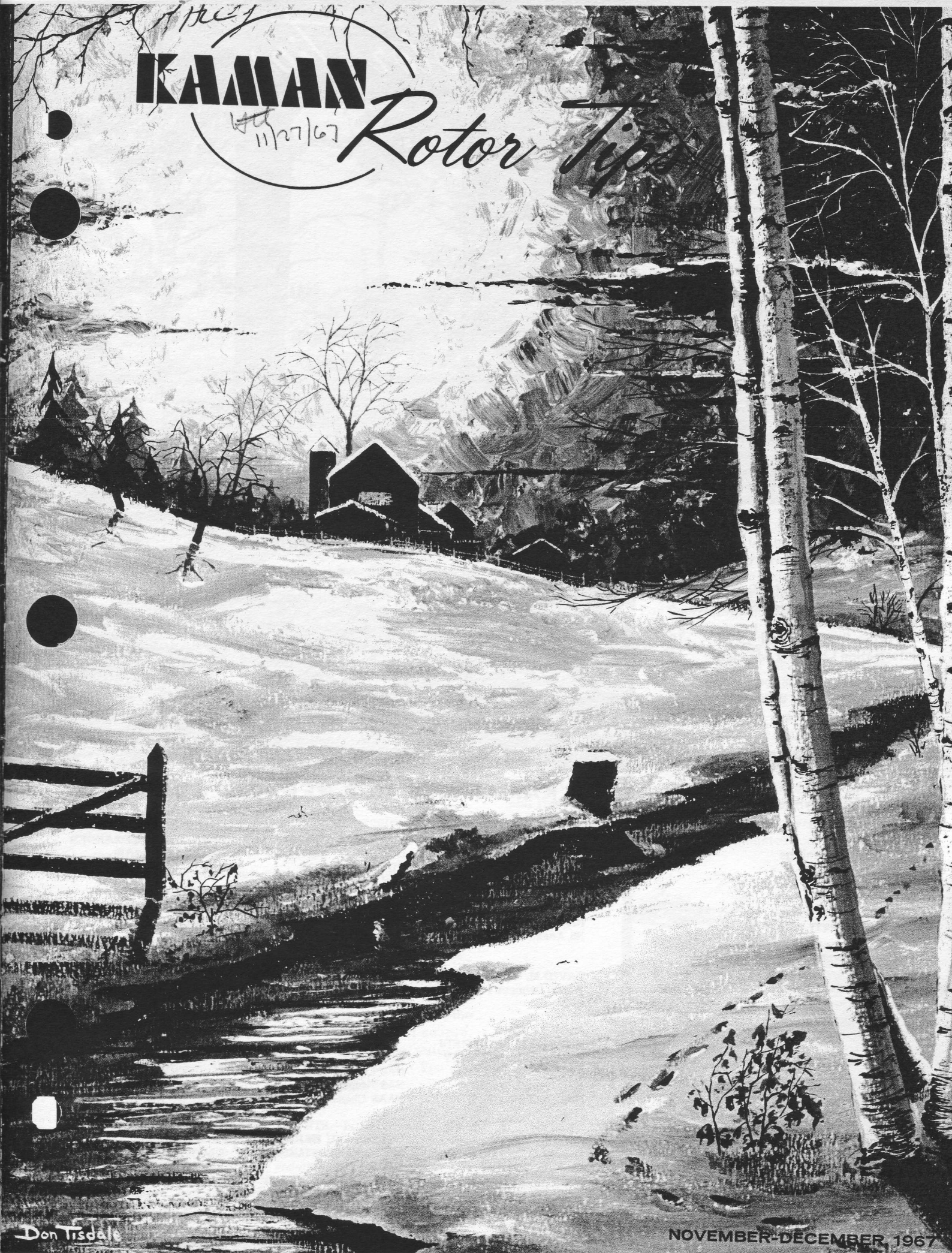


*the*  
**KAMAN**

11/27/67

# *Rotor Tip*



Don Tisdale

NOVEMBER-DECEMBER, 1967

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## ON THE COVER

May the Christmas spirit extend all over the world and throughout the year. Cover by Donald Tisdale, Service Publications.

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*Editor*

**EVERETT F. HOFFMAN**

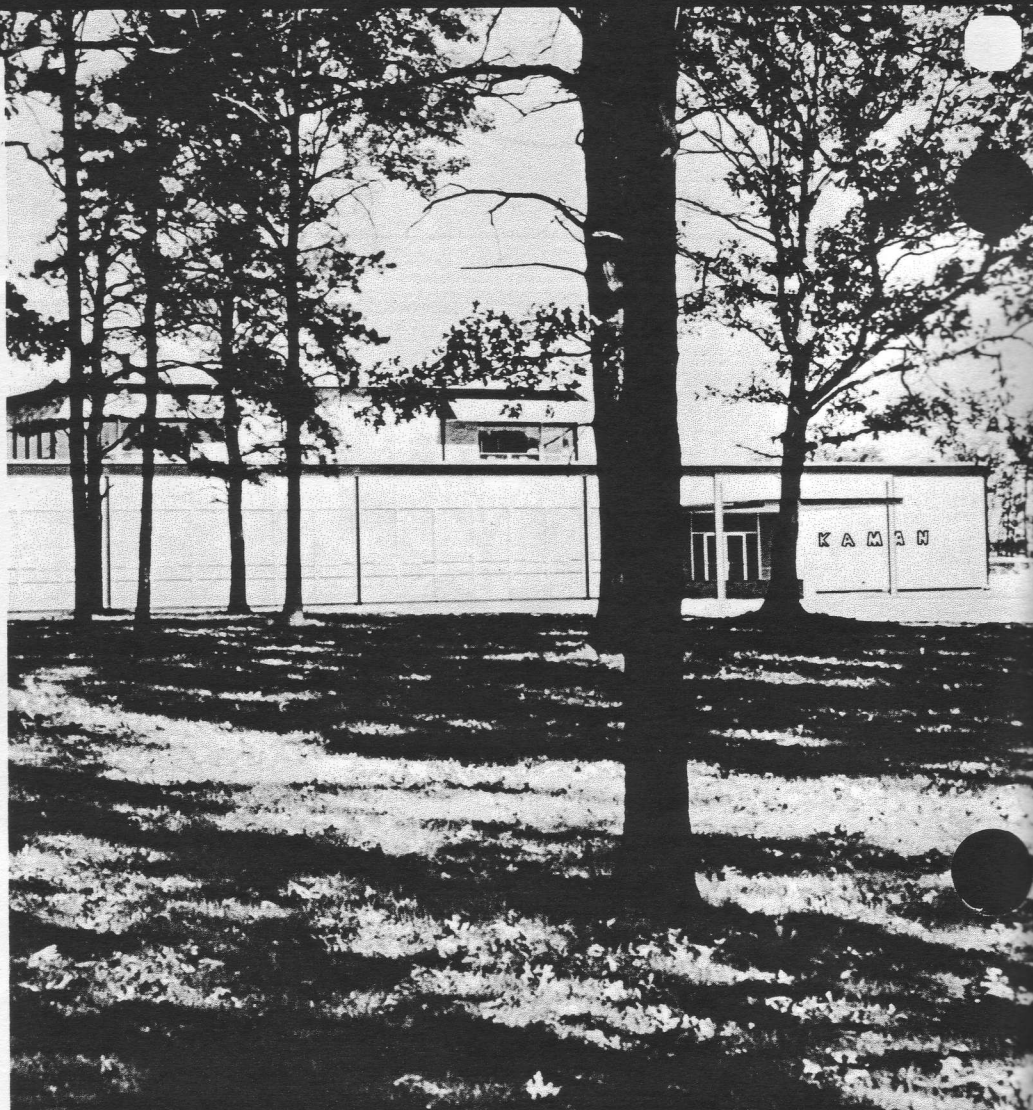
*Editorial Assistant*

**SHIRLEY M. EDMONDS**

*Technical Writer*

**JOHN P. SERIGNESE**

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# WHAT A LIFE!

by AE2 Ron E. Hall  
NATC Patuxent River

What a life it must be... to be a SAR crewman!

