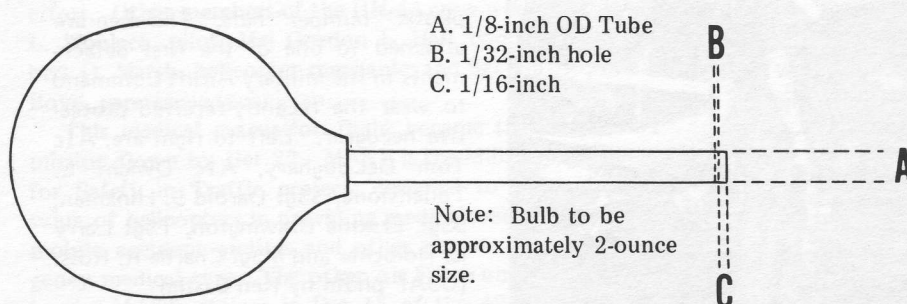
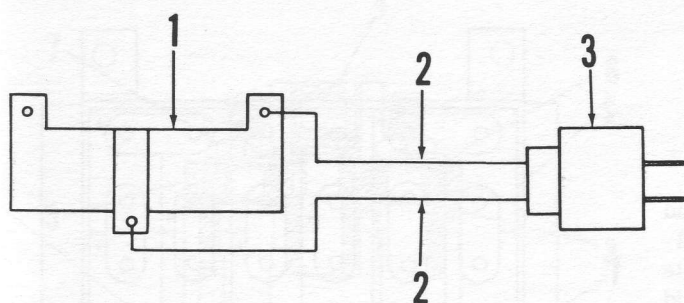


Figure 1. ELECTROLYTE LEVELER

Fill bulb with distilled water. Remove vent plugs. Insert tube into vent hole until tube rests on cell plates. Lightly squeeze bulb, watch for water at vent opening, immediately release bulb; cell fluid will be at the recommended 1/16-inch level. Replace vent plugs.



## TECHNICAL SECTION



1. 40-watt, wire wound resistor
2. 18-gauge wire
3. Connector, P/N 696R12S-3P100

NOTE: 14-day check use 56-ohm resistor

56-day check use 28-ohm resistor

(Equivalent part substitutions allowed)

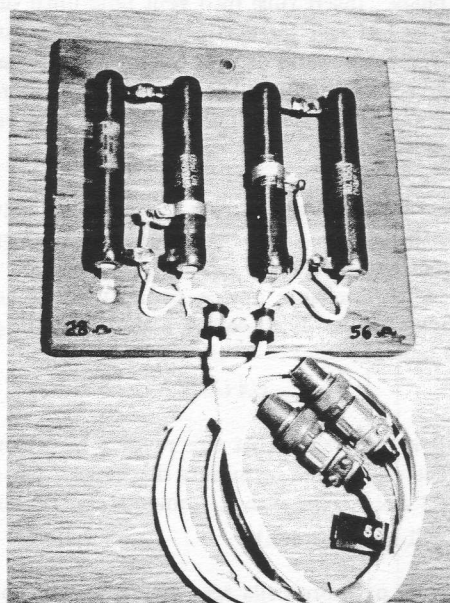


Figure 2. DISCHARGE DEVICE FABRICATION

### Aux Battery Procedure (Marathon): Part Two, Reconditioning. Perform every 56 days.

1. Visually inspect case for dents or damage; check cover for distortion.

#### CAUTION

Be certain battery is completely discharged prior to disassembly. Attach discharge device (Figure 2) until total battery voltage is 5-6 volts.

2. Remove upper terminal nuts and cell connectors. Remove cells from case. (Do not remove lower terminal nuts or vent plugs from cells.) Wash cells with clear fresh water. Dry thoroughly.

#### NOTE

Using a screwdriver, check that all vent plugs are watertight before washing. **DO NOT OVERTIGHTEN.**

- 2a. Remove case-mounted connector assembly. Using an ohmmeter, check resistance across leads. A reading below infinity necessitates replacement of the assembly.

2b. Tighten lower terminal nuts to 6-8 inch-pounds. Check cells for electrolyte leakage. Pay particular attention to: case-to-cover seal, cracks and area around terminals. Any leakage is cause for cell replacement. If grey or brown accumulations are noted within the cell, replace cell. Look for crossed threads on nuts and terminals, check for damaged cell connectors. Install new parts as required. See Figure 4.

#### CAUTION

Loose terminal nuts could result in an explosion due to arcing.

- 2c. Remove vent plugs and inspect for damaged threads or gaskets. Replace as necessary. Wash vent plugs in warm (room temperature), pure, distilled or de-ionized water. (Hospital distilled water may contain additives to improve taste qualities; be sure to use only PURE distilled water.)
- 2d. If cells appear dry, add 2.5 cc's distilled water per cell. Overfilling could result in excess spewing of electrolyte.

