

KAMAN

Rotor Tips



MARCH-APRIL 1968

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ON THE COVER

The twin-engine UH-2C joins two other Kaman helicopters already on duty in Southeast Asia. The HH-43 and UH-2 have flown hundreds of rescue and med-evac missions — many under fire. Cover by Donald Tisdale, Technical Publications.

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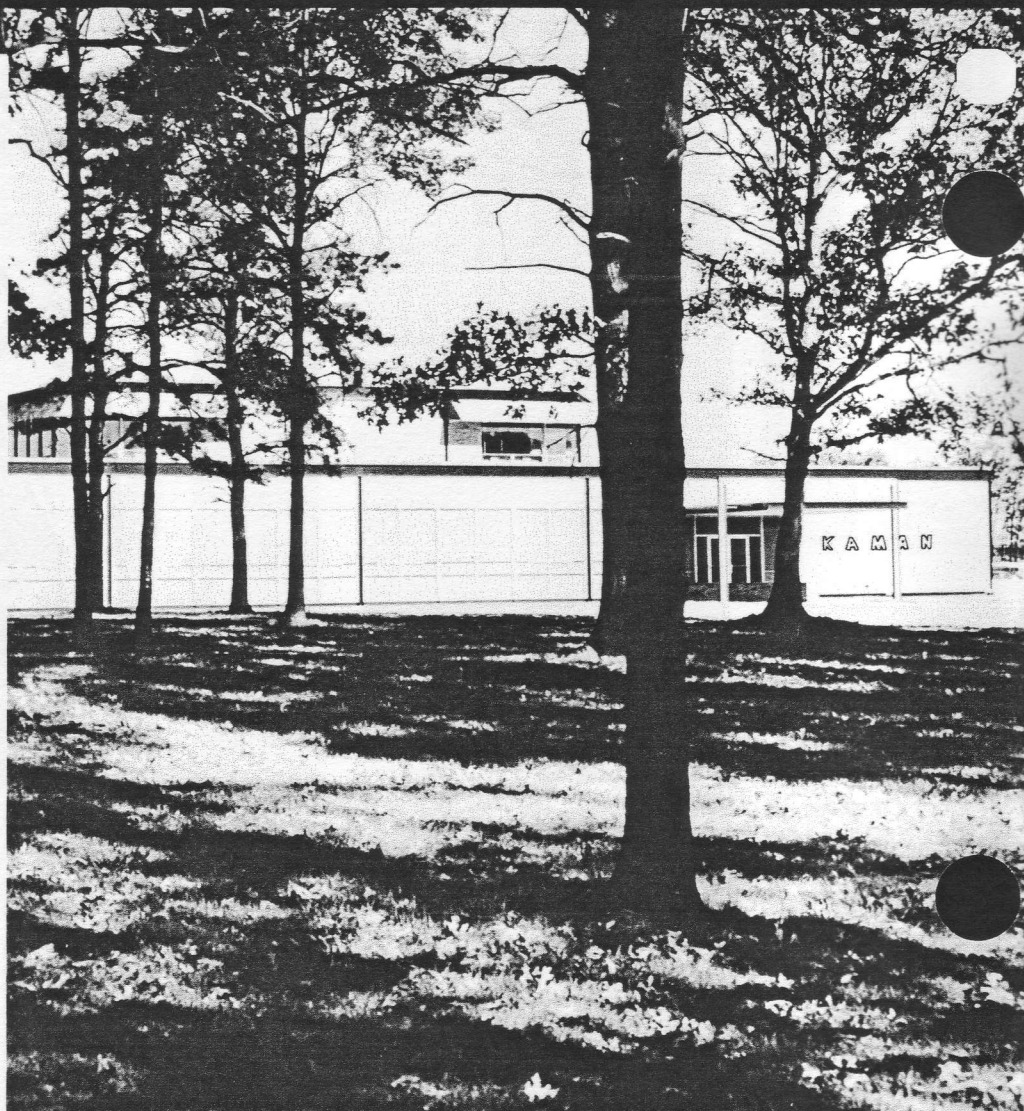
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PARAMEDIC RESCUE TEAM

The source for most of the following information on Paramedic Rescue Team Number One was supplied by Seaman Kenneth B. Dalecki, Editor of THE AFTERBURNER, the station newspaper at Cubi.

During almost all rescues made by SEASPRITE crews in Southeast Asian waters, a UH-2 crewman has leaped from the helicopter to aid the survivor or survivors. Dubbed "swimmers," these crewmen have braved heavy seas, entangling shroud lines, enemy fire and many other hazards — there can be no doubting their inherent courage. The proficiency they have shown, however, was usually acquired through the training furnished by Paramedic Rescue Team Number One at USNAS Cubi Point, Republic of the Philippines. SAR pilots and crewmen alike are unanimous in their praise for this comparatively small, but dedicated, Navy unit.

The Paramedic Rescue Team is the only one of its kind in the Navy. Its members are medical corpsmen cross trained in parachuting. It does not, as a group, participate in operations inside Vietnam, although individual members have seen temporary duty in that country. The team's parachuting abilities are of particular value in the almost inaccessible mountainous areas around Cubi Point. Lt Frederick H. Buehl (MC), USN, is the officer-in-charge of the team and Lt Robin L. Smit (MC), USN, is its division officer. Both of these doctors are also parachutists. All team members are part of the Naval Air Station's Medical Department. In March, 1967, LCdr Dale E. Barck, officer-in-charge of Helicopter Combat Support Squadron One's, Det Cubi, asked the team to assist in training search and rescue aircrewmen. The SAR aircrewmen were attached to the Navy UH-2 rescue helicopters operating from guided missile frigates close to the shores of North Vietnam. These SAR duties are now carried out by HC-7, which has a detachment at NAS Cubi, while HC-1 SEASPRITES fly plane guard for carriers in the area. Crewmen from both squadrons are presently receiving the specialized training given by the paramedic team. Their primary mission is to save airmen downed at sea, although they have also made several inland rescues. In the past, difficulties had been encountered while rescuing injured pilots due to the various types of gear worn by airmen in the different services. The paramedics have since trained aircrewmen to quickly free pilots of their encumbering equipment and to locate their rescue hoist rings quickly. The crewmen have also been trained to use first aid techniques in the water to prevent further injury to an injured man during hoisting.

Hospitalman Second Class Eugene W. Bliss, unit training instructor, is also the prime innovator of new equipment and techniques being tested by the paramedics. He served in Vietnam for 15 months and has a working knowledge of what it takes to successfully reach downed pilots or casualty cases in remote areas. His dedication to seeing that SAR crewmen are fully prepared for their rescue missions is summed up simply — "We want those guys, the pilots, who are doing the big job in Vietnam or anywhere else, to have every chance they can if something goes wrong."

Helicopter crewmen being trained by Paramedic Rescue Team One find their six-day course crammed with practical activity. Each day starts with an 0715 muster followed by an hour of physical training. Lectures, practical demonstrations, swimming and running follow one another in rapid succession until the class secures at 1645. The students also participate in several night training operations.

The first day includes: First aid lecture #1 (cardiac massage and resuscitation on land and in the water); basic swimming instruction, practice and testing (survival strokes). Lectures and demonstration — application of the face mask, the UDT type life vest, practical application in the use of swim fins. Half an hour road run. Included in the second day are: First aid lecture #2 (traumatic wounds, lacerations, puncture wounds and concussions); review use of face mask and swim fins; practice run to parachute loft. Lecture on all types of flotation gear, parachutes and seat pans. Water entry demonstration and practice; parachute entanglement and escape lecture; demonstration and practice. Road run.



UH-2 CREWMEN IN TRAINING — One of the SEASPRITE crewmen receiving instruction from Paramedic Rescue Team Number One puts into practice that which was learned under ideal conditions in the station swimming pool. The "rescue," in Subic Bay off NAS Cubi Point, RP, was accomplished in less than 60 seconds. In top photos, crewman leaps into the water and swims toward "rescuer." Paramedic Eugene Bliss, HM2, then lowers cable when the crewman signals he's ready for pickup. In photos below, crewman attaches rescuer and himself to hoist ring and both are hoisted aboard the SEASPRITE. Pilot and copilot during the practice pickup were Lt(jg) Timothy S. Melecosky and Lt(jg) James P. Brennan. Both have made SAR rescues while under enemy fire. (USN photos by PN3 Dale Williams)



On the third day: The rescuemen receive first aid lecture #3 (fractures in back and neck, compression -- simple and compound; review of water entries and swimming practice. Run to Cubi crash fire boat basin; 2,000 meter swim in Subic Bay; maintenance of equipment. Fourth day activities include: 2,000 meter swim plus daylight helo pick-ups and water entries. 1,000 meter night swim, also in the bay. After physical training on the fifth day, the rescuemen have another 2,000 meter swim and participate in daylight helo pick-ups. Later, between 1900 and 2300 they practice night helo pick-ups. The final morning is devoted to a lecture and demonstration of rappelling techniques and then the rescuemen -- some several pounds lighter and all much more knowledgeable -- are ready to resume their life-saving SAR duties.

"The results of this training are nothing short of amazing," said LCdr John W. Margedant, who inspected the school for ComFairWestPac. He recommended that the Team receive "immediate assistance" to carry on and expand its excellent work in training helicopter rescue crewmen.

First 20th Mission Award

The 20th Kaman Mission Award was presented recently to two pilots, one Marine and the other Air Force. The awards are given for completion of 20 rescue or mercy missions flown in Kaman helicopters while operating under normal, or relatively routine, conditions. First to receive the card and accompanying lapel pin with its small ruby inset was Capt William W. Crews, a UH-2 pilot from the SAR Unit at MCAS Cherry Point, N.C. The presentation was made during a ceremony in the office of MajGen M. E. Carl, USMC. The second recipient was Maj Charles P. Nadler, an HH-43 pilot from ARRS Det 11, EARRC (MAC), Craig AFB, Ala. On the qualifying mission, Captain Crews evacuated an ill woman from Cherry Point to MCAS Camp Lejeune. Other members of the crew were SSgt Oakley F. Atkins, copilot; LCpl Howie P. Thurlow, crewman; and Lt Jon R. Leach (MC), doctor. Major Nadler flew his HH-43B through the overcast and a light drizzle to pick up a Marine pilot who had made a forced landing at Vaiden Field. With Major Nadler were Sgt James R. Shebesta, flight engineer; SSgt William V. Overstreet and Sgt Clayton M. Langley, firefighters; and LtCol Terry J. Swaim (MC), flight surgeon.