Everywhere you go, naval air stations, aircraft carriers or cruisers, large and small, you'll probably find this guy dressed in flight gear either in the exchange drinking coffee, in the back of the "FOLLOW ME" truck smoking a cigarette, or just lounging around the operations area doing, seemingly, nothing. Almost anyone with any time in service knows better, however, for when they see this casual character with the SAR letters on his cap they know what he has done — and is prepared to do again — when the urgent call, "Launch the helo," is sounded. Of course there are those unfamiliar with Sea-Air Rescue work who can't help but wonder at the apparent inactivity. For their benefit, let's throw the question uppermost in their minds at the crewman over there in the easy chair. "How did you ever swing a soft billet like this?" we ask.

After a few choice remarks about people disturbing other people trying to rest, he calms down and explains that the first step is to volunteer for the six-month training period and then pass the flight physical. With these two steps behind him the would-be SAR crewman goes on to the classroom where almost a dozen types of military aircraft, their escape systems and survival equipment are studied day-after-day and over-and-over until every aspect is known thoroughly — no margin for error is left in this kind of instruction. Then it's off to the swimming pool for a little recreation in the form of a lifesaving course. This being terribly easy to pass, the SAR trainees do it with their flight gear on. Of course, they can take their boots off — while in the water — which leaves just the clothing to contend with. You can swim in a flight suit but Bikinis are better!

**WHERE PROFICIENCY COUNTS**—In top photo, a UH-2 SEASPRITE crew from the USS Hancock and a destroyer move to rescue pilot parachuting into South China Sea. In second photograph, underway replenishment of USS Kitty Hawk by Fleet Oiler Kawishiwi shows simultaneous cargo, fuel and personnel transfers. (USN photos courtesy of "All Hands" magazine.)

After swim-time comes "vacation." The trainees are taken to a rugged area similar to the Navy's Mount Palomar Training Camp where they are left with a survival kit, their flight gear, and a few kind words. This week-long holiday is primarily devoted to a search for food and shelter. For entertainment the trainees try to divert and escape from a simulated "enemy" which the Marines thoughtfully provide. If the weather is sufficiently cooperative, it rains a good deal of the time. Finally, at weeks end, the tired and slightly hungry trainees are "welcomed" into a "POW Camp" where interrogation takes place in a very realistic manner. After this is completed, those who have qualified return to their base to continue training. This time it's rescue hoists, hooks, seats, booms, nets, litters, grips, slings, and various other pieces of equipment and their proper and improper use. Then into the helo for familiarization with normal procedures, emergency procedures, signal communication, voice communication, and hoist





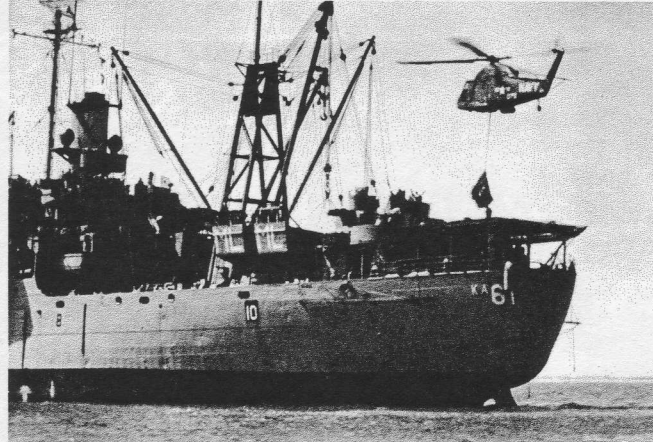
**ALL IN THE LIFE OF A SAR CREWMAN**—A familiar sight to a SAR crewman is the busy flight deck of an aircraft carrier; a practice swim to keep "rescue ready" is routine. (Photos by Donald L. Wright, AMH1, HC-2, NAS Lakehurst, N.J.) In third photo, a UH-2 picks up supplies from the attack cargo ship USS Muliphen. (USN photo - "All Hands" magazine.)



operation. How to use them and use them properly and efficiently, is a must!

With the course nearing completion, the trainee is loaded aboard a helo and taken to a site where his instructor goes into the water and the student puts all his training to use. He practices normal pick-ups using the proper equipment and procedures until he is thoroughly familiar with them all. Now the student is ready for the next step toward qualification—he goes "down the wire" to rescue the instructor. However, the "rescuee" turns out to be anything but friendly and helpful. Simulating someone who is both wounded and panicky, he grabs and clutches at the budding SAR man or he may merely be "unconscious" and as cooperative as a wet noodle; possibly the instructor may try both. Once the student learns to maneuver the instructor and get him safely back into the helo, and after many similar hectic and frustrating drills, the trainee becomes a first rate Sea-Air Rescue crewmember.

No, that's not all, only the beginning! His reward is, normally, a billet on a nice big aircraft carrier which is deploying. And what a life this is! Helo flight quarters at least an hour before the planes in the Carrier Air Wing take off. Now is the time for delivering mail, personnel, and parts to the carrier's escort ships and returning others for delivery to shore in a fixed wing aircraft BUT, always be back in time for operations, so he refuels and back into the air to make "donuts" while the ship's aircraft are launched on sortie after sortie. This continues until flight operations secure, usually between 12 and 14 hours on a normal day. Yes, "secure from flight quarters" is a great sound for most of those on the ship to hear but not so much for the helo crew. Now is the time for underway replenishments or high-line



transfers and, of course, the helo is standing by in case someone should be swept overboard. Finally, a rest! Helo operations are secured and the only thing left to do is take the helicopter below and clean it with fresh water, service it, fix any discrepancies and have it ready for the next flight. Now he can rest—rest in a ready condition, for there's always the possibility of a man overboard or other emergency in which the helo is needed. Gratefully he slumps back in a chair, shoves his cap with its SAR lettering down over his eyes and relaxes.

These crewmen operating at sea have rescued over 1500 aviators and sea goers in the past five years. Almost one every day!

Then he gets his shore billet. Here the primary mission remains the same but the sounds change somewhat. He listens instead for "Aircraft on emergency—launch the helo." A boat has just capsized in the bay. "Launch the helo." A severe accident and an emergency patient for the hospital. "Launch the helo." On and on, seven days a week, 24 hours a day there will be a SAR man sitting in the exchange drinking his coffee, or napping in the lounge, standing by—waiting—for that familiar sound. This highly-trained and devoted SAR crewman is always ready to "launch the helo" so that someone, somewhere, will be given the greatest possible chance for survival.



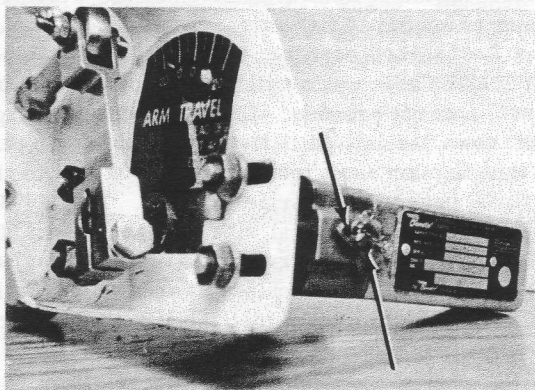
**THE AUTHOR**—SAR crewman R. E. Hall, AE2, after a UH-2 mission that saved a pilot from the South China Sea. (USN photo)

# UH-2 EMERGENCY ACTUATOR RIGGING

by Herman Zubkoff  
Service Engineer

Whenever a new fuel control or emergency actuator is installed, or the relationship between the two is disturbed, the actuator must be rigged or re-rigged to the fuel control. In either case, if the actuator is improperly rigged, the resultant stoppage or binding will cause an electrical or mechanical failure in the actuator or limit throttle movement. The actuator produces rotary movement which, through linkage, is converted to linear movement. Because the available rotary movement is greater than the available linear movement, the actuator must be properly rigged to the fuel control.