#### NOTE

Using a screwdriver, check that all vent plugs are watertight before washing. **DO NOT OVERTIGHTEN.**

- 2e. Thoroughly wash liner, case and cover in a solution of (5%) boric acid and fresh water. Remove corrosion by brushing with a stiff fiber brush. Dry thoroughly. Inspect liner for damage (tears, gouges, etc). If necessary, replace per Figure 5, using neoprene-base rubber cement.

#### CAUTION

**DO NOT** use boric acid solution on cells or vent plugs.

3. Reinstall cells and case-mounted connector, Figure 3. When replacement cells are installed, torque lower terminal nuts to 6-8 inch-pounds. Install the intercell connectors and torque the upper nuts to 6-8 inch-pounds.

#### CAUTION

Loose terminal nuts could result in an explosion due to arcing.

4. Connect battery to charger. It is recommended that the constant current method be used, charge the battery at 0.1 ampere rate for 14 to 15 hours. Remove from charger.
5. Refer to Figure 1 and fabricate the electrolyte leveler. Use the leveler as follows:

## TECHNICAL SECTION

Fill bulb with distilled water. Remove vent plugs. Insert tube into vent hole until tube rests on cell plates. Lightly squeeze bulb, watch for water at vent opening, immediately release bulb; cell fluid will be at the recommended 1/16-inch level. Replace vent plugs.

6. Fabricate discharge device described in Figure 2, and connect to battery. Accomplish battery discharge (at 0.8 - 1.0 ampere rate) for 55 minutes. At end of 55 minute period with discharge device connected, all cells should read above 1-volt. If all cells are above 1 volt, proceed to Steps 9 and 11.

### CAUTION

It is imperative that this reading be taken at the end of the 55 minute discharging period. (If not accomplished immediately, readings will be incorrect.)

6a. If one or more cells read below 1 volt, continue discharging until total battery voltage reads between 5-6 volts. When reading is obtained, install shorting clips on each cell; leave installed for minimum of 4 hours. Disconnect battery from discharge device immediately after installing the shorting clips. At end of 4-hour period, with clips installed, all cells should read 0 volts.

### WARNING

Install shorting clips (approximately 2-ohm nichrome wire or equivalent) only while battery is connected to discharge device. Failure to observe this precaution will result in personnel injury or battery damage.

7. Recharge battery at the 0.2 ampere rate for 7 hours. At end of 7-hour period and while still on charger check cell voltage. If all cells read 1.5 volts or above, proceed to Step 8. A reading below 1.5 volts necessitates replacement of that cell; repeat procedures, starting with Step 2B.

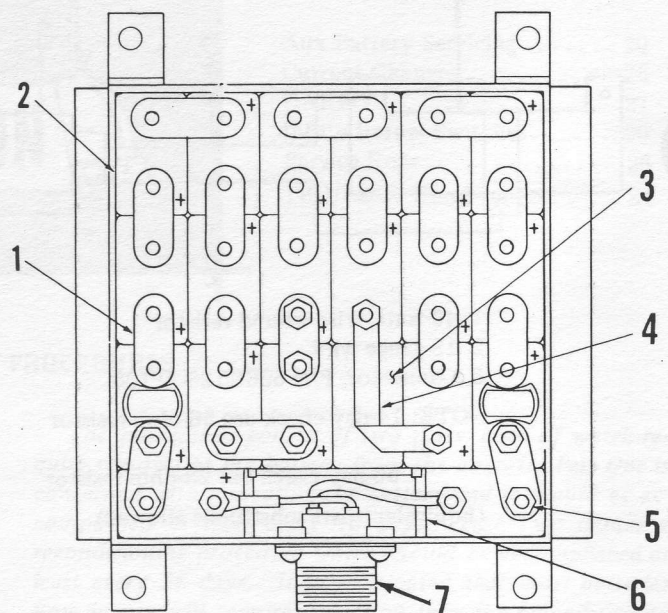
8. Install discharge device.

Accomplish battery discharge (at 0.8 - 1.0 ampere rate) for 55 minutes. At end of 55 minute period with discharge device connected, all cells should read above 1-volt. Remove and replace all cells not up to the 1 volt minimum and repeat procedures starting with Step 2B. If all cells are above 1 volt, proceed to next step.

9. If battery is to be stored for a period of more than 3 days, continue discharging until total battery voltage reads 5-6 volts.