DET TEN 38th ARRSq

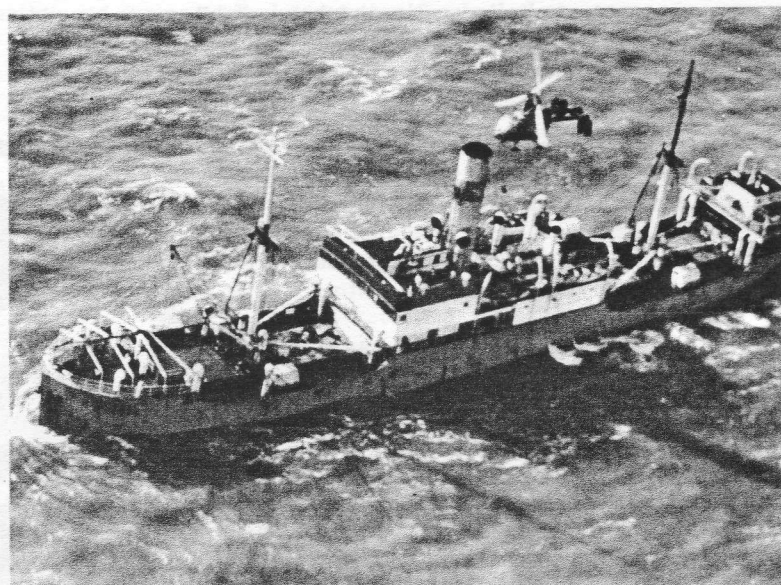


ONE-A-DAY RESCUEMEN—HH-43 crews from Det 10, 38th ARRSq, Binh Thuy AB, recently established a one-a-day average in combat rescue saves. Each day, for 11 straight days, the rescuemen flew into combat areas to evacuate a wounded man. Shown are nine of the 11 crewmen who participated. Front left to right, are Maj Harold Pickering, RCC and detachment commander; Sgt James A. Crawford, Jr., and SSgt William L. Crawford, flight engineers; Capt Laurence W. Conover, RCC. Back row, Sgt Ronald K. Sholes and James L. Parks, pararescuemen; Capt William J. Haugen and Albert E. Tollefsen, rescue pilots; Sgt Gary G. Harold, pararescueman. (USAF photo)

Recoilless rifles, mortars, hand guns — these and many other types of weapons have been fired at the US Navy River Patrol Boats (PBRs) operating in South Vietnam. As the small craft make their way up winding channels and between overgrown river banks — ideal for an ambush — the crews have the comforting knowledge that they can call on helicopters for either suppressive fire or medical evacuation, if necessary. The US Air Force's Det 10, 38th ARRSq, Binh Thuy AB, has played a key role in such med-evac missions in addition to its combat rescue activities. The following accounts typify the unit's PBR activities:

On Christmas Day, Capt Thomas D. Precious and his HH-43 crew hoisted a wounded sailor to the helicopter from a patrol boat which had come under enemy fire despite the announced 24-hour truce. The HUSKIE scrambled at 3:02 p.m., picked up the wounded man from the PBR at 3:20 and delivered him to medical facilities at 3:35 p.m. On the flight to the hospital, the sailor's multiple shrapnel wounds were treated by Sgt Ronald K. Sholes, pararescueman. Capt William P. Shea was copilot on the mission and TSgt Dean S. Aaron was flight engineer. Cover was flown by two Navy armed helicopters and a second Det 10 HUSKIE piloted by Capt Laurence W. Conover. Capt William J. Haugen was copilot; SSgt William L. Crawford, flight engineer; and A1c James L. Parks, pararescueman. It was the unit's 66th combat save in 1967.

In another mission, while Navy armed helos flew cover, an HH-43 piloted by Maj Harold Pickering picked up three wounded men from a PBR as it moved upstream. Sgt Gary G. Harold, pararescueman, verbally guided Major Pickering as he hovered the HUSKIE over the boat. As the pickups were being made, light ground fire was heard on shore. The Navy gunships immediately swept in and began pounding the area. Capt Albert E. Tollefsen was copilot of the HUSKIE and Sergeant Crawford was flight engineer.



When not braving enemy fire, Det 10 crews often fly other missions almost as hazardous. In the above photo, an HH-43 piloted by Major Pickering is shown lowering a heavy duty water pump to the Thai merchant ship Prosper. Two HUSKIES from Det 10 responded after the slowly sinking vessel, 33 miles from shore and buffeted by 12-foot seas, called for assistance. To deliver the 150-pound pumps and other items, the helicopters had to hover near the tall funnel between the 85-foot masts. Extensive antenna wiring on the masts presented an additional hazard. A total of 535 pounds of equipment was lowered by the HUSKIES. "Much of the credit for the success of our deliveries, under trying conditions, goes to the flight engineers and pararescuemen. They did a fantastic job during hoist operations," Major Pickering said. With the Major were Capt Leslie E. Johnson, copilot; Sgt Gary G. Harold, pararescueman; and SSgt Charles H. Herring, flight engineer. The second helicopter was manned by Capt Laurence W. Conover, pilot; Capt William J. Haugen, copilot; A1c James L. Parks, pararescueman; and SSgt William L. Crawford, flight engineer. The photograph was taken by Captain Haugen.

KAMAN HELICOPTERS RESCUE 650 IN '67

Kaman HH-43 HUSKIES and UH-2 SEASPRITES continued their saving ways in 1967, rescuing at least 650 persons in all corners of the world. As in the past, this figure will rise as other rescues made last year are reported. USAF crews manning HH-43s rescued more than 510 persons while more than 140 were saved by UH-2s crewed by USN or USMC personnel.

In Southeast Asia alone, the HUSKIES were credited with 365 saves, including 215 armed forces personnel downed in combat zones. Some 52 percent of total combat zone rescues made in Southeast Asia by the Aerospace Rescue and Recovery Service were made with HUSKIES which share the Air Force rescue mission with HU-16, HC-130, HH-3, and HH-53 aircraft. About 54 percent of the worldwide rescues accomplished by the ARRS were made by HH-43s.

The Kaman-built twin rotor synchropter continued to demonstrate its proven record of a low accident rate and high availability. Operating in the rigorous climate of Southeast Asia, HUSKIES recovered 118 crewmen and 247 non-crewmen. Elsewhere in the world, the HH-43s rescued 145 persons, ranging from airmen at crash scenes, to Italian sailors sinking off Libya, to Navajo Indians stranded by blizzards.

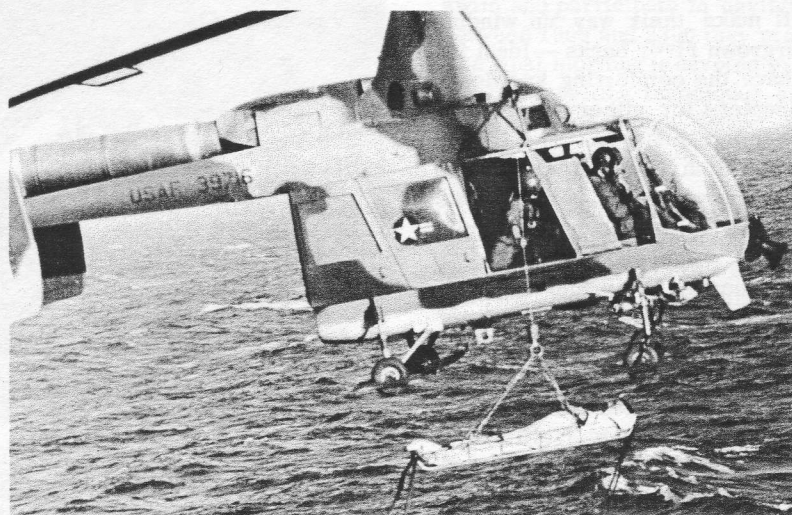
Since entering USAF service in 1959 as the first tur-

bine helicopter deployed with the Air Force, HUSKIES have been credited with nearly 1,000 rescues. More than 200 HH-43s are in service with the Air Force at bases in 23 states and 15 countries, and with the air arms of six friendly nations. Since entering service with the US Navy in late 1962, SEASPRITES have been credited with saving 634 lives and providing other rescue aid to 260 additional persons. Total SEASPRITE rescues in Southeast Asia now stand at 220, including at least 120 pilots and 29 crewmen. Last year 61 military personnel were rescued in Southeast Asia by UH-2s.

During 1967, the UH-2 fleet was joined by an improved SEASPRITE, the UH-2C, with twin engines. Kaman Aircraft Division of Kaman Corporation is retrofitting UH-2A/B models to a twin-engine configuration under Navy contract. Deployed in November, the first UH-2Cs in service immediately began rescue operations and have, so far, saved seven persons.

As the Navy's standard utility helicopter, the UH-2 also is used for personnel transfer, vertical replenishment and fire fighting. Present Navy plans call for modification of a limited number of UH-2s to accommodate new fire-fighting equipment for use at land air stations.

South China Sea Medevac



Below, plunging at 16 knots through heavy seas off the Vietnamese coast, was the USS Chemung. Above, maintaining a forward hover over the bow of the ship and fighting a 30-knot wind to stay in position, was an HH-43 HUSKIE from Det 6, 38th ARRSq, Bien Hoa AB. The helicopter had made a 35-mile flight to sea in order to evacuate a seriously-ill officer from the Navy tanker, but conditions were anything but favorable for the pickup. A litter was lowered to the ship — which was pitching up and down through a 20 to 30-foot arc — and then was cautiously hoisted back to the chopper as soon as the blanket-wrapped figure had been placed inside. Ens Gordon H. Van Zee was on his way to the hospital thanks to the precisely coordinated efforts of Capt James A. Darden, pilot of the rescue chopper, and SSgt Donald S. Kearton, flight engineer and hoist operator.

The evacuation had been an unusual one: The pickup had to be made from the bow because it was the only

place with clear deck space, and the tanker had to remain underway in order to stay on course. Since Captain Darden could not see the vessel beneath him while hovering, Sergeant Kearton verbally guided him into position and then, while continuing his instructions, made the exacting pickup. On the trip to shore, the Navy officer was treated by Sgt Roger A. Porter, the pararescue medic. A few days later, a call to the hospital revealed that Ensign Van Zee was on the road to recovery.

"That made the whole mission worthwhile and meaningful," said 1stLt Jon C. Long, copilot of the HUSKIE, "because, after all, that's our job — rescue and recovery."

Flying escort throughout the mission was another HH-43 manned by Maj James F. Okonek, pilot; Capt Sheriden K. Hawk, copilot; SSgt Richard D. Almond, flight engineer; and A1c Terrence A. Treutel, pararescueman.

Timely Tips

Steel Corrosion Protection (UH-2, HH-43B, HH-43F)

So much emphasis is placed on corrosion protection for aluminum and magnesium parts that there is a tendency to forget steel parts. While aluminum and magnesium corrode and certainly require protection, steel parts should be protected also. Coat all exposed steel parts with a suitable preservative to prevent the rusting which can quickly make scrap out of expensive hardware. The few minutes periodically spent to protect these parts will save many man hours required to repair or replace the changed units later.

W. J. Wagemaker, Service Engineer

Faulty Fuel Quantity Indications (UH-2)

A faulty or fluctuating fuel quantity indication can sometimes be caused by corrosion on auxiliary fuel system connectors. Corrosion buildup usually occurs whenever the aircraft's skin-mounted connector is exposed to the elements, or when an unprotected and corroded aux tank harness connector or stowage cap is mated to a "clean" aircraft skin mounted connector. One way to reduce corrosion caused by maintenance actions in this area is to clean the connectors and caps with an electrical solvent such as methanol prior to mating and during normal inspection checks.

H. Zubkoff, Service Engineer

Rotor Blade Deflection Limits (HH-43B, HH-43F)

For inspection purposes, rotor blades may not be deflected more than 12 inches. When installing blade tiedown boots, the blades may not be deflected more than 6 inches. The two limits are imposed because of the following variables: Inspections take only a few minutes and have no effect on a blade provided it is not deflected more than 12 inches. A tiedown however, is designed to be installed for longer periods of time. The 6-inch limit is necessary because rope shrinkage could deflect the blade further. The important point is that rotor blades should not be preloaded nor deflected for long periods of time. Such a preload or deflection could alter the built-in "blade set" and consequently blade track would be affected.

W. J. Wagemaker, Service Engineer

Fuel-Oil Shutoff Valve Wiring (UH-2)

IAC 150, which modifies the fuel-oil shutoff valve wiring, has been temporarily suspended. Message Number P262019Z, dated May 1967 and originated by Headquarters, Naval Air Systems Command, concerns IAC 150. The message states that IAC 150 should not be installed into an aircraft -- it should be held in abeyance pending further notification. In the event IAC 150 has already been installed, it should be removed as soon as practical. The message also suspends Interim Flight Manual Change No. 25 until the disposition of IAC 150 is determined.