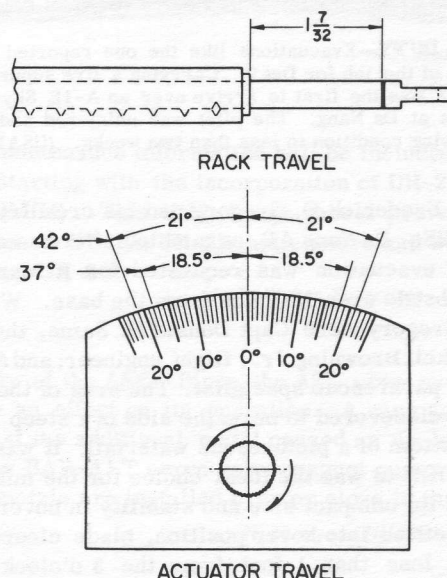
Rigging procedures are detailed in the HMI - NAVAIR 01-260HCA-2-3, however, as a quick reference, the following general instructions are submitted: See photo.



1. Viewing the actuator in its installed position, the upper adjusting screw controls the forward or closed position stop. The lower adjusting screw controls the aft or open position stop. 2. One complete turn of the adjusting screw is equal to a change of 3° to 4°. Clockwise rotation of the screws will increase the actuator travel; counter-clockwise rotation will decrease the travel. 3. Adjustments should be accomplished in equal increments at both ends of the actuator travel. If, for example, a 4° change is required, make a 2° change at each adjusting screw. 4. Always make adjustments with the actuator at or near its midpoint of travel. If the actuator is against a stop, damage to the stop arm assembly could result if the adjusting screw is turned. 5. To assist in adjusting the actuator travel to equal the rack travel, measure the rack travel and convert the linear measurement to degrees by reference to the following table:

RACK TRAVEL IN INCHES	EQUIVALENT IN DEGREES
1-1/16	32
1-3/32	33
1-1/8	34
1-5/32	35
1-3/16	36
1-7/32	37
1-1/4	38
1-9/32	39
1-5/16	40

6. New and overhauled actuators, as received, will usually be set for 43° to 45° travel. The fuel control emergency throttle rack travel will generally be between 1-1/8" to 1-9/32" (34° - 39°). When installing a new actuator and before connecting the linkage, it will therefore be necessary to decrease the actuator travel as shown in the drawing.



In this example, the rack travels 1-7/32" or 37°. The actuator travels 42° and if connected would attempt to move the rack 1-3/8". Set the actuator at midpoint in its travel and adjust both actuator screws counter-clockwise approximately 3/4 of a turn. Before attaching the linkage to the rack, check the actuator movement to be sure it is a total of 37°. 7. After adjusting, place the actuator and rack in corresponding positions (both units in full open or full closed) gap fill and connect linkage. Check operation.

## CURRENT CHANGES

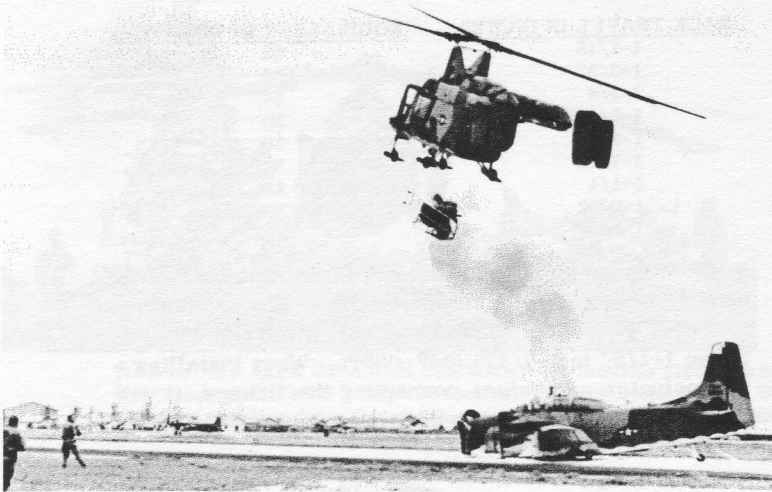
This list reflects the latest changes to the handbooks. Consult applicable "A" page for changes issued prior to those listed below.

	Issue Date
NAVAIR 01-260HCA-2-1 - Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C Helicopters, GENERAL INFORMATION	1 October 1967
NAVAIR 01-260HCA-2-7 - Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C Helicopters, RADIO AND RADAR SYSTEMS	1 October 1967
NAVAIR 01-260HCA-2-8 - Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B Helicopters, WIRING DATA	1 October 1967
NAVAIR 01-260HCA-2-8.1 - Manual, Maintenance Instructions, Navy Model UH-2C Helicopter, WIRING DATA	1 October 1967
NAVAIR 01-260HCB-1B - NATOPS PILOT'S POCKET CHECKLIST, Navy Model UH-2C Helicopter	1 June 1967
NAVAIR 01-260HCB-1C - NATOPS AIRCREWMAN'S POCKET CHECKLIST, Navy Model	

UH-2C Helicopter	1 June 1967
NAVAIR 01-260HCB-4-1 - Illustrated Parts Breakdown, Navy Model UH-2C Helicopter, NUMERICAL INDEX AND REFERENCE DESIGNATION INDEX	1 June 1967
NAVAIR 01-260HCB-4-4 - Illustrated Parts Breakdown, Navy Model UH-2C Helicopters, EQUIPMENT (FURNISHINGS, HYDRAULICS, INSTRUMENTS, UTILITIES)	1 June 1967
NAVAIR 01-260HCB-4-8 - Illustrated Parts Breakdown, Navy Model UH-2C Helicopters, RADIO AND ELECTRICAL	1 June 1967
NAVAIR 01-260HCB-6 - PERIODIC MAINTENANCE REQUIREMENTS MANUAL, Navy Model UH-2C Helicopter	1 June 1967
NAVAIR 01-260HCB-6-1 - PREFLIGHT MAINTENANCE REQUIREMENTS CARDS, Model UH-2C Aircraft	1 June 1967

continued on page 14

# 'UNBELIEVEABLE' MISSION SAVES FIVE



**DOUBLE DUTY**—Evacuations like the one reported below are only part of the job for Det 7. Carrying a fire suppression kit, the HH-43 was the first to arrive over an A-1E Skyraider that bellied in at Da Nang. The pilot was uninjured and the plane was in flying condition in less than two weeks. (USAF photo)

1stLt Frederick D. Gregory and his crew from Det 7, 38th ARRSq, Da Nang AB, scrambled after an emergency medical evacuation was requested for a Marine in a highly hostile area 12 miles from the base. With Lieutenant Gregory were Capt Donald D. Sams, the copilot; A1c Haskell Browning Jr., flight engineer; and A2c David A. Carl, pararescue specialist. The area of the evacuation was discovered to be on the side of a steep mountain at the bottom of a picturesque waterfall. It was obvious that the HH-43 was the ideal choice for the mission because of its compact size and stability in hover. As the HH-43 settled into hover position, blade clearance was noted at less than 1 foot from the 3 o'clock position counter-clockwise to the 10 o'clock position. Large trees were on the left and a rock cliff on the right with the HUSKIE facing the mountainside. The pickup was accomplished with little difficulty and Airman Carl began giving first aid to the Marine.