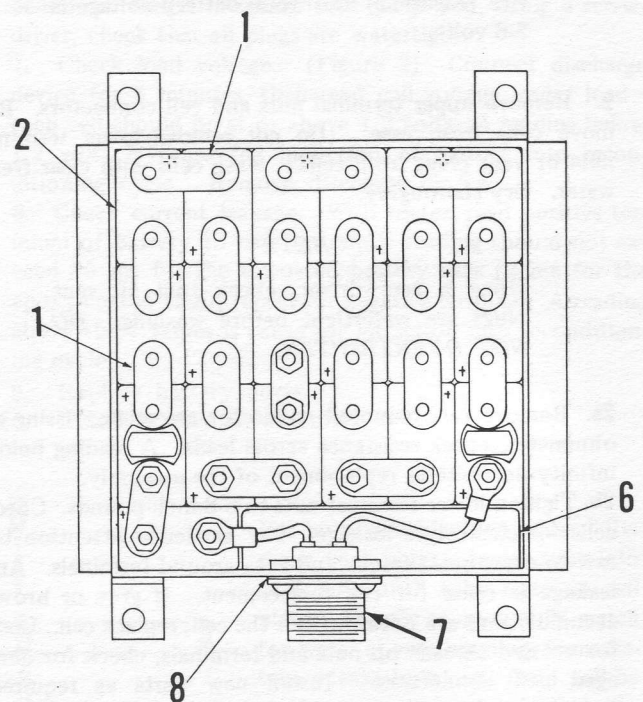
### WARNING

Install shorting clips only while battery is connected to discharge device. Failure to observe this precaution will result in personnel injury or battery damage.



View A. Non-coated battery

1. Intercell connector
2. Cell assembly
3. Dummy cell
4. Connector
5. Nut
6. Baffle (not removable)
7. Case-mounted connector
8. Gasket

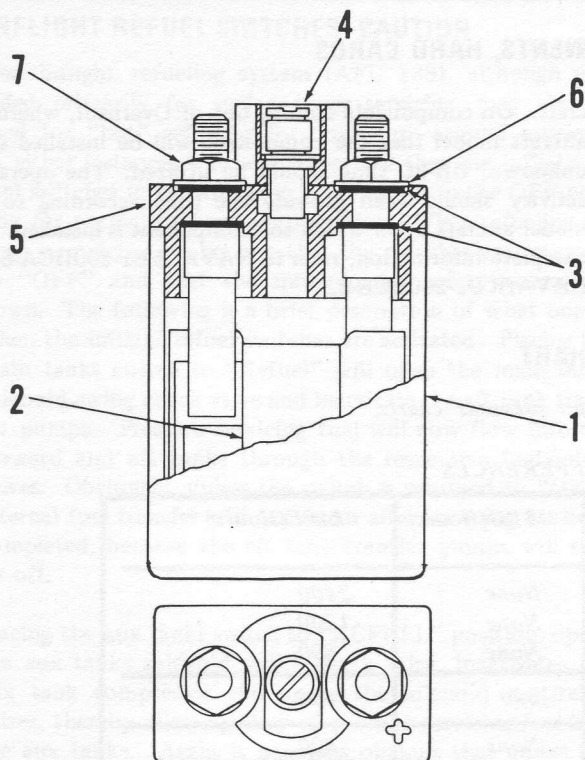


View B. Epoxy-coated battery

Figure 3. BATTERY ASSEMBLY



# TECHNICAL SECTION



- |                  |           |
|------------------|-----------|
| 1. Case          | 5. Cover  |
| 2. Core Assembly | 6. Washer |
| 3. Gasket        | 7. Nut    |
| 4. Vent Plug     |           |

**Figure 4. CELL ASSEMBLY, TOP AND SIDE VIEWS**

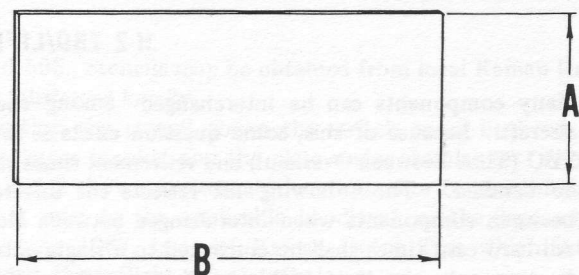
When reading (5-6 volts) is obtained, install shorting clips on each cell; leave installed for minimum of 4 hours. Disconnect battery from discharge device immediately after installing the shorting clips. At the end of 4-hour period, with clips installed, all cells should read 0 volts.