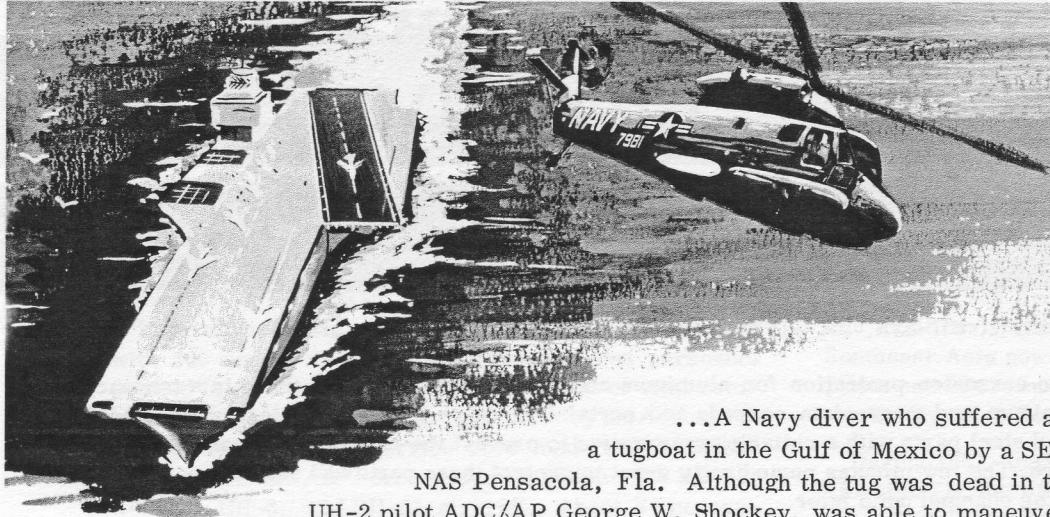
J. J. McMahon, Service Engineer

Fuel Tank Calibration (UH-2)

The FUNCTION SELECTOR switch shown in the illustration is located on the panel of the TF20-1 test set. As can be seen by the close-up, the TANK UNIT-TEST has two positions: COMP and UNSH. Some manuals erroneously refer to the positions as COMP and PROBE. Whenever a handbook calls out a FUNCTION SELECTOR switch position as "TANK UNIT TEST - PROBE," the switch should be placed in the "TANK UNIT TEST - UNSH" position. The information contained here will be incorporated in a future change to the handbook; meanwhile, it is suggested that the correct switch position be penciled into the handbook wherever an error is found.



F. G. Weber, Supervisor,
Service Publications



SEASPRITE ACTIVITIES

...A Navy diver who suffered a collapsed lung was evacuated from a tugboat in the Gulf of Mexico by a SEASPRITE crew from the SAR unit at NAS Pensacola, Fla. Although the tug was dead in the water and headed downwind, UH-2 pilot ADC/AP George W. Shockey, was able to maneuver into position and Anthony J. Poloff, ADR3, was lowered to the deck with a Stokes litter. Transfer of the patient to the helicopter was made without incident. Other members of the SEASPRITE crew were Lt Andy E. Kirk (MC), flight surgeon, and Jerry L. McCollum, ADR2.

...In another mission, a UH-2 from the Pensacola unit launched from Sherman Field after a "Mayday" transmission was received by Operations. A minute or two later, Petty Officer Poloff spotted a raft and one pilot. Lt Bruce E. Miller hovered the UH-2 and the survivor was hoisted aboard without difficulty. Poloff then reported another man approximately 300 yards away. Shortly afterward, the second rescuee was hoisted to safety. Others with Lieutenant Miller were Lt R. W. Lucey, copilot, and Petty Officer McCollum.

...A USAF pilot who ejected from his crippled F-4C was rescued from rough seas off the coast of Japan by a UH-2 crew from HC-7, NAS Atsugi. During the 90-mile flight to the area the SEASPRITE encountered increasing winds and, at the rescue scene, the helicopter was buffeted by 58-knot gusts. The survivor's raft was almost hidden by spray flung from the 12-foot waves but, despite the conditions, the pickup was made without incident. Lt(jg) James P. Quinn, Jr., was pilot of the UH-2 and Lt(jg) C. H. Yates, III, was copilot. Crewmen were F. R. Williams, AN, and Steven R. Hill, AN. The SEASPRITE crew was aided in locating the survivor by an HC-130 and a P-3A. Two HH-43s had also been dispatched to the area to aid in the search. Another pilot, who had also ejected from the F-4C was picked up by a Japanese vessel.

...In a Christmas Day mission, a UH-2 crew from the SAR unit at MCAS Beaufort, S.C., transported a doctor and a Marine, who was seriously injured in an automobile accident, from the station hospital to the Charleston Naval Hospital. Capt Larry G. Harris was SEASPRITE pilot and crewmen were Sgt Charles R. Singley and LCpl Terrance Bloomquist.

...In an earlier mission, another Marine also injured in a highway accident, was taken to the Charleston medical facility by a UH-2 crew from the Beaufort unit. CWO James R. Gauthier was pilot and Cpl Mike E. Brossett and LCpl William H. Thomas were crewmen. During the 20-minute flight a doctor, Lt Fredrich C. Norcross (MC), worked steadily to keep his patient alive.

...A SEASPRITE crew from the unit also conducted a night search over 190 miles of river shoreline and swamp for a missing sailboat. The boat showed up at daylight under its own power. Warrant Officer Gauthier was pilot during the search and crewmen were Sgt Edward C. Martens and Sergeant Singley.

...Heavily loaded with fuel, tools and equipment, a UH-2 from HC-7's Det 105 was preparing for a ferry flight to the USS Fox when an A-3 crashed in the water about a mile from the end of the runway at NAS Cubi Point, R.P. Lt Everett P. Bateman immediately took off and seconds later the SEASPRITE was over the four survivors. One, who was injured, was hoisted aboard and the helicopter headed for shore and the waiting ambulance. The other survivors, who had directed the UH-2 to the injured man, were picked up by small craft. UH-2 copilot was Lt(jg) Robert "K" Doane; crewman was Donald N. Davis, AE3.

...A UH-2 from the SAR unit at NAS Pensacola, Fla., launched after word was received that a T-34 had crashed near Loxley, Ala., and one of the pilots was trapped in the wreckage. At the rescue scene, LCdr James T. Denny landed in a small field bordered by power lines and tall trees. Power lines also bisected the field. A flight surgeon, Lt Andy E. Kirk (MC), and two UH-2 crewmen, James F. Kistner, AT1, and Billy J. Swick, ADR2, joined civilians in freeing the trapped man and then he and the other T-34 pilot, also seriously injured, were carried to the helo. To avoid the power lines on takeoff, LtCommander Denny combined a short run with a maximum power, vertical climb. The helo landed later on the hospital parking lot at Pensacola. It was reported later that both rescuees were expected to survive.... Responding to a crash call from the tower at NAS Whiting Field, a UH-2 piloted by George W. Shockey, ADC/AP, located and picked up a pilot who had ejected from his crippled aircraft three miles from Jay, Fla. The helo landed in an open field and the rescuee was helped aboard by Timothy J. Dunleavy, AMS3, and Billy Sloan, HM1. Copilot on the mission was Albert E. Hagan, AE1. The SEASPRITE was attached to the NAS Pensacola SAR unit.



NEW HC-1 SKIPPER — Cdr Paul W. Christon, fourth from left, is the new commanding officer of Helicopter Combat Support Squadron One, NAS Imperial Beach, Calif. He was serving as squadron executive officer under Cdr Roger N. Kersch when this photograph was taken at Kaman Aircraft. Commander Christon ferried a twin-engine UH-2C from the plant across country to the air station. With him on the flight were G. P. Branden, ADR1, crewman, second from left, and Lt(jg) Jim L. Bock, copilot, right. On hand to see them off were Jack C. Goodwin, Kaman assistant chief test pilot, left, and William R. Murray, vice president, Test Operation/Customer Service, middle.

Award For Kathy

A little girl in Texas is the proud holder of the only "honorary" Mission Award card ever issued by Kaman Aircraft. The card, citing four-year-old Kathy Mountjoy as a "cooperative and brave passenger" was sent at the request of Lt Jon W. Walker from the SAR Unit at NAAS Chase Field, Texas. He was the pilot and D. L. Saul, ADR2, the crewman of a UH-2 which flew the seriously ill girl from Chase Field to the hospital at NAS Corpus Christi. She was accompanied by Lt Louis Britton (MC), and B. V. Shelton, HMI.

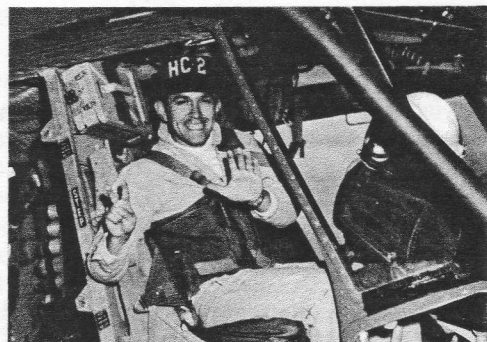
In recommending recognition for Kathy, Lieutenant Walker said, "This little girl — very sick and without either parent along — flew down to the hospital without any fuss, crying or apparent fear. She was a real 'trooper' and did a heck of a lot better than many adults who weren't sick. I believe she is very deserving of some recognition for this display of courage."

700 Record Set By UH-2 Pilot

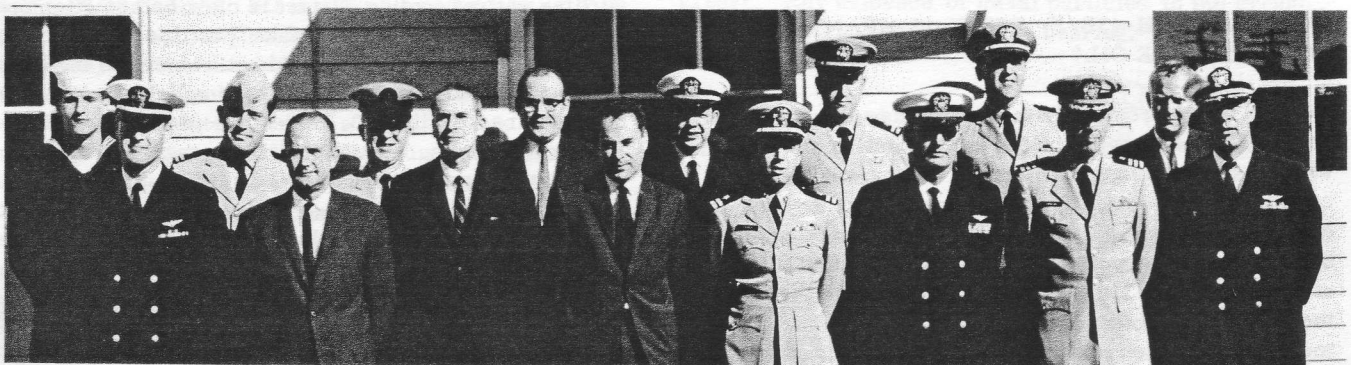
Seven hundred takeoffs and landings in the same type aircraft and from the same carrier! That's a "first" recently established aboard the USS America by a UH-2 pilot from HC-2, NAS Lakehurst, N.J. The pilot, Lt David A. Hubbs, obviously didn't chalk up this impressive record overnight. He has logged 1200 hours in the SEASPRITE and began flying from the America soon after the ship's initial shakedown cruise in August, 1965. As a member of HC-2's Det66, flying plane guard for the

America, he made seven cruises aboard the carrier, two of them to the Mediterranean. The last cruise was during the Middle East crisis when the USS Liberty, a communications ship, was mistakenly subjected to hostile attack. Helicopters from the carrier helped evacuate wounded and dead from the ship. Lieutenant Hubbs also helped pick up three downed fliers from the sea during the cruises.

There may be a few or no other pilots who have made 700 landings on a single aircraft carrier in a single type aircraft. It is difficult to confirm just how this record compares and how many "firsts" it may have set. However, it is a fact that the USS America furnishes "Centurion" patches to pilots who make 100 landings and even patches for 300 and 400 landings. But 700 landings? They don't even make those!