As Lieutenant Gregory began to pull out of the area, the armed escort helicopter overhead advised that a second Marine higher up the hill also needed evacuation. Captain Sams took over control of the chopper and flew to the higher position as the escort flew cover. A hover was again established with the same clearance conditions existing and the forest penetrator was lowered. The second Marine was tied onto the device and lifted to the HUSKIE, again with no difficulty. Before Lieutenant Gregory could execute a take off, a third Marine was carried to the pickup area. Airman Carl lowered himself to the ground to help attach this Marine to the penetrator and to speed up the evacuation time. Each of the Marines had full packs weighing close to 80 pounds each. In addition, each had bandoleers, radios, rifles and personal gear. The third was loaded and he, along with Airman Carl, was hoisted by Airman Browning to the cargo door. The Marine was on-loaded. Before Airman Carl could get on board a fourth Marine — again with full battle equipment — was carried to the pickup area. Lieutenant Gregory and Captain Sams checked the power available and determined that this Marine could also be loaded. Down went Airman Carl again, and again he secured the Marine to the penetrator. The fourth Marine was then hoisted aboard by Airman Browning.

The escort helicopter could not believe that the HH-43 was able to pick up 4 battle-dressed Marines and still hover in an area that the usual med evac helicopter could barely hover in without a load. The fifth Marine then appeared. Power again was checked and rechecked, and Lieutenant Gregory gave the OK for the pickup. The Marine was hoisted aboard. The penetrator was then lowered for Airman Carl. Some equipment, however, still remained on the ground and had to be taken as the remaining ground party couldn't take it with them. Airman Carl tied the equipment onto the hoist, climbed aboard, and Airman Browning hoisted him to the helicopter. The torque meter indicated 37 inches at this time. Airman Carl climbed into the cabin, but was unable to bring the equipment inside (included were 3 rifles, 1 ammunition box, 4 flak vests, 2 pistol belts, 1 camera and a field jacket) because, by this time, not a square inch of cabin area was available. A normal take off, of course, was not possible. Lieutenant Gregory expertly "slid" down the hill until flying airspeed was reached and then Captain Sams took over the controls and began the flight back to the Marine hospital. The HH-43 arrived safely at the hospital with 4 crewmembers, 5 fully equipped Marines, and Airman Browning hanging out the cargo door holding the equipment secured to the hoist. The hospital commander met the HH-43 as it arrived and his only comment was, "I don't believe it!"

A pararescuer's prompt action and proficiency has been credited with saving the life of a critically injured pilot. A1c Roger A. Porter was aboard an HH-43F from Det 6, 38th ARRSq, Bien Hoa AB, which scrambled when a plane crashed near the base. When the HUSKIE landed, Airman Porter jumped out and raced to the wreckage. After determining that the pilot was still alive, the Airman had him carried to the helicopter in a litter and then administered medical aid on the short flight back to Bien Hoa. Two Air Force flight surgeons gave additional treatment before he was taken in the HUSKIE to an Army hospital. They said afterward that had it not been for Airman Porter's "immediate and professional treatment," the pilot would not have lived. HH-43 pilot Capt David L. Wiest, added that the success of the mission was "due to Airman Porter's actions." Other members of the helicopter crew were Capt Sheridan K. Hawk, copilot; A1c Thomas M. Alves, flight engineer; and SSgt Otha R. Eddins, rescue specialist.

Less than 15 minutes after bailing out of their battle-damaged plane and landing in the jungle, two pilots were safely aboard an HH-43 from Det 5, 38th ARRSq, Udorn AB, Thailand. The speedy pickup was made by Capt Robert L. Merna and his crew after a flight through the rain to meet the damaged aircraft. Maj James H. Jones was copilot of the HUSKIE and the crewmen were A1c Marvin J. Wolfe and A1c Alvin L. Grothe.

**HQ MAC, SCOTT AFB, ILL.** — Between October 1964 and the end of July, Aerospace Rescue and Recovery Service men in Southeast Asia have won 2820 medals for heroism in combat and meritorious achievements.

Included were six Air Force Crosses, 84 Silver Stars, three Legions of Merit, 365 Distinguished Flying Crosses, 22 Airman's Medals and 53 Bronze Star Medals.

Most awarded has been the Air Medal — 1940. Purple Hearts total 31. One Joint Service Commendation Medal has been awarded and 315 Air Force Commendation Medals.

# Timely Tips

## Teleflex Control Assembly (UH-2A/B)

Investigation of binding fuel control teleflex cables, P/N 7-40423, revealed that the conduit assembly, P/N 22696, incorporates a polyethelene liner which has a heat softening point of 200°F to 250°F. Under high temperature conditions, such as hot air leakage by the engine flanges, or through a ruptured heater tube, engine heat in the nacelle can cause the polyethelene liner to deform. After engine shut down, the temperature drops, allowing the deformed liner to bind the teleflex cable. A teflon-lined conduit assembly, P/N 24018-1 (FSN RM1680-938-8921X110), supersedes conduit assembly P/N 22696. Because the teleflex control assembly retains the same part number (7-40423), the only way to be sure that the teflon-lined conduit assembly has been received, is to check the part number of the conduit assembly — it should be P/N 24018-1.

H. Zubkoff, Service Engineer

## HMI - MIM (UH-2)

As explained on Page 16 in this issue of KRT, most UH-2C maintenance information will be included in -2 maintenance publications together with UH-2A/UH-2B information. Starting with the incorporation of UH-2C information, the -2 will be referred to as Maintenance Instruction Manuals (MIM). This title change should prove helpful in determining which issue of the -2 is in Fleet use. The HMI applies to UH-2A/UH-2B helicopters and will be replaced by the MIM which describes all three models; UH-2A, UH-2B and UH-2C.

F. G. Weber, Supervisor, Service Publications

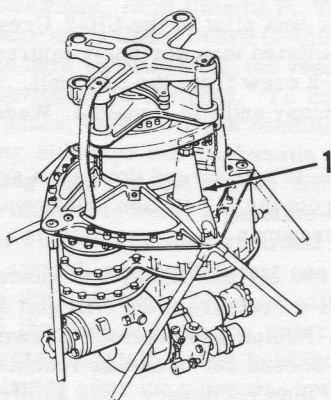
## Armor Plating (UH-2)

Compliance with AFC 121 includes armor plating in the vicinity of the ASE. Since the ASE uses magnets with its servo valves, any metal placed in close proximity could have an effect on its operation. A case in point is one detachment which, after installation of AFC 121, discovered that the additional metal caused an up-load in the collective channel with BAR-ALT mode engaged. Adjustment of the BAR-ALT servo valve magnet compensated for the added metal. Be sure to check operation of the ASE whenever metals are installed over or close to the unit.