## WARNING

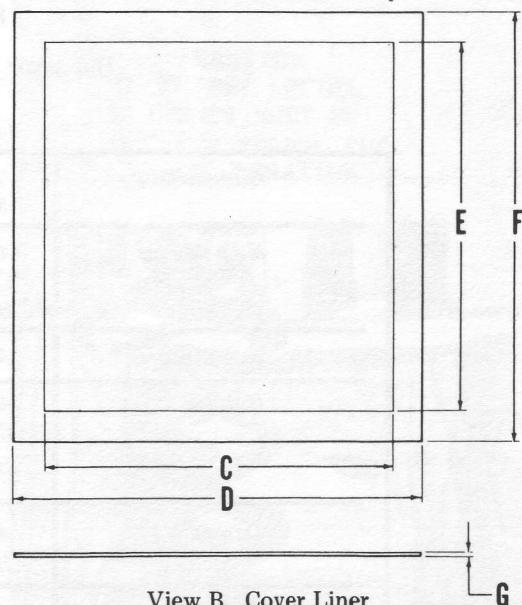
At completion of deep discharge, the cell shorting clips (or a shorting device placed across the battery connector) must be left in position during storage.

10. To return a battery from storage to RFI condition, remove shorting device and charge at the 0.2 ampere rate for 7 hours.

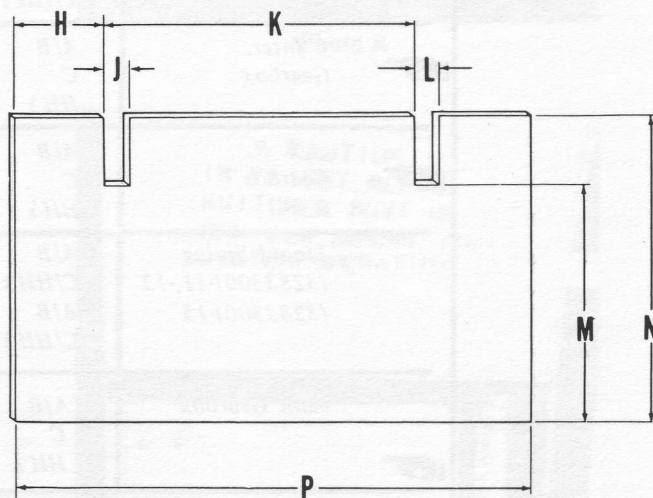
11. If battery is to be used within 3 days, charge battery at the 1.0 ampere rate for 60 minutes. Remove battery from charger and allow to stand for 1-2 hours; check electrolyte level.



**View A. Case Walls and Bottom Liners**



**View B. Cover Liner**



**View C. Baffle Liner**

A	B	NOTE: All dimensions in inches.	
4.0	4-1/8	C. 3-9/16	J. 1/8
4.0	2-5/16	D. 4-3/16	K. 1-5/8
4-1/8	2-5/16	E. 3-11/16	L. 1/8
1-1/8	2-5/16	F. 4-5/16	M. 1-5/8
		G. 1/32	N. 2.0
		H. 15/32	P. 2-11/16

**Figure 5. UNCOATED BATTERY NEOPRENE INSULATOR LINER**

The battery inspection and reconditioning procedures presented here are the result of close cooperation between H. B. Goodwin, Director of Engineering, Marathon Battery Company, Inc.; J. J. McMahon, Kaman Service Engineer; and J. P. Serignese, Kaman Rotor Tips staff. This information represents the latest acceptable minimums in aux battery servicing and will be included in applicable handbooks by future changes.

# TECHNICAL SECTION

## H-2 TBO/LIFE COMPONENTS, HARD CARDS

Many components can be interchanged among the H-2 aircraft. Because of this, some question exists as to how TBO (Time Between Overhaul) and retirement times should be handled. The following list reflects the differences between components when interchanged between Models. All hard card times shall be converted to a single entry reflecting only the time usable on that specific model air-

craft. On components coming out of Overhaul, where the aircraft model that the component will be installed on is unknown, UH-2C time should be utilized. The operating activity should then pro-rate the time according to the model aircraft upon which the component is installed. For complete information, refer to NAVAIR 01-260HCA-6 and NAVAIR 01-260HCB-6.