LT DAVID A. HUBBS



UH-2C FLIGHT MANUAL REVIEW — Participants in the four-day NATOPS flight manual review conference held recently at NAS Imperial Beach, Calif., were: front row, left to right, Lt(jg) Robert Parkinson, HC-1, NAS Imperial Beach; Jack Goodwin, assistant chief pilot, Kaman Aircraft Division; George L. Wood, KAD, technical author; Jack Davis, GE, representative; Lt Gary L. French, HC-5, NAS Imperial Beach; LCdr Dean Keen, NAMTRADET 1071, NAS Imperial Beach; Cdr Paul Christon, Cdr Roger N. Kersch, HC-1, conference chairman. Rear row, AA David Morris, HC-1; Lt Fritz Meyer, HC-7, NAS Atsugi, Japan; AEC Park Moore, NAMTRADET 1071; Robert Bassett, KAD, supervisor, customer service; LCdr Donald J. Hoyes, Lt James W. Strickler, HC-2, NAS Lakehurst, N.J.; LCdr Howard Ziemer, NAVTACDOCACT, Washington, D.C.; Arthur Solverson, GE, representative. Other attendees at the conference were LtCol Thomas E. Raines, NAVAIRSAFCEN, Norfolk, Va.; Cdr Robert Olive, NAV-AIRSYS COMHQ, Navy Department, Washington, D.C.; AMHC Edward Schwenk, NAMTRADET 1071; William Wells, KAD, senior service representative. (USN photo)

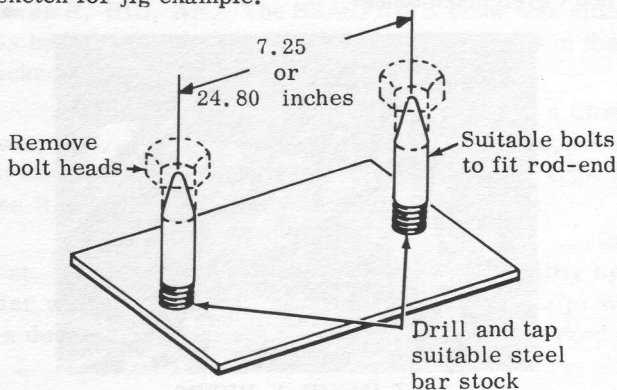
Q's AND A's

If you have a question regarding Kaman Aircraft maintenance, send it along to Rotor Tips. The Service Department's engineers will be glad to answer it.

Q. (Applies UH-2A/B/C) SHOULD MAIN ROTOR CONTROL RODS AND TRACKING TURNBUCKLES BE PRE-SET BEFORE INSTALLATION?

A. Yes. Whenever the main rotor control rod (shoe-string rod), P/N K659108, or the tracking turnbuckle, P/N K659270, rods or rodends are replaced, or during the re-rigging of the control system, the following nominal rodend lengths are recommended: (1) Adjust all 4 tracking turnbuckles (vertical links), P/N K659270, to a 7.25-inch dimension between rodend centers. (2) Adjust all 4 main rotor control rods (shoe-string rods), P/N K659108, to a 24.80-inch dimension between rodend centers.

Dimensioning jigs can be easily fabricated by drilling and tapping a suitable steel bar to accept bolts of correct diameter. Cut off the heads of the bolts and maintain the dimensions called out in steps above. See sketch for jig example.



W. J. Wagemaker, Service Engineer

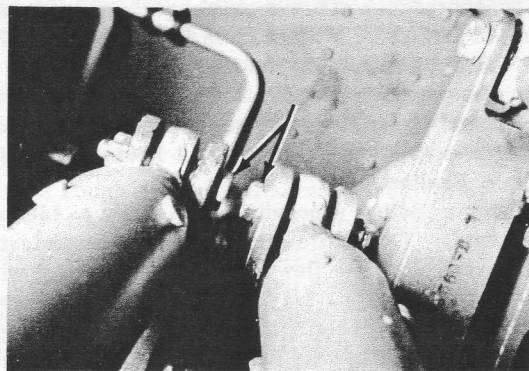
Q. (Applies HH-43B/F) WHAT IS MEANT BY THE TERM USEABLE OIL?

A. Oil in the reservoir is referred to as useable oil because the reservoir is the only point in the system where use or consumption can be measured. Engine oil continually circulates from the reservoir, through the engine, plumbing and associated components and then back to the reservoir. For example, in the HH-43B, at full capacity, 1.1 gallons is distributed throughout the engine and components while 1.8 gallons can be measured at the reservoir. As the oil level in the reservoir drops, it can be said that the oil has been used and consequently the term useable oil is applied to the reservoir oil. On helicopters which have T.O. 1H-43(H)B-567 installed, an engine oil low-level light activates when the oil level in the reservoir drops to 1.8 quarts of oil (0.45 gallon; the minimum necessary to provide proper circulation, lubrication and adequate cooling).

H. Zubkoff, Service Engineer

Q. (Applies HH-43B/F) WHAT IS THE MINIMUM CLEARANCE BETWEEN THE BOLTHEADS USED IN THE COLLECTIVE PITCH BELLCRANKS AT STATION 97.00?

A. Minimum bolthead clearance should be 0.150 inch (approximately 5/32"). As shown in the illustration, station 97.00 is located aft of the pilots' compartment bulkhead and above the vertical control tunnel. (The arrows point to two of the boltheads.) The cranks transmit pilot-induced control movement aft to the azimuth. During this movement, the boltheads pass closely to each other. In order to be certain that the boltheads do not come closer than the minimum dimension, two steps are necessary. First, be sure the cranks are installed properly and second, use the specified washer, P/N 960-416L, under each bolthead. When installing the rodends, position the grease fittings as shown in the illustration (up) so they will be accessible.



W. J. Wagemaker, Service Engineer

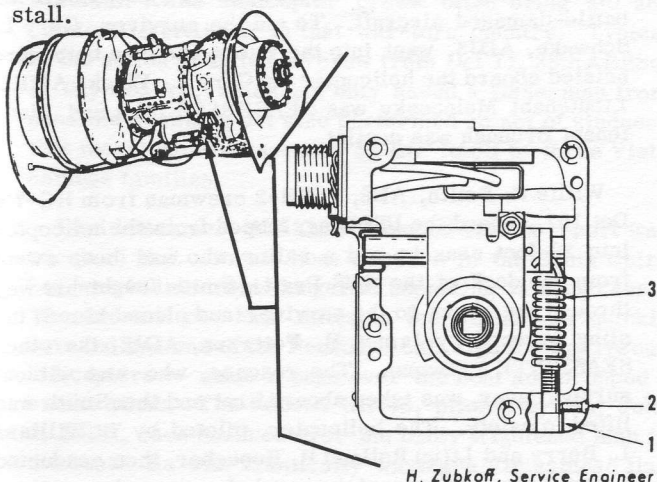
Q. (Applies UH-2A/B) IS IT NECESSARY TO USE THE SPECIAL TOOL SET, P/N K604503-101, TO CHECK MAIN DRIVE SHAFT ALIGNMENT?

A. Yes. The special tool set must be utilized in order to assure proper alignment of the main drive shaft. Procedures for shaft alignment and checking are contained in the MIM NAVAIR 01-260HCA-2-4.1. A few general rules or points of caution to observe when aligning the main drive shaft are: 1. Clean — make sure the entire coupling surface is clean before attempting work. The gage must make positive contact. 2. Adjusting rod assemblies — do not remove to make an adjustment. Adjusting can be accomplished while the rodends are installed. 3. Rodends — do not extend beyond safety limits. Ensure positive engagement of cotter pins into rodends. 4. Main drive shaft — do not rotate drive shaft by pushing on it because any fore and aft drive shaft movement would result in erroneous gage block measurement. To rotate shaft, turn the main rotor hub, the engine drive shaft, or the tail rotor. 5. Engine — apply an abrupt upward hand force of approximately 50 pounds to the aft end of the exhaust before checking the drive shaft alignment. This seats the engine in the operating attitude and simulates engine torque. 6. Gage block — make sure the gage block rests squarely on the shaft. If the block is not positioned properly the readings will be in error. 7. Gage block thumbscrew — tighten the thumbscrew so the gage is held securely. Overtightening could damage the hub.

R. J. Trella, Service Engineer

Q. (Applies HH-43B) WHERE IS THE ENGINE START MULTI-SPEED SWITCH LOCATED? WHAT COULD BE THE CAUSE IF IT FAILS TO FUNCTION?

A. The multi-speed switch is mounted on the engine accessory gearbox, under the N₁ tachometer-generator as shown in the illustration. If the switch fails to function, the RPM adjustment screw is probably at fault. The RPM adjustment screw (1) is locked in position by a setscrew (2). If the setscrew loosens, the RPM screw will be pulled inward by the governor spring (3). Use of a test set is recommended when adjusting the RPM adjustment screw, but a good starting point would be to turn the adjustment screw (1) until the spring (3) is stretched to $3/4 \pm 1/16$ inch long. Also, remove any dirt or grease from within the switch body. When the RPM adjustment screw has been properly adjusted, coat the threads of the setscrew (2) with locktite and reinstall.



H. Zubkoff, Service Engineer

Q. (Applies UH-2A/B/C) WHAT IS THE TIME BETWEEN OVERHAUL (TBO) OR SERVICE LIFE FOR LIQUID SPRINGS USED ON THE UH-2 MAIN LANDING GEAR?

A. TBO for liquid springs depends on the following restrictions: 1. UH-2A or UH-2B with Cleveland gear—liquid spring is a condition item and may be used as long as serviceable. 2. UH-2A or UH-2B with Dowty gear—liquid spring TBO is 1200 hours as long as it is used exclusively on the A and/or B. 3. UH-2C (uses only Dowty gear)—liquid spring TBO is 600 hours. The in-service life of a liquid spring can be figured as follows: Its accumulated time on a UH-2A/B can be cut in half when used on a UH-2C BUT accumulated time on a UH-2C must be doubled when installed on a UH-2A/B. Therefore, a 2 to 1 ratio exists.

H. Zubkoff, Service Engineer

Q. (Applies UH-2A/B) HOW OFTEN SHOULD THE TAIL ROTOR FLAPPING BEARINGS BE LUBRICATED?

A. As specified in the MIM, NAVAIR 01-260HCA-2-1, the flapping bearings must be lubricated at least every five flight hours, or daily, depending on the operating conditions. These minimums are reflected in the latest Maintenance Requirement Cards (MRC). However, NAVAIR 01-260HCA-6 advises that, if thought necessary by the officer in charge, the bearings and other areas

on the helicopter may be lubricated more often than required by the cards. Many of the detachments operating from the decks of small ships, or in a similar environment where the helicopters are exposed to salt spray and high humidity, lubricate the tail rotors after every flight. With the single point lubrication provided by AFC 111, this is much easier.

W. J. Wagemaker, Service Engineer

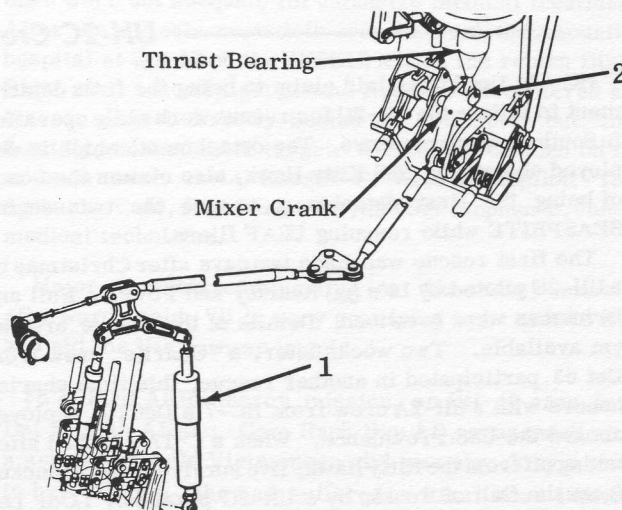
Q. (Applies UH-2A/B) DURING MAIN ROTOR BLADE FLAP INSTALLATION, WHY SHOULD CARE BE TAKEN TO SEE THAT THE OUTER BEARING PROTRUDES FROM THE FLAP BRACKET?

A. The outer bearing should protrude inboard in order to compensate for centrifugal force. When rotor RPM is at 100% (277 RPM), the blade tips travel at approximately 640 feet per second. Naturally, centrifugal force tends to shift all components toward the blade tip. This eliminates any existing play between parts and even stretches other parts. In anticipation of this force the outboard slip fit bearing is installed with an inboard protrusion of 0.12 to 0.21. Then, when centrifugal force acts on the bearing, it is driven outboard and centers in the flap bracket. For information concerning flap hardware stackup, refer to MIM, NAVAIR 01-260HCA-2-4.2.

W. J. Wagemaker, Service Engineer

Q. (Applies UH-2A/B/C) WHAT ARE THE PROCEDURES FOR DETERMINING THE CONDITION OF AN AZIMUTH THRUST BEARING?

A. In order to check a thrust bearing, first disconnect the collective bungee (1 in the illustration) located in the cabin behind the copilot's seat. This removes any down load or restriction from the thrust bearing. Next, disconnect and remove the bolt (2) attaching the thrust rod assembly to the mixer crank. Free the rod-end by raising the azimuth and rotate the thrust bearing in one direction, then in the opposite direction. If it feels or sounds rough, the bearing assembly should be replaced. Purge the bearing if it appears undamaged and perform a metal-particle inspection of the purged grease. Any evidence of metal particles in the grease is cause for replacement of the bearing.