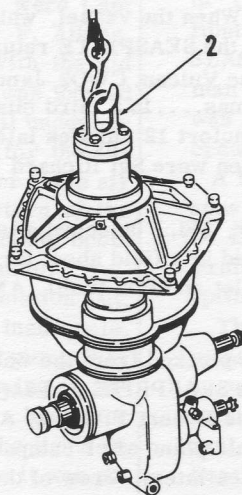
N. M. Myers, Field Service Representative

## Gearbox Seal Replacement (UH-2A/B)

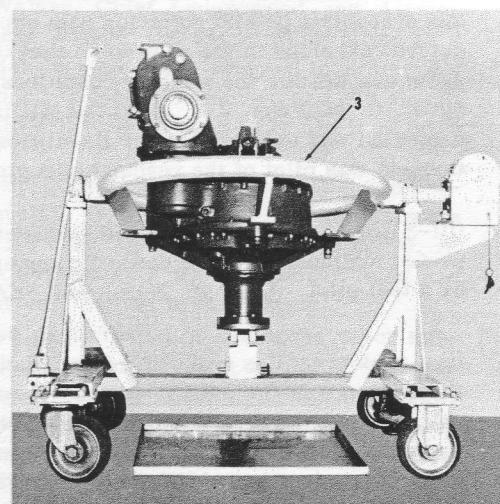
Prior to replacing the lower seal in the main gearbox, be certain the proper support or supports are utilized as shown in the illustrations. If the main rotor hub is installed on the gearbox, make sure the hub is securely supported by a hoist or by jackscrews (1, View A), P/N K604215-101. Install the jackscrews according to the instructions listed in the MIM NAVAIR 01-260HCA-2-4. If the main rotor hub is not installed on the gearbox, support the rotor shaft with a suitable hoist and lifting adapter (2, View B). When the gearbox is installed in transport dolly assembly (View C), P/N K604504-201, use swivel assembly (3), P/N K604201-5, for support. Invert the gearbox assembly before removing the oil seal from the main rotor shaft. **DO NOT** attempt to replace this seal without the main rotor shaft being properly supported. The gearbox assembly must also be in the inverted position on the transport dolly during seal replacement. If the rotor shaft or the hub is not supported prior to removal of the bearing seal plate retainer bolt, internal components may shift or fall out of the gearbox and cause subsequent gearbox damage.



VIEW A



VIEW B

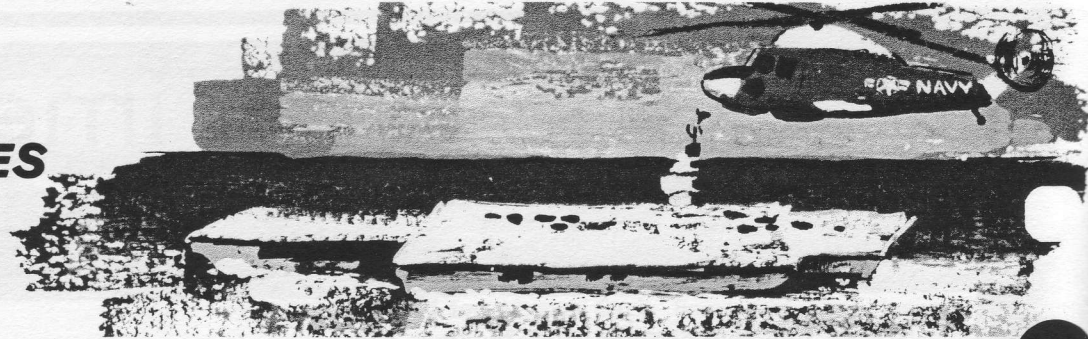


VIEW C

R. J. Trella, Service Engineer

# SEASPRITE

## ACTIVITIES



...Three Filipino fishermen, tossed into the sea when four-foot waves swamped their banca, were rescued by a UH-2 crew after spending more than three hours in the water off Grande Island, RP. The HC-1 SEASPRITE, from Det 104 aboard the USS Worden, was manned by Lt Lee C. Lax, pilot; Lt(jg) Terry L. Smith, copilot; Roger L. Clemons, ADJ2, and John G. Hultz, ADJ3, crewmen. Petty Officer Clemons dropped into the rough water to assist the weakened rescuees into the sling. They were then taken to NAS Cubi Point. The Worden was steaming toward the Gulf of Tonkin from Subic Bay when a crewman spotted the fishermen clinging to an outrigger on the canoe.

...A sailor with a possible skull fracture was evacuated from the USS Waukeegan County 30 miles at sea by a UH-2 SEASPRITE crew from the SAR unit at MCAS Cherry Pt., N.C. Capt Norman A. Urban landed on the deck of the ship to make the pickup and the patient was treated on the way to the hospital by Lt R. W. Brassel (MC), doctor. Other members of the helo crew were Sgt Jerry L. Leinart, copilot, and Sgt Douglas G. Kirby, crewman....In another mission, a UH-2 crew from the SAR unit at Cherry Point landed in a swamp to pick up two pilots whose planes had collided in mid-air. Capt William W. Crews was SEASPRITE pilot, SSgt Oakley E. Atkins, copilot and LCpl Howard P. Thurlow, crewman. Also aboard were Lt M. E. Sandlin, USN, and John M. Sullivan, HM2....In a third UH-2 mission, a Cherry Point SAR crew scrambled after being notified that a civilian fisherman had suffered a heart attack near Cape Lookout, N.C. Aboard the rescue helicopter were Captain Urban, the pilot; Sergeant Atkins, copilot; Cpl Richard W. Porter, crewman; Lt Henry M. Pollock (MC), doctor; and David M. Cunningham, HM3. The fisherman was picked up and delivered to the hospital without incident.

...A UH-2 crew from HC-4's Det 48 made the 500th landing aboard the USS Galveston since the ship's departure from Newport, R.I., last February. Lt(jg) Peter M. Schult was pilot on the landing, Lt(jg) Carl S. Park, copilot, and Kenneth E. Waphecome, ADR2, crewman....A seriously-ill seaman was evacuated from the repair ship Jason, 90 miles off the Japanese coast, by a UH-2 crew from the SAR unit at NAS Atsugi. Pilot of the SEASPRITE was Lt(jg) Brit Armstrong and LCdr B.R.W. Staats was copilot. Because the stern of the Jason was crowded with gear, Lieutenant Armstrong made a hoist pickup from the bow of the ship. On the flight to Yokosuka Naval Hospital, Lt Marv Saunders (MC), flight surgeon, attended the patient with the assistance of Z. K. Dunbar, HN1.

...A seriously-ill Venezuelan seaman was evacuated from a dredge operating in the Caribbean by a UH-2 crew from HC-2's Det 42 deployed aboard the USS Franklin D. Roosevelt. LCdr D. J. Hemenway was pilot of the SEASPRITE and Ens G. Strocchio was copilot. The request for assistance was originally received by a Coast Guard seaplane operating in the area of the dredge and relayed to the FDR 68 miles away. After the UH-2 arrived at the scene, W. L. Marine, ADR3, was lowered to the deck and prepared the patient for hoisting. The other member of the SEASPRITE crew was D. B. Majdich, ADJ3.

...A civilian with serious head injuries suffered in an automobile accident, was evacuated from Beaufort Naval Hospital to Charleston Naval Hospital by a UH-2 crew from the SAR unit at MCAS Beaufort, S.C. Pilot on the night flight was Capt J. E. Gunnels. Crewmen were Cpls G. D. Seuss and M. E. Brossett....In another mission, a SEASPRITE crew from the SAR unit flew through scattered thunderstorms and low clouds to rendezvous with the USS Vulcan and evacuate a patient suffering with appendicitis. When the vessel, which had been delayed by heavy fog, failed to arrive, all ships in the area were checked and then the SEASPRITE returned to base. Later, the SAR helicopter launched again and, despite the weather conditions, located the Vulcan. CWO2 James Gauthier was pilot of the UH-2. Crewmen were Sgt E. C. Martens, Jr., and LCpl William H. Thomas....In a third mission, an enlisted man seriously injured in an explosion was delivered to the Naval Hospital at Beaufort 12 minutes later by a UH-2 crew from the SAR unit. Captain Gunnels was pilot of the rescue helicopter. Crewmen were Sgt Richard L. Shaughnessy and Pfc Ronald J. Wade.

...A UH-2 crew from the SAR unit at NAS Patuxent River, Md., launched after another helo was forced down by a suspected malfunction. The downed chopper was located in a field about three miles from the air station and flown back by a test pilot. Lt J. B. Morse was SEASPRITE pilot and Bob Wolff, AMS3, was crewman.