### REVISED CHART

*This chart supersedes all previous charts.*

#### TBO/LIFE DIFFERENCES

<i>Nomenclature</i>	<i>Aircraft Model</i>	<i>TBO(Hours)</i>	<i>LIFE(Hours)</i>
<i>Main Blades</i>	<i>A/B</i>	<i>None</i>	<i>2400</i>
	<i>C</i>	<i>None</i>	<i>1200</i>
	<i>HH ‡</i>	<i>None</i>	<i>800</i>
<i>Retention</i>	<i>A/B/C/HH ‡</i>	<i>800</i>	<i>2000</i>
<i>Hub</i>	<i>A/B</i>	<i>None</i>	<i>800</i>
	<i>C</i>	<i>None</i>	<i>500</i>
	<i>HH ‡</i>	<i>None</i>	<i>500</i>
<i>Damper</i>	<i>A/B/C</i>	<i>None</i>	<i>2500</i>
	<i>HH ‡</i>	<i>None</i>	<i>1250</i>
<i>T. R. Blade</i>	<i>A/B</i>	<i>None</i>	<i>3000</i>
	<i>C/HH ‡</i>	<i>None</i>	<i>2000</i>
<i>Inter. Gearbox</i>	<i>A/B</i>	<i>2000</i>	<i>None</i>
	<i>C</i>	<i>2000</i>	<i>None</i>
	<i>HH ‡</i>	<i>2000</i>	<i>None</i>
<i>T. R. Gearbox</i>	<i>A/B</i>	<i>2000</i>	<i>None</i>
	<i>C</i>	<i>2000</i>	<i>None</i>
	<i>HH ‡</i>	<i>2000</i>	<i>None</i>
<i>Liquid Spring (3283300)-11,-13 (3283300)-15</i>	<i>A/B</i>	<i>None</i>	<i>1200</i>
	<i>C/HH ‡</i>	<i>None</i>	<i>600</i>
	<i>A/B</i>	<i>None</i>	<i>3200</i>
	<i>C/HH ‡</i>	<i>None</i>	<i>1600</i>
<i>Main Gearbox</i>	<i>A/B</i>	<i>750</i>	<i>None</i>
	<i>C</i>	<i>360</i>	<i>None</i>
	<i>HH's</i>	<i>*</i>	
<i>Combining Gearbox</i>	<i>C</i>	<i>750</i>	<i>None</i>
	<i>HH's</i>	<i>750</i>	<i>None</i>
<i>Resolver Gearbox</i>	<i>C</i>	<i>2000</i>	<i>None</i>
	<i>HH's</i>	<i>2000</i>	<i>None</i>

\*Check component service record card for gearbox operating hours remaining before incorporation of AFC 189 (heavy-wall rotor shaft).

G. M. Legault, Asst. Supervisor  
Service Engineering



## TECHNICAL SECTION

### INFLIGHT REFUEL SWITCHES—CAUTION

H-2

The inflight refueling system (AFC 138), although provided primarily for surface-to-air servicing, may also be used for "hot" refueling for quick-turn around missions. In either instance, it is very important that the inflight refuel switches in the aft cabin be returned to the OFF position for normal fuel system operation. When refueling has been completed, make sure that the switches are returned to "OFF" and that the spring-loaded safety covers are down. The following is a brief description of what occurs when the inflight refuel switches are activated: Placing the main tanks switch to "Refuel" will open the main tanks solenoid swing check valve and inactivate the aft tank transfer pumps. Pressure servicing fuel will now flow into the forward and aft tanks through the respective fuel-defuel valves. Obviously, unless the switch is returned to "OFF" internal fuel transfer will not occur after servicing has been completed, because the aft tank transfer pumps will still be off.

Placing the aux tanks switch to "REFUEL" position, opens the aux tanks solenoid swing check valve, inactivates the aux tank compressor and opens the solenoid vent/relief valves, thereby allowing flow of pressure servicing fuel into the aux tanks. Again it becomes obvious that unless the aux tanks switch is returned to "OFF" after refueling has been completed, aux fuel transfer will not occur since the pressurization system is still inoperative. Because switch position is so important, a drawing change has been accomplished adding a "CAUTION" marking (1/4 inch letters) to the acoustical blanket just above the switch panel and to a metal plate, under the acoustical blanket, also above the switch panel.

(See Illustration 1.) Aircraft currently at Kaman for PAR/MOD rework will have this marking added prior to delivery. It is recommended that service aircraft which have Airframe Change 138 incorporated, have the markings applied as soon as practical. Use Black, Color No. 17038, Per Fed

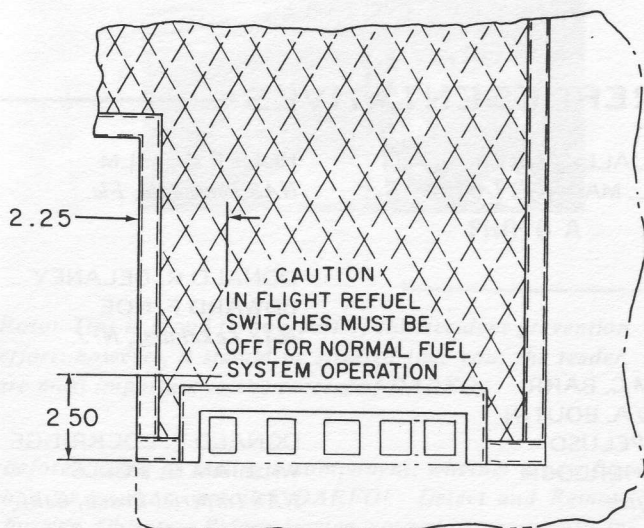


Illustration 1

Std 595. Stencils may be obtained from local Kaman Reps, or fabricated locally.