W. J. Wagemaker, Service Engineer

Southeast Asia

A SEASPRITE rescue crew from HC-7's Det 106 narrowly escaped an enemy trap which had been baited with the body of a downed pilot. When Lt(jg) P. D. Cullen and his crew arrived over the rice paddy, about two miles inland, where the downed flyer was lying, he saw what appeared to be Vietnamese "farmers" standing near the spot. The Vietnamese appeared to be waiting for the rescue vehicle — there was no sign of weapons — but as the rescue helo hovered a few feet above the recumbent figure, about 40 VC hidden behind small dikes opened fire with small arms and semi-automatic weapons. The UH-2 copilot, Lt(jg) L. L. Duncan, and crewman R. R. Lavigne, AMS2, immediately returned the enemy fire as Lieutenant Cullen, unwilling to leave the downed pilot behind, lowered the chopper to a four-foot hover. He and G. D. Russell, AMH2, the other crewman, then saw that the man on the ground was obviously beyond help.

Meanwhile, during these few seconds, the Navy aircraft flying protective cover overhead had gone into action. Bullets and rockets from the low-flying planes, and continuous fire from the UH-2, sent the enemy diving for cover. As the rescue helicopter broke hover, Russell grabbed a weapon and also began firing at the VC. With its belly a scant five feet above the slime of the rice paddies, guns blazing from both sides, the SEASPRITE made a high-speed, zig-zag sweep across the cleared space and headed for the safety of the open sea. Later, when back aboard the USS Dale from which the SAR mission had launched, it was found that comparatively little damage had been done to the UH-2 despite the intensity of the enemy fire.

Disregarding fire from shore batteries and North Vietnamese torpedo boats, Lt Lee C. Lax and his UH-2 rescue team from HC-7's Det 104 plucked two downed fliers from the Gulf of Tonkin. After picking up the first pilot, the SEASPRITE headed for the other who was still in his raft despite the bullet and shell splashes in the vicinity. The second rescuee caught the sling as it went past him and was aboard the helo in approximately 15 seconds. Meanwhile, American planes made strafing and bombing runs on the boats to keep them at a distance. Numerous shell bursts struck the water in the immediate vicinity of the UH-2 as it left the area. Others aboard the USS Pratt-deployed helicopter were Lt(jg) Terry L.

Smith, copilot; Roger L. Dlemons, ADJ2; and John G. Hultz, ADJ3, crewmen.

In another Det 104 mission, flown from the USS Reeves, a SEASPRITE crew rescued a pilot from the sea a few minutes after he ejected from his battle-damaged aircraft. Crewman William C. Wood, AN, went into the water to aid the survivor. Others aboard the UH-2 were Lt A. J. Curtin, pilot; Lt(jg) Stephen M. Salisbury, copilot; and Robert T. Conlin, AE2.

In a "textbook rescue," a UH-2 from HC-7's Det 108 aboard the USS Coontz, rescued a downed pilot from the Gulf of Tonkin. Lt(jg) Timothy S. Melecosky and his crew sighted the survivor almost immediately, a helicopter crewman entered the water and assisted him, then the pickup was made without difficulty. With Lieutenant Melecosky were Lt(jg) James P. Brennan, Willie R. Pettit, AE2 and John M. Bevan, ATN3, crewmen.

In a similar Det 108 mission another downed pilot was rescued from the Gulf of Tonkin after he ejected from his battle-damaged aircraft. To aid the survivor, Gary L. Schwake, ADJ3, went into the water and then both were hoisted aboard the helicopter by Gary L. Fleck, AMH2. Lieutenant Melecosky was SEASPRITE pilot and Lieutenant Brennan was copilot.

Willie H. Smith, AE2, a UH-2 crewman from HC-7's Det 107, aboard the USS King, leaped from the helicopter into 20-foot seas to aid a sailor who had been swept from the deck of the USS Pratt. Smith fought his way through the waves to the survivor and placed him in the sling lowered by James H. Peterson, ADJ2, the other SEASPRITE crewman. The rescuee, who was without survival gear, was taken aboard first and then Smith was lifted to safety. The helicopter, piloted by Lt William L. Berry and Lt(jg) Rolland B. Beougher, then conducted a four-hour, unsuccessful search for two other sailors who had also been swept overboard.

A SEASPRITE piloted by Lt(jg) John H. Fraser from HC-1's Det 34, deployed aboard the USS Oriskany, rescued the four-man crew of another helicopter after it crashed in Southeast Asian waters. Lieutenant Fraser said afterward that he could not overemphasize the excellent job done by the hoist operator, F. E. Lalli, ADJ2, and second crewman, J. B. Miller, ADJ3. Miller leaped into the water and aided the survivors into the rescue sling. Copilot on the mission was Lt(jg) L. M. Eiland.

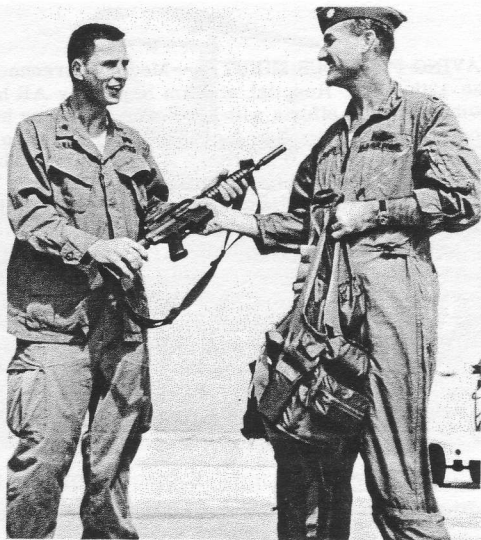
UH-2C Crews Rescue Seven

HC-1's Det 63 has laid claim to being the first detachment to utilize the UH-2C for rescue work while operating in Southeast Asian waters. The detachment, which is deployed aboard the USS Kitty Hawk, also claims the honor of being the first detachment to use the twin-engine SEASPRITE while rescuing USAF fliers.

The first rescue was made two days after Christmas by a UH-2C piloted by Lt's (jg) Kearley and Powell. Hull and Brinkman were crewmen. Details of the rescue are not yet available. Two weeks later, a "Charlie" crew from Det 63 participated in another rescue, this time sharing honors with a UH-2A crew from HC-7's Det 101 deployed aboard the USS Providence. When a C-1A crashed after taking off from the Kitty Hawk, five survivors were plucked from the Gulf of Tonkin by a UH-2C piloted by LCdr Lee Wright, OIC of Det 63.

Lt Commander Wright said afterward that the addition of the second engine to the H-2 proved to be of unquestionable value during the rescue operation. With a crew of four and a fuel load of 2100 pounds, the added available power made it unnecessary to "dump down" to lighten the aircraft, he said. Ens John Hyde was UH-2C copilot and crewmen were R. G. Siebuhr, ABH3, and R. C. Mattson, ATN2. Two other C-1A survivors were rescued by the Providence SEASPRITE which was piloted by Lt (jg) Ronald B. Lewis, OIC of Det 101. Ens Paul J. Skrzypek was copilot and J. L. Feliciano, AE2, was crewman. The UH-2A was on a test hop when the crash occurred.

The first day and night rescues with the UH-2C were made several months ago by HC-1's Det 61 while deployed aboard the USS Ranger. The carrier was operating off the west coast of the United States at the time.



CHANGE OF COMMAND—LtCol Logan Fagner, right, new commander of Det 11, 38th ARRSq, receives personal equipment from former commander, Maj John J. Elliff. Major Elliff was scheduled to depart shortly afterward for a new assignment. A veteran of more than 20 years service, Colonel Fagner was assigned to the Pentagon prior to coming to Tuy Hoa AB. The Colonel's new command has been credited with 11 combat and 23 non-combat saves while participating in 42 search and rescue missions in less than one year. Personnel have been awarded eight Distinguished Flying Crosses and 42 Air Medals for rescues made while flying in the detachment's HH-43 HUSKIES. SSgt William O. Johnson, below, HH-43 flight engineer, was one of the eight men from Det 11 who was awarded the Distinguished Flying Cross during 1967. Sergeant Johnson and Major Elliff took part in the rescue of the Vietnamese fisherman reported on this page. (USAF photo)

When not on missions of a military nature in South Vietnam, ARRS helicopter crews often bring aid and comfort to civilians in that war-torn country. Typical is the action of an HH-43 crew from Det 11, 38th ARRSq, at Tuy Hoa AB, which not only saved a fisherman from possible drowning but also performed an act of kindness that meant almost as much as life itself to three Vietnamese families.

Two detachment HUSKIES launched after a report was received that a small boat offshore in the South China Sea was in imminent danger of capsizing in rough seas. The two and one-half miles to the scene was quickly covered and one of the Pedros — call sign for the rescue helicopters — made a pass over the boat and dropped a smoke bomb. The second HH-43, piloted by Maj John J. Elliff, then hovered over the badly frightened man in the boat. He was frantically waving a Vietnamese flag and making gestures to be picked up. SSgt William O. Johnson, the flight engineer, lowered a rescue basket while Major Elliff and the copilot, 1stLt James P. F. Egbert, fought to hold the HUSKIE in position over the pitching boat below. The fisherman scrambled into the basket and Sergeant Johnson, assisted by SSgt Thomas H. Miller, rescue specialist, brought the survivor aboard. The helicopter then headed for shore — but the mission wasn't over! The following report tells in the words of the rescue crew what happened then:

"We had noticed that the boat was anchored but shipping water rapidly. We also noticed that it had a brand new motor mounted at the center of the keel. The poor man who had been picked up was distraught at the prospect of losing his boat. He let us know about it in voluble Vietnamese, accompanied by pleading gestures. We had a quick conference back at the base and decided to get the boat. We loaded 1500 feet of rope into the chopper and headed back to the beach where a huge crowd had gathered. Capt David Dean, riding as lifeguard, hopped out and managed to convey to the crowd that their help would be needed. Capt John E. Passant, on his "day off," volunteered to be lowered into the boat. He attached our rope and a sea anchor, for stability, then cut the anchor line. Major Elliff hovered back to the beach and dropped the line to the waiting crowd. By now 400 to 500 people had gathered. Captain Passant was picked up and the crowd heaved the boat ashore. The fisherman and his two sons had pooled their money and purchased the boat on the day of the rescue. Its loss would have been a serious blow to their three families. The man



bowed to Sergeant Johnson and kissed his hand in gratitude. The whole crowd was happy and kept yelling, 'Number one G.I.!' We got back to our pad wet, tired but satisfied we had won a few new friends for 'Pedro'."

Others who participated in the mission were: Capt Troy G. Irvin, TSgt Ronald W. Smitham, SSgt Martin L. Spriggle.

Another ARRS mission saved the lives of a Vietnamese woman and two small children. The flight was made at night over mountainous terrain by Maj Bert E. Cowden and his HH-43 crew from Det 13, 38th ARRSq., at Phu Cat AB. The Vietnamese, ARVN dependents, suffered gasoline burns over 40 percent of their bodies when a lantern was knocked over and set their home afire. Immediate evacuation was necessary as facilities at the base were not adequate for extensive medical treatment. After the patients were delivered to the 67th Evacuation hospital at Qui Nhon the HUSKIE left on the return flight. Right after takeoff light ground fire was encountered and tracers passed directly behind the helicopter but, fortunately, missed their target. With Major Cowden on the mission were 1stLt Ronald P. Wojack, copilot; TSgt Arthur J. Cole, flight engineer; and Sgt Stephen B. Jones, medical technician.

Major Cowden, commenting on the mercy mission afterward, said, "It is very gratifying to be able to help and aid the Vietnamese people."