...One of two civilian fishermen whose boat sank six miles from NAS Key West, Fla., was plucked from the water by a UH-2 crew from the SAR unit at the station. Lt Gary H. Schoepfner was pilot of the SEASPRITE and Lt(jg) Paul L. Nelson was copilot. Crewmen on the mission were Donald H. Hoverson, ADJ1, and Robert F. Mick, ADJ3. The second survivor was rescued by another helicopter....A pilot who ejected from his plane after catapulting from the USS Ranger, was safely aboard the plane guard UH-2 SEASPRITE two minutes later. Crew of the rescue helo, from HC-1's Det Alpha, was Lt(jg) C. E. Matyas, pilot; Lt(jg) C. W. Huffman, copilot; Henry Shoultz, AN, and H. S. Lanes, ATNAN, crewmen. During the speedy rescue, Airman Lanes dropped into the water to aid the survivor.

## FIRST UH-2C RESCUES MADE AT SEA

USS RANGER—Pilots and crewmen of HC-1 Det 61, the helicopter detachment on board this attack aircraft carrier, knew they would get a chance to test their new "helo" under actual rescue conditions, but they didn't know when.

Pilot Lt(jg) R. R. Mason, copilot Lt(jg) J. E. Kahle and crewmen ATNAN H. S. Lanes and ADR3 L. E. Todd climbed aboard HC-1's new Kaman UH-2C "Charlie" September 26 for a routine plane guard mission. They left the 75,000 ton aircraft carrier's four-and-one-half acre flight deck at 4:00 p. m. Charlie assumed its normal plane guard position but didn't stay there long! At 4:10 p. m. Lieutenant Mason received word that a pilot was in the water after ejecting from his plane due to a malfunction. The pilot was 11 miles from the ship. Ten minutes later the downed pilot was spotted and Todd was lowered to assist in the rescue. At 4:26 p. m., just 16 minutes after the rescue notice was received by Lieutenant Mason in the helo, Charlie again settled down on RANGER's flight deck and safely delivered one grateful pilot.

The helo crews were happy about the operation of Charlie during the rescue, but the day rescue answered only half of their questions — what about night rescues?

The second half was answered only two days later when a pilot ejected due to a collapsed landing gear. Another Charlie, piloted by LCdr L. L. Stoker, officer-in-charge of Det 61, and copiloted by Lt(jg) D. L. Jackson, sped to the rescue from its plane guard position. Crewmen aboard were, ATN3 J. V. Rodriguez and AN H. N. Shoultz.

One of the primary improvements of the UH-2C — twin engines providing more power — was quickly put to the test. During the rescue attempt, the heading control was lost and caused the helo to get out of the wind. This loss of control required a great increase in power —

### Night Flights Save Boat

Two overwater, after-midnight flights were made by a UH-2 crew from the SAR unit at MCAS Cherry Point, N. C., to aid a 50-foot boat sinking in heavy seas 40 miles off shore. Manning the SEASPRITE were Capt Norman A. Urban, his copilot, SSgt Oakley F. Atkins, and crewman, LCpl Howard P. Thurlow. With the aid of radar and a Coast Guard C-130, the boat was located on the dark waters below; the vessel was still underway but obviously in distress. To compensate for the 40-knot winds, Captain Urban established a hover while air taxiing sideways and backwards over the stern of the pitching boat and the rescue hoist and fishpole boom were utilized to lower a gasoline-operated pump.

The SEASPRITE then returned to the air station but, upon arrival, was notified that one pump was inadequate. When the SAR crew returned with a second pump they found the boat dead in the water and wallowing in 10-foot seas. Captain Urban held the UH-2 in a hover for 15 minutes after the pump was lowered and the lights on the helo were used to aid the boat crew while it was put into operation. The SEASPRITE crew then returned to home base.

power the twin engines could readily supply. The pilot of the downed plane was found, picked up and returned to the carrier within 14 minutes. The first Charlie day rescue and first Charlie night rescue in the Pacific Fleet were completely successful.

In addition to the greater power the UH-2C possesses, an improved stabilization unit has been added. These two factors alone make for a speedier recovery. The ramifications of these facts are vital — rescue missions in Vietnam are often a race against time and a "Charlie" of another variety.

"The true value of the UH-2C's extra power may mean the difference between a successful rescue or the loss of a pilot. You can gauge Charlie's worth on that fact alone," LtCommander Stoker said.

HC-1 Det 61, the first UH-2C operational detachment on the West Coast, is home ported at NAAS Ream Field, Imperial Beach, Calif.

## UH-2 Crews Aid Hurricane Victims

When hurricane Beulah brought flooding and devastation to southwest Texas, the SAR unit at NAAS Chase Field immediately joined in bringing aid to the victims. A UH-2 crew started off the four-day operation by rescuing a Navy officer stranded atop his car in the midst of a flooded field. The rapidly running current had swept the vehicle off the road and through a barbed wire fence.

Disregarding hurricane warnings and reports of numerous tornados and thunderstorms in the area, LCdr James F. Brandau and his crew launched and headed for the site. Despite the rain, high density altitude and low barometric pressures, the rescuee was hoisted to safety without incident. Lt Jon W. Walker was copilot on the mission, and George J. Hunt, ADJAN, was crewman.

In other missions: Lieutenant Walker and Lt E. R. Sager flew food and medical supplies to several hundred persons stranded on high ground. Other members of the crew were J. A. Ledgerwood, HMC; J. Dollar, PH3; Airman Hunt; and Lt G. H. Reed (MC). A woman was hoisted from a flooded house by a UH-2 crew consisting of Lieutenant Walker, Chief Ledgerwood and Airman Hunt. Lieutenants Walker and Sager were pilots in a SEASPRITE which located and attempted to evacuate a man from a flooded house. He refused and the sheriff was notified. Chief Ledgerwood and Airman Hunt were crewmen.

A UH-2 flown by LCdr L. D. Flick evacuated two persons, one an invalid, to the hospital. Crewmen were D. L. Spillars, AT3; M. D. Winfield, ADJC; and G. A. Pruitt, HN. LtCommander Flick, Lieutenant Reed and Spillars transported a patient to the hospital.

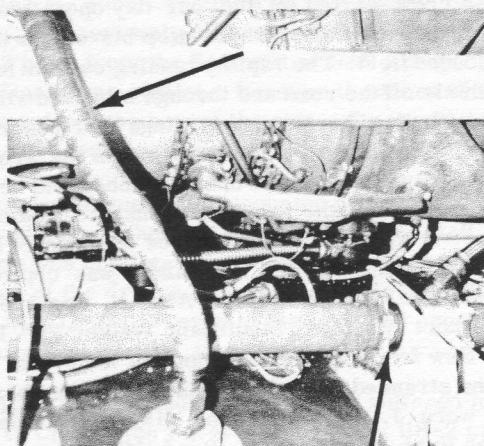
The UH-2 also participated in numerous other missions which included transportation of police, railroad surveyors and gas company officials. The SAR crews located underwater gas leaks, made road surveys, broadcast tornado warnings and delivered machinery parts. Participants included those already mentioned and Lt(jg) T. R. Patterson, Cdr R. R. Romaine, R. J. Phillips, AD1; and Q. Locklear, AME1.

# 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) WHEN THE HEAT-SENSITIVE TEMPERATURE PLATE ON THE TAIL ROTOR SHAFT COUPLING AT STATION 229 INDICATES AN OVER-TEMP CONDITION, WHAT SHOULD THE MECHANIC LOOK FOR?

**A.** When the heat-sensitive plate turns black, indicating an overtemp condition, check the coupling, the bearing and the cabin heater hose. If the coupling and bearing do not appear damaged and the coupling grease is not contaminated, change the heat-sensitive plate. Check the cabin heater flexible hose from the engine combustion section for a hot air leak or a rupture. The air flowing through the hose is very hot and if it escapes and circulates around the coupling, the heat sensitive temperature plate will probably turn black. The arrows in the illustration point to the hose and the coupling.