Position the stencil above the switch panel both on the insulation blanket and the plate under the blanket. Photos A and B show approximate location. For further information, refer to the applicable handbook or the September-October 1967, issue of Kaman Rotor Tips which introduced the inflight refuel techniques.

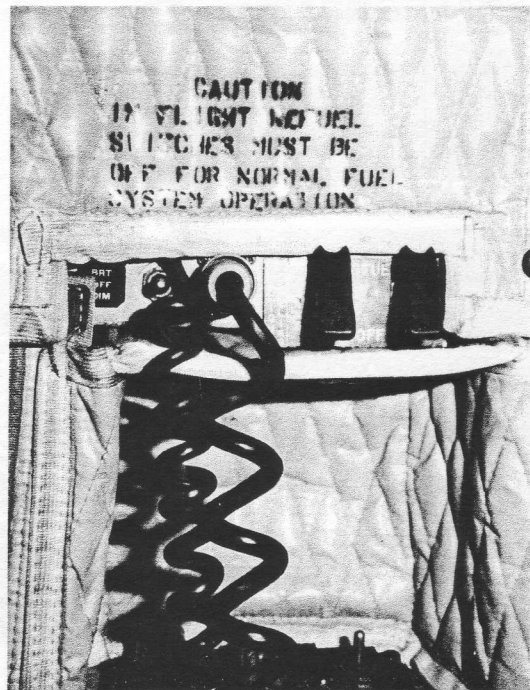


Photo A

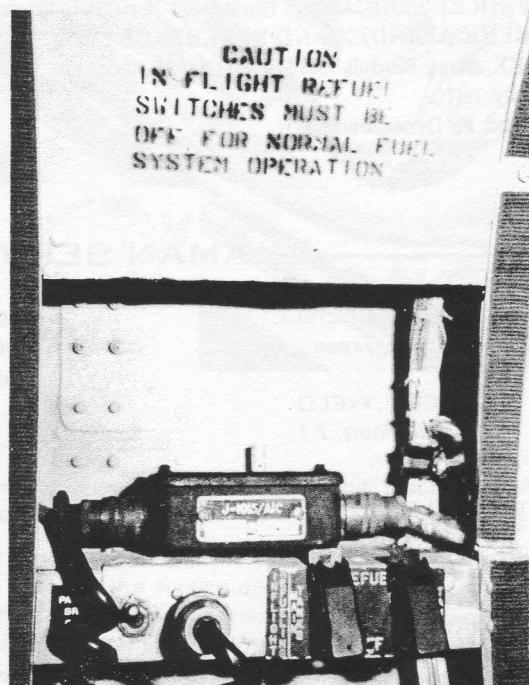


Photo B

H. Zubkoff, Service Engineer

## CURRENT CHANGES

This list reflects the latest changes to the handbooks. Consult applicable "A" page for changes issued prior to those listed below.

H-2 Airframe Change 152, Amend 1 - Communication System, INSTALLATION OF JULIET 28 EQUIPMENT  
15 January 1971

NAVAIR 01-260HCA-2-2.1 - Manual, Maintenance Instructions Navy Models UH-2A/UH-2B/UH-2C/HH-2C/HH-2D Helicopters, FLIGHT CONTROLS  
15 June 1969  
changed February 1971

NAVAIR 01-260HCA-2-4.2 - Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C/HH-2C/HH-2D Helicopters, ROTOR SYSTEM  
1 October 1967  
changed 1 December 1970

NAVAIR 01-260HCA-2-6 - Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C/HH-2C/HH-2D Helicopters, ELECTRICAL SYSTEM .  
1 October 1967  
changed 15 January 1971

NAVAIR 01-260HCA-2-8.1 - Manual, Maintenance Instructions, Navy Models UH-2C/HH-2C/HH-2D Helicopters, WIRING DATA  
1 October 1967  
changed 1 February 1971

NAVAIR 01-260HCA-4-1 - Illustrated Parts Breakdown, ROTORS AND CONTROLS, Navy Models UH-2A/UH-2B Helicopters  
1 December 1965  
changed 15 December 1970

NAVAIR 01-260HCA-4-8 - Illustrated Parts Breakdown, NUMERICAL INDEX AND REFERENCE DESIGNATION INDEX, Navy Models UH-2A/UH-2B Helicopters  
15 July 1970  
changed 15 December 1970

NAVAIR 01-260HCB-4-5 - Illustrated Parts Breakdown, POWER PLANT AND RELATED SYSTEMS, Navy Models UH-2C/HH-2C/HH-2D Helicopters  
1 May 1969  
changed 15 November 1970