In a third ARRS mercy mission, an HH-43 crew from Det 8, 38th ARRSq, Cam Ranh Bay AB, responded after a seven-year-old Vietnamese girl was struck by a truck in her village. She had suffered critical head injuries and immediate evacuation was necessary. The tiny patient, accompanied by her father and uncle, was taken



SAVING PRECIOUS MINUTES—Medical personnel of the 12th USAF Hospital at Cam Ranh Bay AB have combined their efforts with Air Force and Army helicopter crews to provide faster medical attention for injured men in the Bay area. A helo pad has been built next to the hospital and is now used daily. The pad can receive a helicopter from the field with less than five minutes notice and, by the time a patient is unloaded, medical specialists are standing by in the emergency room to receive him. Patients requiring emergency medical attention have been picked up by HH-43s as far as 30 miles at sea and delivered to the hospital. In the short period it has been in operation, the helo pad has proved invaluable. Shown is a patient being taken from an HH-43 HUSKIE from Det 8, 38th ARRSq, at Cam Ranh Bay AB. (USAF photo)

aboard the HUSKIE which then headed for the Army hospital at Nha Trang. On the way, Sgt Larry E. Lancaster, flight engineer, did all he could to comfort the girl and her grief-stricken relatives. Pilot on the mission was Capt Eugene H. Boortz and 2ndLt Ronald W. Bashant was copilot.

One hour after a downed pilot landed in thick jungle growth 35 miles from Udorn AFB, Thailand, he found himself safely aboard an HH-43B from Det 5, 38th ARRSq. Capt Wilson T. Arnold and his crew had taken off as soon as word was received of the bailout and, after a flight over mountains and jungle-covered terrain, spotted a chute near the crest of a 1500-foot ridge. Voice contact was established with the survivor and SSgt Jesus Munos readied his medical supplies and prepared for a descent, if necessary; however, Sgt Curtis E. Nickles was able to hoist the survivor through a five-foot opening in the jungle canopy and the rescue helicopter then headed for the base. Copilot on the mission was 2ndLt Benjamin P. Lorge.

With mortar and small arms fire nearby, and the added hazard of numerous ground obstacles, an HH-43F crew from Det 12, 38th ARRSq, Nha Trang AB, made a night landing on an athletic field to evacuate two wounded soldiers from a special forces camp at Kien Khanh. Intermittent illumination was provided for the landing by an AC-47, and Capt Gary E. Robertson, RCC, also used the helicopter landing light briefly to aid in avoiding ground obstacles. Sharing in the hazardous mission were Capt Arden L. Blythe, HH-43 copilot; A2c Louis C. Felker, pararescueman; and A1c Edwin L. Simonson, Jr., flight engineer.

In an earlier mission, Airman Felker dropped from an HH-43 into a jungle ravine, adjacent to a recent air strike, to aid in hoisting wounded aboard the hovering HUSKIE. The pararescueman then stayed behind with one soldier when the loaded helicopter headed for the hospital five miles away. During this time the Airman applied external heart massage to the seriously wounded man and, later, when the helicopter returned and picked them up, he continued the treatment. Despite his valiant efforts, however, the wounded soldier was dead on arrival at the hospital. Other members of the crew were Maj James W. Langston, Capt John L. Belina and Flight Engineer William Grimes.

Two HH-43 HUSKIES from Bien Hoa AB airlifted five US Army Long Range Reconnaissance Patrol members to safety recently. Army gunships laid down a deadly barrage of suppressive fire during the rescue operation. The patrol had discovered a base camp, 60 miles northwest of Saigon, with a large Viet Cong emplacement. The

patrol had also been discovered and spent a harrowing night evading the enemy.

A distress call went out to the Joint Search and Rescue Center, Tan Son Nhut AB, reporting their escape chances were extremely small. Early that morning, Army helicopters had tried to extract the five patrol members, but were unable to land. The Air Force was called and the two Bien Hoa HUSKIES arrived at the scene. A forward air controller (FAC) directed the two helicopters to the pick up point and Army gunships began firing into the enemy positions around the rescue operation. They poured a heavy concentration of rockets, grenades and 7.62 mm mini-gun fire into areas on each side and in front of the vulnerable HUSKIES as the helicopters hovered at tree top level. Within 15 minutes the five soldiers were lifted aboard and the HH-43s were leaving the area as Air Force jet fighters moved in to attack the enemy.

Both rescue helicopters were from Det 6, 38th ARRSq, Bien Hoa AB. Manning one HH-43 were Capt James A. Darden, Jr., RCC, 1stLt Jon C. Long, RCCP; SSgt Donald S. Kearton, FE; and A1c Terrence A. Treutel, RS. In the other HUSKIE were Capt Charles W. Burrige, RCC; LtCol Robert J. Kavanagh, RCCP; Sgt Robert A. Sloat, FE; and A1c Gunther Bahrenburg, RS.

Bien Hoa (7AF)—Capt James A. Darden, an HH-43 pilot with Det 6, 38th ARRSq., at Bien Hoa AB has received the Military Airlift Command's (MAC) 5,000-hour safe flying award. In a congratulatory letter, Gen Howell M. Estes, Jr., MAC commander, told Captain Darden, "The success of MAC depends entirely on people like you."

The Captain came to Vietnam in September from Aviano AB, Italy. There he earned the Air Force's Cheney Award in 1965 for saving the life of an Italian citizen during the disastrous floods that year. He was part of an HH-43 rescue crew at the time.

Under the MAC 5,000-hour program pilots of helicopters and single-engine aircraft receive two hours of credit for every one hour they fly. Captain Darden, who has piloted helicopters for the past 10 years, has a total of 2,752 flying hours.

An HH-43B crew from Det 13, 38th ARRSq, Phu Cat AB, scrambled with a fire suppression kit after word was received that an Army helicopter had crashed five miles from the base. When it was later learned that the downed chopper was 15 miles from the base and in a river, Maj Bert E. Cowden, RCC, left the FSK with friendly forces and continued to the crash site. The unescorted flight was made over hostile, rugged territory and through a mountain pass where low hanging clouds were encountered. Five survivors were picked up by the HUSKIE and delivered to safety. Copilot on the mis-



NUMBER 500 MOVES OUT—An HH-43 HUSKIE rescue helicopter from Det 7, 38th ARRSq, Da Nang AB, stands by with rotors churning as the 500th litter patient of the year is loaded aboard for air evacuation. (USAF photo)

sion was 2ndLt Kurt O. Diefenbach and the medical technician was SSgt Felix H. Havis. Rescue specialists were SSgt Noel S. Davidson and Sgt Andrew J. Andrews.

"My people are very proud of the med-evac job they are doing. It is particularly rewarding to know that we have contributed in no small way towards the eventual recovery of many of these critically wounded Marines and soldiers."

Maj William E. Cline, commander of Det 7, 38th ARRSq, at Da Nang AB was referring to the unit's activity in airlifting more than 500 patients to hospitals last year in addition to the primary mission of aircrew rescue. All of the litter patients are delivered by the Det 7 HH-43 HUSKIE crews to either the Naval Support Activity Hospital at nearby Marble Mountain or to the Navy hospital ships, *Repose* and *Sanctuary*.

The 500th litter patient—a Marine with a serious head wound, suffered during a mortar barrage near Con Thien—was airlifted in mid-December. The wounded man was first taken to Dong Ha airstrip, where an Air Force C-123 had been diverted to make the pickup, and then flown to Da Nang. From there an HH-43 crew flew him to the Naval Hospital at Marble Mountain. Within an hour after being wounded, "Number 500" was receiving expert care by a team of Navy doctors.

Maj Herbert V. Staudemaier, who commands the 903rd Aeromedical Evacuation Squadron at Da Nang, said, "The evacuation by chopper is probably the difference between living and dying for many of these casualties. Detachment 7 helicopter support has been tremendous. They're always there when we need them."

Det 7 is also there when downed airmen need them. Since its organization in December, 1964, more than 175 combat saves have been made by the unit. Last year detachment crews flew their HH-43 HUSKIES on almost 1900 sorties and more than 625 intercept missions were flown while carrying the fire suppression kit. Within recent months, members of Det 7 have been awarded three Silver Stars, two Distinguished Flying Crosses, 48 Air Medals, two Bronze Stars, three Airman's Medals, two Purple Hearts and five Air Force Commendation Medals.

The Army helicopter had been on a night firing pass when it was brought down in hostile territory about five miles from Cam Ranh Bay AB. Despite the danger, the HH-43 crew from Det 8, 38th ARRSq, at the base, used flares and the lights on the helicopter in an attempt to

locate survivors. When a critically injured soldier was found near the fiercely burning aircraft, the medical technician, SSgt George S. Armstrong was lowered to the ground. Disregarding flying shrapnel from ordnance exploded by the heat, Sergeant Armstrong calmly attended the injured soldier's wounds and then he and the survivor were hoisted aboard the HUSKIE. Maj Armand J. Fiola was RCC and 1stLt Willie L. Farrow was RCCP. Sgt Larry E. Lancaster was flight engineer.

In an earlier mission, Major Fiola and an HH-43 crew flew through 25-knot winds to a US Coast Guard cutter in the South China Sea and evacuated a seriously injured seaman. The ship was forced to face into the heavy seas so Major Fiola hovered the helicopter downwind above the rolling, tossing vessel. A stokes litter was lowered and the injured patient and two medical attendants were hoisted into the HUSKIE. Others aboard the rescue helicopter were 1stLt Roy M. Litzen, copilot; SSgt Thomas Hand, flight engineer; and SSgt Jacob V. Carter, medical technician.

Cam Ranh Bay (7AF)—Maj Jerry D. Stroh from Det 8, 38th ARRSq, recently flew his 2000th hour in the HH-43. He is among the first USAF pilots to log this number of hours in the HUSKIE. The first was Capt Bert E. Cowden, now a Major flying with Det 13, 38th ARRSq, Phu Cat AB, RVN. The first Navy pilot to accumulate 2000 hours in the UH-2 SEASPRITE was Lt Charles Kiseljack of HC-2, NAS Lakehurst, N.J.

Four members of a five-man crew from a downed US Army helicopter were rescued by an HH-43 crew from Det 9, 38th ARRSq, Pleiku AB. When the HUSKIE arrived at the brush-covered crash site, five miles from the base, the stunned crew was crawling out of the wrecked helicopter. Two Army helicopter gunships and a forward air controller were flying overhead to give cover in case hostile forces attacked. Sgt Wayne A. Baguio, pararescueman, was lowered through the jungle canopy to aid the injured. Two were hoisted to the HH-43 at one time and then two more survivors and approximately 400 pounds of gear and ammunition from the downed helicopter were taken aboard the HUSKIE. The fifth soldier elected to await the arrival of an approaching ground party, so the Det 9 chopper headed for Hensel Field near Pleiku. Capt Jack V. Butler was RCC of the HH-43 and Maj Richard A. Smith was pilot. The flight engineer was TSgt Dale G. Haley.

A few weeks earlier an almost identical mission was flown by another Det 9 crew after an Army helicopter crashed six miles from the base. Manning the HH-43, which rescued five soldiers were Capt Keith H. Ricks, RCC; Capt Robert L. Osborne, copilot; and SSgt Arthur L. Wood, flight engineer.

Pleiku (7AF)—LtCol Harold O. Hoppe has assumed command of Det 9, 38th ARRSq, at Pleiku AB. A veteran of 21 years service, he was previously assigned to USAF Headquarters. For 15 years LtCol Hoppe was a combat crew commander in SAC B-47 jet bombers and, during World War II, he flew B-24 bombers in the Pacific Theater.

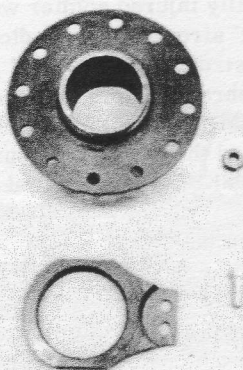
Using a combination of teamwork and know-how, a maintenance crew from Det 9 changed the rotor blades on an HH-43 HUSKIE in one hour and 10 minutes. Each of the blades is approximately 26 feet long and, normally, such a complete blade change takes about three hours.

Headed by TSgt Willie Bostic, Jr., dock chief, the team set up for their "operation" in a revetment. After laying out all the equipment and tools in the order needed, they were briefed and then began on the blade change. Other team members were SSgt Roy T. Trent, Sgt Spencer J. Watson, and A1c Robert E. White.