R. J. Trella, Service Engineer

**Q.** (Applies UH-2) IS IT NECESSARY TO REMOVE BLUING COMPOUND FROM A MAIN ROTOR BLADE FOLDING PIN AFTER SEATING HAS BEEN CHECKED?

**A.** Yes, all traces of bluing compound should be removed from both the pin and the bore in the blade retention. If contaminants of any description, including bluing, are allowed to remain on the silvered-tapered portion of the pin, it could affect seating and possibly enable the pin to move. Bluing should only be used when it is suspected that the folding pin is not seated properly. Proper seating is indicated by thin vertical lines around the circumference and for the full length of the silvered-tapered area of the pin. If the vertical lines indicate at least 80% contact, the pin is seating properly. When cleaning the bore and pin, use a dry cleaning solvent similar to that called out in Federal Specification P-D-860.

W. J. Wagemaker, Service Engineer

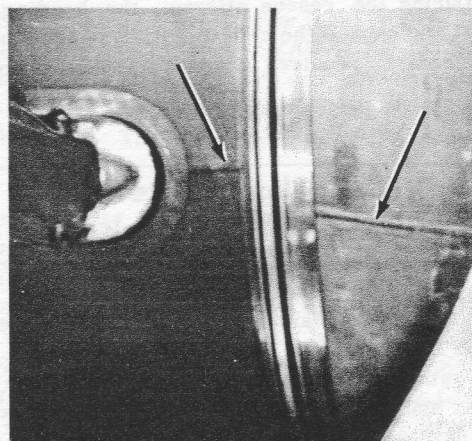
**Q.** (Applies HH-43, UH-2) WHAT IS THE PURPOSE OF THE BOLD VERTICAL LINE SOMETIMES SEEN IN THE OUTER MARGINS OF MILITARY PUBLICATIONS?

**A.** The bold line is called a "Change Strip" and is found only on changed pages to indicate what portion of the text has been added or changed. Sometimes, when a new procedure has been added, the change strip will run the entire length of the page. Often, however, the strip will be short and indicate a change in one or two lines of text. Small changes of this nature, which may be overlooked or passed over as being minor, can actually involve such factors as revised torque values, new figures, paragraphs, manual references, or similar important information.

F. G. Weber, Supervisor, Service Publications

**Q.** (Applies UH-2A/B) WHAT CAN BE USED AS AN AID IN ENGINE EXHAUST DUCT ALIGNMENT?

**A.** The seam welds on the exhaust duct and the exhaust case may be used as reference points when positioning or checking the position of the duct. The duct is properly positioned when its seam weld is about one inch above the short seam weld on the engine exhaust case. The photo was taken from the RH work platform. The arrows point to the two welds; on the left is the exhaust duct and on the right is the exhaust case. This alignment can be very important as improper positioning could deflect hot exhaust gases toward the fuselage instead of away and into the slipstream. If the hot gases are allowed to strike the fuselage, discoloration or even skin buckling could occur. The exhaust case is not keyed nor slotted so the alignment can easily be accomplished.



H. Zubkoff, Service Engineer

**Q.** (Applies UH-2) AFTER THE AZIMUTH HAS BEEN LEVELED WITH THE FLATNESS RIGGING LOCK, HOW MANY TURNS SHOULD THE LINK ROD ENDS BE SHORTENED?

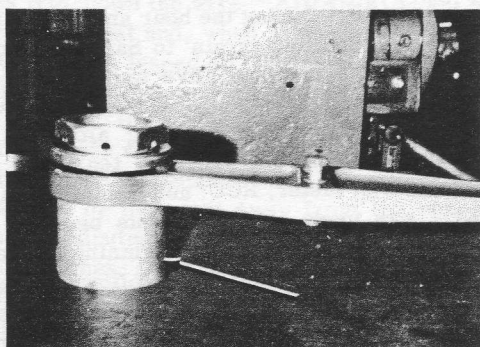
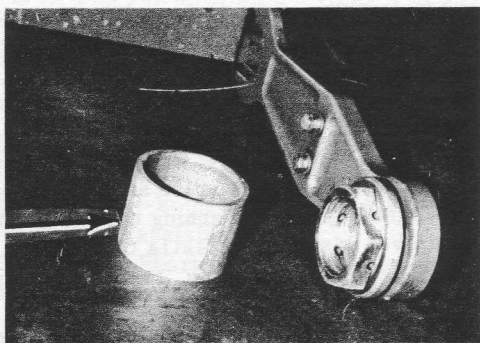
**A.** The lateral and longitudinal link rod ends should be shortened as follows:

RODEND	UH-2A/UH-2B	UH-2C
Lateral	1-1/2 turns	1-1/2 turns
Longitudinal	2 turns	1 turn

H. W. Gewehr, Flight Test Engineer

**Q.** (Applies UH-2) WHAT PROCEDURE SHOULD BE USED TO REMOVE A SEIZED CONE LOADING BUSHING FROM THE LOWER LOCKING ARM ON THE MAIN ROTOR BLADE?

**A.** Remove the arm from the blade and check the bushing to make sure it is not in a cocked position. If the bushing is cocked, place the arm in an arbor and press against the nut end of the bushing until square. Usually only a slight pressure will be necessary to align the bushing. When squaring up the bushing in the arbor, be sure to support the arm around the seized bushing to prevent bending the arm. The arrow in the photos points to a piece of steel pipe which is being used for support. Squirt light oil on the seized joint and let it soak in. If a rivet gun is available, place an aluminum block on the end of the bushing, a flat set in the gun, and drive the bushing out of the arm. An aluminum drift and a hammer may be used to drive out the bushing if a rivet gun is not available.



W. J. Wagemaker, Service Engineer

**Q.** (Applies UH-2) ARE THERE ANY SUBSTITUTIONS ALLOWED FOR THE NAS 335C46 BOLTS WHICH ARE USED WHEN INSTALLING AFC 111?

**A.** Yes. Although AFC 111, "Single Point Tail Rotor Flapping Bearing Lubrication," includes three of the NAS 335C46 bolts, substitutions have been authorized. The specified bolts, which pass through the rocking pins and subsequently retain the end caps in position, have flat heads with recessed hexagon drive sockets. The authorized substitute bolts are listed below with the type of drive:

1. Bolt, P/N NAS 335CP46 (Phillips recessed)
2. Bolt, P/N NAS 585-69 (Hi-Torque recessed)

N. E. Warner, Service Engineer

**Q.** (Applies UH-2) IF DURING A TEST FLIGHT, THE MAIN ROTOR BLADES ARE DRIVEN OUT-OF-TRACK WHEN THE AUTOMATIC BLADE TRACKER IS ENERGIZED, WHAT COULD BE A CAUSE?

**A.** The resolver phasing. This is particularly true if the problem arises during the first flight after maintenance has been performed on the aircraft. Often, while one mechanic is working on the short shaft or has in some way interrupted the connection between the resolver and the main rotor blades, another mechanic may unknowingly turn the main or tail rotor blades. Then when the first mechanic reinstalls the short shaft, he will probably be unaware of any change in rotor position. Consequently, the mechanic may not consider it necessary to alert those in the electrical section of the need to check the resolver phasing. Whenever the resolver-to-main rotor drive, including the accessory gearbox, is disconnected, notify the electrical section.

J. J. McMahon, Service Engineer

**Q.** (Applies HH-43B/F) WILL A 1/2-TURN OF ALL FOUR FLAP ROD CLEAVISES NORMALLY RESULT IN A 2% CHANGE IN AUTOROTATION RPM?