NAVAIR 01-260HCB-4-6 - Illustrated Parts Breakdown, TRANSMISSION SYSTEM, Navy Models UH-2C/HH-2C/HH-2D Helicopters  
1 June 1967  
changed 15 November 1970

NAVAIR 01-260HCB-4-8 - Illustrated Parts Breakdown, RADIO AND ELECTRICAL Navy Models UH-2C/HH-2C/HH-2D Helicopters  
1 June 1967  
changed 15 January 1971

NAVAIR 01-260HCB-4-1 - Illustrated Parts Breakdown, NUMERICAL INDEX AND REFERENCE DESIGNATION INDEX, Navy Models UH-2C/HH-2C/HH-2D Helicopters  
15 November 1970  
changed 15 January 1971

NAVAIR 01-260HCB-4-2 - Illustrated Parts Breakdown, AIRFRAME, Navy Models UH-2C/HH-2C/HH-2D Helicopters  
1 June 1967  
changed 15 November 1970

NAVAIR 01-260HCB-4-4 - Illustrated Parts Breakdown, EQUIPMENT (FURNISHINGS, HYDRAULICS, INSTRUMENTS, UTILITIES, ARMAMENT) Navy Models UH-2C/HH-2C/HH-2D Helicopters  
1 May 1969  
changed 15 November 1970

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CUSTOMER OPERATIONS SECTION — ROBERT L. BASSETT, Supervisor





DARFO! Detect and Remove Foreign Objects. Shown here is the careful search conducted by an experienced mechanic who knew that immediate action plays an important part in an effective DARFO program.

As he was about to go off duty, he checked his tool box and learned an item was missing. Realizing the item had suddenly become a potentially dangerous Foreign Object, the mechanic started his search. Above all, he did not want to be responsible for FOD. Follow his eyes as he searched and see if you can locate and identify the missing object before our eyeballers point out the way. Start with Photo A....