Installation Of Spacer Flange And Nut On UH-2 Tail Landing Gear

by

J. Bycenski, Group Leader, UH-2 PAR/Mod



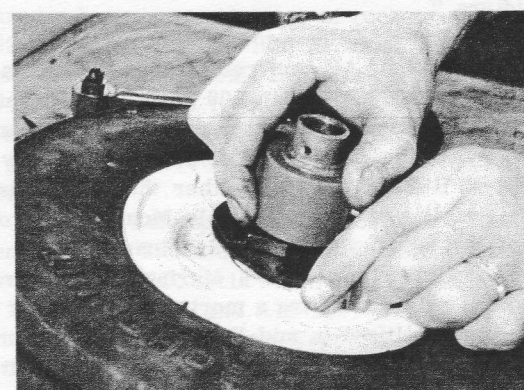
A

Proper installation starts with threading the spacer nut (lower part, View A) onto the spacer flange (upper part View A). Make sure the nut is threaded properly, without binding, then tighten fingertight. Assemble the wheel and tire assembly between the wheel fork. Place the assembled spacer flange and nut onto the right side of the wheel with the flange against the wheel. Install and secure the wheel axle. Hold the tire as shown in View B and alternately lift up and push down. Any movement indicates wheel side play and must be eliminated in order to position the wheel bearings against the bearing races. Eliminate wheel side play by unscrewing the spacer flange and nut. Hold the nut as shown in View C and turn the flange clockwise. (Or hold the flange and turn the nut counter-clockwise.) This increases the space between the flange and the nut and forces the wheel assembly to move toward the opposite wheel fork. When the flange is snug, hold the tire as shown in View B and check for side play. Repeat the procedure until side play has been eliminated. Align one hole in the nut with the nearest hole in the flange. Secure the assembly together with the screw and nut, then lockwire to the next pair of holes. Once this has been accomplished, note that the spacer flange and nut is capable of revolving with the wheel without causing damage.

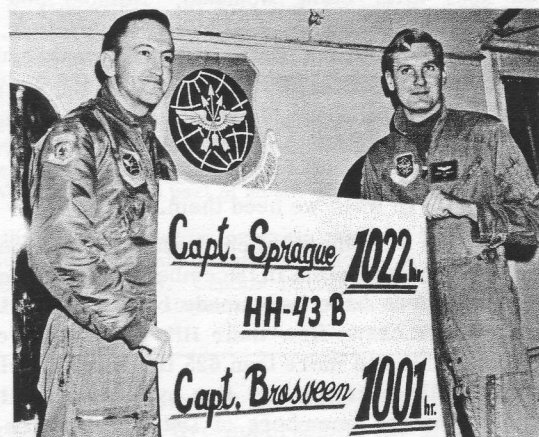
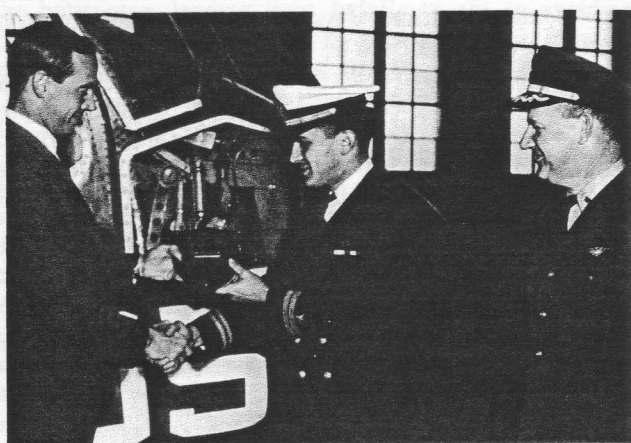
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C

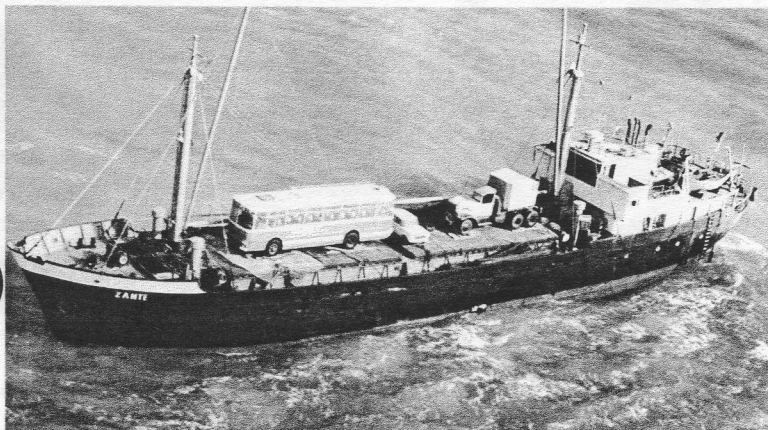


— 1000-Hour Pilot Awards —



In left photo SEASPRITE pilot Lt David A. Hubbs of HC-2, NAS Lakehurst, N.J., is presented a 1000-hour plaque by Horace F. Field, Kaman senior service representative as Cdr J. H. Hartley, HC-2 executive officer, looks on. In right photo, Capt Joseph W. Sprague left, and Capt Douglas A. Brosveen of Det 4, CARRC (MAC), Duluth International Airport, Minn., proudly advertise the fact that they have passed the 1000-hour mark in the HH-43. Lt Ghasem Goljahani of the Imperial Iranian Army is another HH-43 pilot who also became eligible for the plaque awarded to pilots logging 1000 hours in helicopters produced by Kaman. Other pilots who recently qualified for the award are: UH-2 SEASPRITE — LCdr James T. Denny, SAR Unit, NAS Pensacola, Fla. and Lt Robert H. Hamel of HC-2. HH-43 HUSKIE — Maj Walter C. McMeen and Capt David C. Weber, Det 16, WARRC (MAC), Williams AFB, Ariz.; Maj Edwin J. Christy, Det 14, EARRC (MAC), MacDill AFB, Fla.; Capt Delford G. Britton, Det 2, ARRC (MAC), Upper Heyford, England; Capt Eugene H. Boortz, Det 8, 38th ARRSq, Cam Ranh Bay, RV. (USN and USAF photos)

HH-43 Crews Aid Shipwreck and Flood Victims



RESCUED--Italian sailors from the grounded ship Zante, left, arrive on the Wheelus AB flight line after being picked up by the HH-43B helicopter in the background. LtCol William Bright, Jr., commander of the 58th ARRSq, was on hand at right to greet them. (USAF photo by SSgt Jack Cain)

WHEELUS AB, LIBYA...Two Wheelus rescue helicopters braved heavy seas and 35 mph winds to lift eight seamen from a stricken Italian freighter 49 miles west of here. The 1,000-ton Zante had reported she was aground three-fourths of a mile off-shore with her engine room flooded and heavy seas washing over her decks. After other vessels tried unsuccessfully to remove the crew, the Tripoli Port Authority asked for the specially-equipped helicopter.

Wheelus' 58th ARRSq dispatched two HH-43B turbine-powered helicopters to the scene at 9:30 a.m. The first chopper lowered MSgt William Daniels, a pararescue man, to the deck and he instructed the crewmen in the proper use of the rescue sling. Six sailors were picked up by the first HUSKIE and two by the second. The Zante's master and engineer remained aboard, hopefully to supervise the towing of the ship as soon as the seas subsided.

The rescue effort lasted about 20 minutes and the ship's crew, all in good condition, were brought back to Wheelus shortly after 11 o'clock.

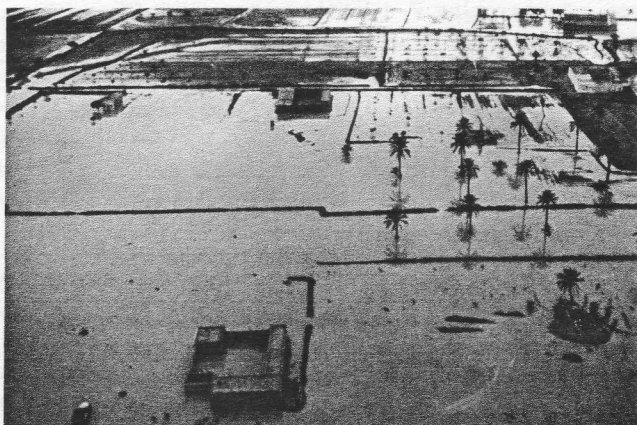
The first HH-43B crew included Maj Thomas Fallows, pilot; Maj Roy Crawford, copilot; SSgt Robert DiBenedito, flight engineer; and Sergeant Daniels. The second helicopter's crew were Capt Gayle Bernhardt, pilot; Maj Edwin Henningson, copilot; and Sgt Terry Stark, flight engineer.

It was the second time in a three week period that Wheelus rescue helicopters had aided during local emergencies. Earlier, two HH-43Bs and a C-47 transport flew to the Libyan town of Zliten, 69 miles from the base, to aid flood victims.



Working at the request of Brigadier Ali Aghil, deputy director of the Libyan National Security Forces, Western Region, a Wheelus-based HH-43B transported blankets, food and tents to the stranded townspeople. Security Forces trucks had brought the supplies to the edge of the flooded area. A second helicopter ferried aviation fuel to the scene so that the rescue efforts of the first chopper could continue without interruption. The C-47 circled over Zliten during the operation and served as a communications link with the base.

The rescue helicopter crew, all members of Wheelus' 58th ARRSq, included Capt Darvan Cook, pilot; Capt Grant Kerber, copilot; Sgt Norbert Nischke, flight engineer; SSgt Elmer Chappell, medical technician; Sgt Glynn Picklesimer, medical technician; and SSgt Henry Madendjian, interpreter. The 58th is one of 15 rescue units controlled by the Atlantic Aerospace Rescue and Recovery Center. AARRC is commanded by Col Saleen Aswad, and headquartered at Ramstein AB, Germany.



FLOOD AID--An HH-43B from the 58th ARRSq lifts off after taking on a load of emergency supplies from a Libyan National Security Forces truck. The supplies were flown to the stranded residents of the flooded town of Zliten, right. (USAF photo)

Huskie Happenings



.... Help and presents — both were given Christmas night by an HH-43B crew from Det 18, EARRC (MAC), Thule AB, Greenland. Base personnel had collected fruits and candy for Eskimo children at Mannusauk, but an Arctic storm prevented delivery. Then came a call from the village — a young Danish schoolteacher and her Eskimo sled driver were there, suffering from frost bite and exhaustion. Capt. John C. Flournoy and his crew took off into the enveloping darkness of the arctic night and, flying just above the sea ice, headed for Mannusauk. On the half-hour flight the landing and flood lights were used to spot the icebergs which suddenly loomed ahead. Once at Mannusauk, the presents were delivered and then the HUSKIE made the same hazardous trip back to the base with the two patients. They had been caught in the storm and, after building a shelter for the teacher, the sled driver fought his way through the storm to Mannusauk and the villagers went to the woman's aid. With Captain Flournoy were Capt Harold L. Hiner, copilot; Sgt James F. Wittfeldt, crew chief; Capt J.A. Armstrong, MC; and Jens Zinglersen, an interpreter.

... Two civilians stranded on a rock in the middle of the rain swollen Green River were rescued by an HH-43B crew from Det 5, WARRC (MAC), at McChord AFB, Wash. The two men had been riding the river in a rubber boat when it ran into difficulty. To make the pickup, Maj Erling R. Drangstveit made an approach which coincided with the direction of the river which was lined with tall trees on one side and a cliff on the other. Rotor blade clearance was approximately 15 feet and the swiftly running water below made it difficult to hover directly over the spot. The public address system on the HUSKIE was used to direct one of the rescuees when he started to enter the sling backwards. With Major Drangstveit were 1stLt John F. Kolar, copilot; SSgt Gerald J. Linson, crewchief; and MSgt John T. Brown, medical technician....