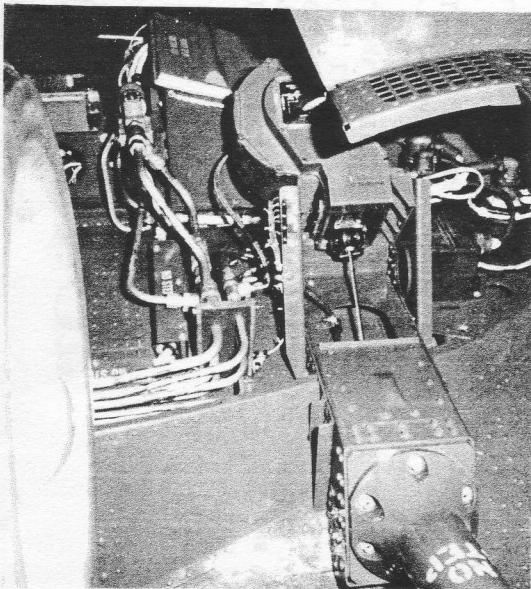


PHOTO A

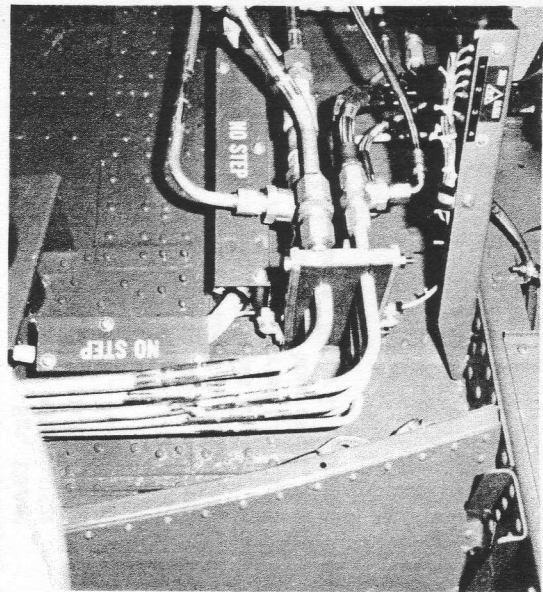


PHOTO B

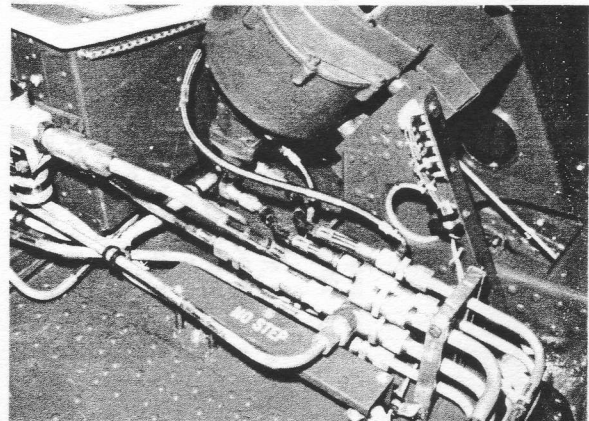


PHOTO C

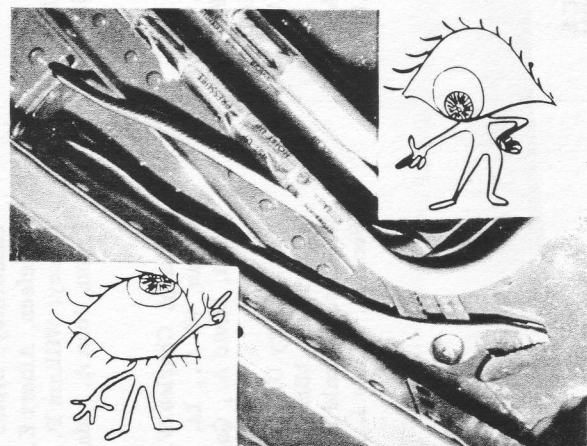


PHOTO D

Rotor Tips is proud to be a part of this accident prevention effort; however, it should be stressed that you, the reader, are most important to the success of DARFO.

Before closing or sealing a component, whether it be a fuse box or gearbox, practice DARFO! Detect and Remove Foreign Objects. Before leaving your shift or aircraft, inform your superiors or your relief of open areas and loose materials. Take the time to "take one last look around,"

remember, if we all do our part and practice DARFO, everyone will benefit.

Rotor Tips is looking for examples of DARFO in action. When you detect a foreign object, try and get a photo of it to send to us. If you cannot send a photo, send us the complete location and description of your find (also, your impression of how it got there)—we will try to simulate the condition here at Kaman.

We will credit the sender with the find if he desires.

# SCROLL OF HONOR

1970

Hansen, Jay W., Captain, USAF  
Hazzard, John H., SSgt, USAF  
Henderson, William D., Captain, USAF  
Hibner, Jerry F., SSgt, USAF  
Hill, Roger E., Captain, USAF  
Hines, James T., TSgt, USAF  
Hollingshead, Darrell E., Sgt, USAF  
Hooker, Thomas W., A1c, USAF  
Hogan, Walter E., Captain, USAF  
Hungerford, William J., Sgt, USAF

James, Cecil H., SSgt, USAF

Kiefl, Michael C., Captain, USAF

Lamkin, Alfred W., Jr., Major, USAF  
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Larson, G. M., ADR3, USN  
Lay, Bobby S., Major, USAF  
Luke, Randy L., Sgt, USAF

Machado, Arthur, Captain, USAF  
Madden, Thomas F., Major, USAF  
Marsh, Hubert O., MSgt, USAF  
Matulja, Vincent K., SSgt, USAF  
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Moser, Keith L., SSgt, USAF

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Oliver, Richard L., Captain, USAF

Patterson, William R., Captain, USAF  
Perez-Figaredo, Rafael, Captain, USAF  
Persoff, M., LCdr, USN  
Pettigrove, John R., Captain, USAF  
Phillips, Lew E., Captain, USAF

Ramos, Gerardo, SSgt, USAF

Ramseur, Reginald, SSgt, USAF

Ramsey, Jimmy L., TSgt, USAF

Rankin, C. R., Lt, USN

Read, G. A., AMH3, USN

Reed, James B., SSgt, USAF

Richmond, Marshal, Jr., Sgt, USAF

Riley, Terence M., Sgt, USAF

Ross, Herbert R., Civilian (KAC)

Ruggiero, D. J., Civilian (KAC)

Sanford, Wiley, T., SSgt, USAF

Schmidt, Robert C., Sgt, USAF

Seibert, Thomas W., SSgt, USAF  
Shelton, Weldon L., Sgt, USAF  
Sheppard, Robert A., Captain, USAF  
Smariga, John P., Captain, USAF  
Smith, Donald G., TSgt, USAF  
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Spitler, Allan C., Captain, USAF  
Spruiell, Jessie C., SSgt, USAF  
Staples, Bruce W., Captain, USAF  
Stuart, Robert K., Captain, USAF  
Sullivan, T. P., Lt, USN  
Sutherland, Gregory F., SSgt, USAF

Tankersley, Elmer E., SSgt, USAF  
Tollefsen, Albert E., Captain, USAF  
Tracey, William P., TSgt, USAF  
Tyson, John A., Major, USAF

Vickrey, Charles W., Captain, USAF  
Vivian, W. C., Lt, USN  
Voigt, David A., Captain, USAF

Weir, Barry D., Lt(jg), USNR  
Williamson, Michael A., Lt, USN  
Willsbach, Ronald K., Lt, USNR  
Woolace, James L., Captain, USAF

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