Four pilots were rescued on the same day by HH-43B crews from Det 14, EARRC (MAC), MacDill AFB, Fla. A HUSKIE piloted by Maj James N. Madsen, with 1stLt Billy C. Marcontell as copilot, was on the way to the Avon Park Bombing Range when an F-4 crashed on Charlie range. A few minutes later, the HUSKIE located one of the two pilots who had bailed out and Lieutenant Marcontell used the helicopter public address system to tell him the HH-43 would locate the second pilot and then return. The other pilot, an RAF exchange officer, was sighted soon afterward. Major Madsen hovered the HUSKIE at 65 feet above a small clearing in the midst of the 100-foot trees and Sgt Terrance C. Henry, medical technician, and Sgt Longino Franco, rescue specialist, were lowered to the ground by Sgt Johnny W. Shipman, flight engineer. After one pilot was hoisted to the helicopter, Sgt Harold J. Marten, rescue specialist, left the aircraft and aided the others in carrying the second survivor through the thick underbrush. He was given first aid by Sergeant Henry on the flight to the hospital. In the second mission, two pilots who ejected from an F-4 were rescued from rafts in Hillsborough Bay by an HH-43B piloted by LtCol Archie R. Taylor. Alc Leonard S. Whitmer was the hoist operator and made both recoveries. The survivors were given first aid by TSgt Haydn T. Poore, medical technician, on the flight to the hospital. Other members of the HUSKIE crew were SSgt Joseph A. Renaud and Sergeant Franco, rescue specialists.

... An HH-43B crew scrambled after Det 25, EARRC (MAC), Eglin AFB, Fla., was notified that the pilots in an F-4 had ejected over the Gulf of Mexico. An HH-53 and Coast Guard cutter also headed for the area. A searching F-4 located the downed fliers, in rafts about 100 yards apart, 18 miles from shore. After the HUSKIE made radio contact with one of the survivors, a large sea dye pattern was established and then flares were lit when the HH-43 arrived. Some slight difficulty arose in hoisting the first survivor — he was still attached to his survival gear — but Capt Robert R. Reeves lowered the helicopter and the rescuee was cut free. The public address system was utilized on the second pickup and no further problems were encountered. Both pickups were made within six minutes after the HUSKIE arrived on the scene. First aid was given to the rescuees by Alc Neal K. Johnson, medical technician. Others aboard the HH-43 were TSgt Robert E. Runniger, flight engineer, and TSgt Rodney L. Griffith, rescue specialist.

... A routine training mission turned into an actual rescue for an HH-43B from the 67th ARRSq, Moron AB, Spain. Sighting an explosion, Capt Guy S. Hahn turned the HUSKIE toward the area. At the same time the tower advised an RF-4C could not be contacted by radio. Heavy rain and light to moderate turbulence was encountered on the way and, as the HUSKIE approached the site, further explosions were observed. The two RF-4C pilots, holding pen gun flares, were then located in an olive grove and picked up. They arrived at the base hospital six minutes after the first explosion was sighted by Captain Hahn. Capt Charles I. Rice was HH-43 copilot; SSgt James E. Neville, medic; and Sgt Fred L. Jessee, fireman....



2,000 FLYING HOURS - Members of Det 5, WARRC (MAC), McChord AFB, Wash., pose in front of a HH-43B HUSKIE. The aircraft and its sister "chopper" (left, background) have each logged over 2,000 hours in the air. Det 5 members man the helicopters in local rescue operations. (USAF photo)

CURRENT CHANGES

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

	Issue Date
H-2 Airframe Change 97 - Fuel System, FUEL QUANTITY GAGE AMPLIFIER REPOSITIONING	1 March 1968
H-2 Airframe Change 108 - Communication System, INSTALLATION OF AN/ARC-52X RADIO SET	1 March 1968
H-2 Airframe Change 113 - Fuel System LARGER AND IMPROVED FUEL FILTER PROVISIONS	9 February 1968
H-2 Airframe Change 154 - UH-2C Helicopter, MODIFICATION OF UH-2A/UH-2B HELICOPTERS AND COMPONENTS TO UH-2C CONFIGURATION	15 December 1967
H-2 Airframe Change 159 - Transmission System, UH-2C, IMPROVED ROTOR BRAKE DISC	15 February 1968
NAVAIR 01-260HCA-2-2 - Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C Helicopters, AIRFRAME	1 October 1967 Changed 15 January 1968
NAVAIR 01-260HCA-2-4 - Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C Helicopters, POWER PLANT AND RELATED SYSTEMS	1 October 1967
NAVAIR 01-260HCA-2-4 - Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C Helicopters, POWER PLANT AND RELATED SYSTEMS	1 October 1967 Changed 1 February 1968
NAVAIR 01-260HCA-2-5 - Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C Helicopters, AUTOMATIC STABILIZATION EQUIPMENT	1 October 1967
NAVAIR 01-260HCA-2-5.1 - Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C Helicopters, INSTRUMENTS	1 October 1967 Changed 15 January 1968
NAVAIR 01-260HCA-2-6 - Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C Helicopters, ELECTRICAL SYSTEM	1 October 1967 Changed 1 February 1968
NAVAIR 01-260HCA-2-7 - Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C Helicopters, RADIO AND RADAR SYSTEMS	1 October 1967 Changed 1 February 1968
NAVAIR 01-260HCA-2-8.1 - Manual, Maintenance Instructions, Navy Model UH-2C Helicopters, WIRING DATA	1 October 1967 Changed 15 January 1968
NAVAIR 01-260HCA-4-1 - Illustrated Parts Breakdown, Navy Model UH-2A/UH-2B Helicopters, ROTORS AND CONTROLS	1 December 1965 Changed 1 December 1967
NAVAIR 01-260HCA-4-4 - Illustrated Parts Breakdown, Navy Models UH-2A/UH-2B Helicopters, RADIO AND ELECTRICAL	15 January 1967 Changed 15 January 1968
NAVAIR 01-260HCA-4-6 - Illustrated Parts Breakdown, Navy Models UH-2A/UH-2B Helicopters, AIRFRAME	15 October 1962 Changed 1 December 1967
NAVAIR 01-260HCA-4-8 - Illustrated Parts Breakdown, Navy Models UH-2A/UH-2B Helicopters, NUMERICAL INDEX AND REFERENCE DESIGNATION INDEX	15 January 1967 Changed 15 January 1968
NAVAIR 01-260HCB-4-1 - Illustrated Parts Breakdown, Navy Model UH-2C Helicopters, NUMERICAL INDEX AND REFERENCE DESIGNATION INDEX	1 June 1967 Changed 1 March 1968
NAVAIR 01-260HCB-4-2 - Illustrated Parts Breakdown, Navy Model UH-2C Helicopter, AIRFRAME	1 June 1967 Changed 1 December 1967
NAVAIR 01-260HCB-4-5 - Illustrated Parts Breakdown, Navy Model UH-2C Helicopters, POWER PLANT AND RELATED SYSTEMS	1 June 1967 Changed 15 February 1968
NAVAIR 01-260HCA-4-8 - Illustrated Parts Breakdown, Navy Model UH-2C Helicopters, RADIO AND ELECTRICAL	1 June 1967 Changed 15 January 1968
NAVAIR 03-10KAM-1 - Manual, Overhaul Instructions, Navy Model UH-2A/UH-2B Helicopters, FUEL SYSTEM	15 November 1965 Changed 1 December 1967
NAVAIR 05-10-90 - Manual, Overhaul Instructions, FREQUENCY LIMIT INDICATOR, P/N KA00125-5 Navy Models UH-2A/UH-2B Helicopters	15 August 1965 Changed 1 November 1967
NAVAIR 05-10-91 - Illustrated Parts Breakdown, FREQUENCY LIMIT INDICATOR, P/N KA00125-5, Navy Models UH-2A/UH-2B Helicopters	1 November 1967
Support Equipment Change 802 - Modification of Hoist Assembly, Part Number K604013-1 to K604013-301	1 March 1968
Support Equipment Change 867 - Modification of Air Log Adapter Assembly, Part Number K604505-1 to K604505-101	8 December 1967
T.O. 14S6-3-1 - Technical Manual, Operation and Maintenance with Parts List, FOREST PENETRATOR, RESCUE SEAT ASSEMBLY, P/N K26-1000-5	15 January 1968
T.O. 33D2-35-2-1 - Technical Manual, Operation and Service Instructions with Illustrated Parts Breakdown, FLIGHT LINE TEST SET, P/N K704606-1, -2	27 June 1966 Changed 15 February 1968

F. G. Weber, Supervisor, Service Publications

1966

SCROLL OF HONOR

Hagerman, Eddie, TSgt, USAF
 Hammond, Gerald C., Jr., A1c, USAF
 Hanutke, Frank P., A2c, USAF
 Haraway, Reeds L., A1c, USAF
 Harmsen, Eugene L., MSgt, USAF
 Harrison, Ewton H., A1c, USAF
 Haynes, Clarence, A2c, USAF
 Haynes, J.S., ADJ1, USN
 Helton, Osie C., Civilian
 Henningson, Edwin A., Capt, USAF
 Hepp, Bruce C., Capt, USAF
 Hilley, J. R., AE2, USN
 Holmes, Michael P., A1c, USAF
 Houghtaling, William L., A2c, USAF
 Howe, Michael E., Lt(jg), USN
 Hughes, Dennis C., A1c, USAF
 Hull, Harry J., A1c, USAF
 Jansa, James F., Capt, USAF
 Jenkins, Charles, SSgt, USAF
 Johnson, James E., MSgt, USAF
 Joiner, Carlos L., A2c, USAF
 Kay, Charles R., Capt, USAF
 Kedziarski, Richard A., AD2, USN
 Kellermann, Helmut, A2c, USAF
 Kelsey, Roy E., A2c, USAF
 Kessler, Maurice G., Maj, USAF
 Keto, John R. ADJ3, USN
 Kidwell, J. A., AMS1, USN
 Kilic, Ilhan, Capt, TAF
 King, Karl G., Capt, USAF
 Kneen, John B., Capt, USAF

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 Layton, James M., Capt, USAF
 Liddle, Howard R., ADR2, USN
 Litzinger, R. J., AMS3, USN
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 Loud, Robert S., SSgt, USAF
 Lowery, Darrell A., Capt, USAF
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 Mapes, Delmar F., TSgt, USAF
 Marcum, Lawrence F., Capt, USAF
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 Mayeux, Glenn P., A1c, USAF
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 McCracken, David J., LCdr, USN
 McCullough, Raymond K., LCdr, USN
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 McFadyen, Robert G., AE3, USN
 McMonigle, Joseph P., Capt, USAF
 Meiling, Jaque L., Lt, USNR
 Melecovsky, Timothy B., Lt(jg), USN
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 Michelsen, Robert S., Capt, USAF
 Milsten, David E., SSgt, USN
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 Mullen, James E., Lt, USN
 Munro, William, LCdr, USN
 Murden, Raymond L., Capt, USAF

Murray, Ronald W., 2ndLt, USAF
 Nadler, Charles P., Capt, USAF
 Nakamura, Albert T., A2c, USAF
 Nilsen, William R., A1c, USAF
 Northern, Steve M., A2c, USAF
 O'Beirne, Henry J., A1c, USAF
 Owen, H. S., ATN2, USN
 Paparella, Andrew C., A1c, USAF
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 Passiglia, John S., Ens, USN
 Pellegrino, Salvatore J., ADJ3, USN
 Pemberton, Everett G., AN, USN
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 Petty, Gerald L., Capt, USAF
 Pharaoh, Edward E., Capt, USAF
 Pickering, Harold, Capt, USAF
 Pitsenbarger, William H., A1c, USAF
 Poole, Braddy E., TSgt, USAF
 Potter, Dale L., Capt, USAF
 Price, Russell W., A1c, USAF
 Prince, Philip S., Maj, USAF
 Randall, David M., Maj, USAF
 Ream, Richard T., AT3, USN
 Reilly, Robert A., Lt, USAF
 Renard, Ronald E., A1c, USAF
 Rice, Charles I., Lt, USAF
 Rice, Francis D., A2c, USAF
 Riederich, John B., Capt, USAF
 Rigby, Michael J., ATN3, USN
 Rivers, Donald M., SSgt, USAF
 Robertson, Gary E., Capt, USAF

KAMAN AIRCRAFT

THE PERSONNEL ABOVE WERE HONORED FOR THEIR SKILL, COURAGE AND JUDGEMENT DISPLAYED WHILE PARTICIPATING IN RESCUE OR MERCY MISSIONS PERFORMED UNDER ADVERSE OR HAZARDOUS CONDITIONS WHILE FLYING IN KAMAN HELICOPTERS.