**A.** Generally a 1/2 turn of all four flap rod clevises will result in a 2% change in autorotation RPM as stated in T.O. 1H-43(H)B-2. However, the 2% figure should be used as an average because of the variables which can affect rotor blades. For example: Temperature and humidity can affect the torsional stiffness of rotor blades as well as the lift coefficient; consequently, one set of blades may require more adjustment for a given RPM change than another set of blades. Therefore, an exact clevis-turn-for-RPM change is difficult to specify. It is recommended that a maximum of 1 full turn of the flap rod clevis be attempted at a time. This will establish the amount of RPM change which can be expected from additional adjustments and will also minimize the consequence of an adjustment made in the wrong direction.

W. J. Wagemaker, Service Engineer

**Q.** (Applies UH-2) WHEN MAINTAINING CERAMIC BEARINGS, WHAT SHOULD BE STRESSED?

**A.** Proper maintenance procedures should stress the fact that no grease or other lubricants are required on ceramic bearings. No lubricant is necessary to assist the bearing because the bearing monoball rotates within a carbon-graphite liner. The bearings were designed to operate efficiently when washed periodically with clean fresh water. If a lubricant such as oil or grease is used, it will in time, collect dust and dirt and eventually slow or retard movement of the bearing. Whenever a ceramic bearing appears to stick or bind, flush the bearing with clean fresh water or inhibisol. Continue flushing while rotating the bearing to expose its surface to the cleaning agent.

W. J. Wagemaker, Service Engineer



The US Navy river patrol boat from Task Force 116 was operating in the Mekong Delta as part of Operation Game Warden when VC gunners suddenly opened fire from well-hidden emplacements on shore. The PBR immediately returned fire and silenced the enemy guns but two of the four sailors forming the crew had been wounded and required immediate medical attention. During the hours of darkness, landing places for PBR's in the Delta are few and far between — without making a long run back to base, the only safe means of evacuating the wounded was by picking them up from the boat while in the middle of the river. Within minutes, an HH-43F from Det 10, 38th ARRSq, Binh Thuy AB, arrived and the wounded were hoisted aboard for a quick flight to the hospital. Rescue crew commander on the mission was Capt Donald E. Van Meter.

Such pickups are now practiced frequently under various conditions to familiarize the Air Force and Navy crews with proper procedures. Working in the Bassac River near Binh Thuy, pickups are performed while the patrol boat is still or underway at speeds up to 15 knots.

In a similar incident, two HH-43F's from Det 10 evacuated five sailors who were wounded when their PBR received a direct hit from a 57MM recoilless rifle. En-route to the scene, the HUSKIES were joined by an Army helicopter fire team, and a medical evacuation helicopter. A flight of F-100's supplied additional fire support coverage. The first HH-43 picked up a critically injured sailor and another of the wounded at a PBR outpost and headed for the hospital, the second HUSKIE

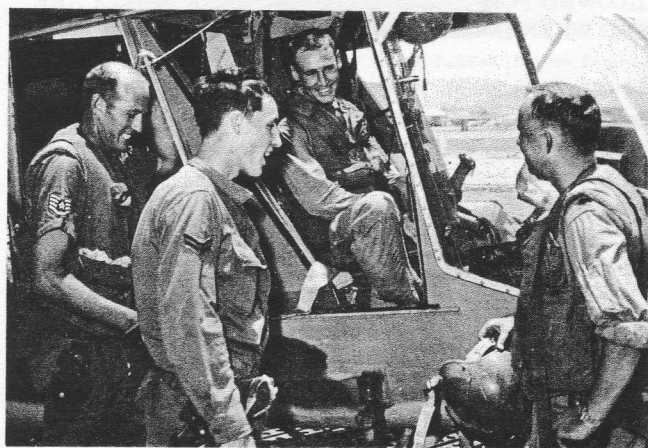
**MEKONG DELTA OPERATION**—An HH-43 HUSKIE from Det 10, 38th ARRSq, at Binh Thuy AB and a Navy river patrol boat practice personnel transfer while the vessel is underway. Recently two sailors from a PBR were lifted in this fashion after they had been hit by VC gun fire. (USAF photo)

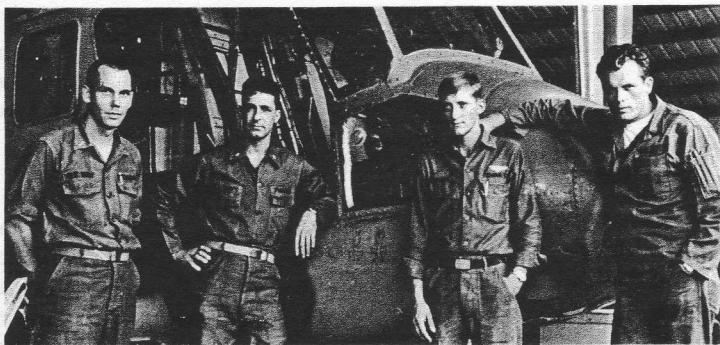
then hoisted two more from the PBR — they couldn't be moved ashore because of the deep mud and their injuries — and transferred them to the med evac helicopter. The pararescue specialist on the first HUSKIE, A1c Gary G. Harold was credited with saving the life of the critically injured man on the way to the hospital. Other crewmembers on this HH-43 were: Maj Harold Pickering, pilot; Capt William P. Shea, copilot; and A1c Bernard L. Touchette, flight engineer. Manning the second HUSKIE were Captain Van Meter, pilot; 1stLt Granville B. Goza, III, copilot; TSgt Walter H. May, flight engineer; SSgt James C. Patterson, rescue specialist.

A sailor, critically wounded when a grenade exploded next to him on a river patrol boat, was evacuated in an HH-43 from Det 10. During the hour and fifteen minute night flight over hostile terrain to Saigon, a constant battle to keep the Navy man alive was waged by Capt Bruce W. Wittia, flight medical officer, and Airman Harold. Thunderstorms and lightning along the flight route required the constant skill and teamwork of the pilots, Captain Van Meter, RCC, and Captain Shea. The entire flight was made on instruments because of the lack of horizon and almost blinding lightning flashes. An added complication arose when flight-following radar had difficulty in identifying the HH-43 — when centers were switched near the destination, the flight was inadvertently vectored through an artillery firing zone. A quick alteration of altitude was made. The other member of the crew on the life-saving flight was A1c Curtis E. Nickles.

*continued on page 17*

**DET 12 RESCUE**—Nha Trang (7AF) ... A2c Jerard J. Pearson, second from left, discusses the successful rescue of two Army fliers 15 miles north of Nha Trang AB with other members of the crew. Left to right are SSgt Ray C. House, flight engineer; Capt John L. Belina, copilot; and Capt Melroy Borland, pilot. The Army men were in a light observation plane directing Naval gunfire when they were forced to make a crash landing on Han Hoa, a Viet Cong stronghold. Within 45 minutes an HH-43 from Det 12, 38th ARRSq, at Nha Trang AB, landed near the downed fliers and Airman Pearson leaped from the HUSKIE to guide them aboard. (USAF photo)





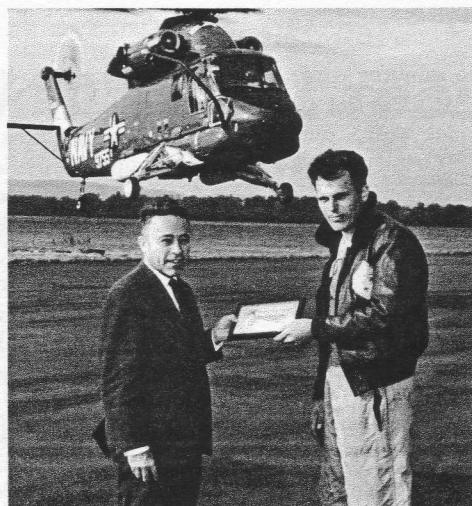
"The heroic action of ATN2(AC) Anthony C. Hanson is credited with saving the pilot's life..." — LCdr Wade J. Pharis, commander of a UH-2 crew from HC-1 which rescued a USAF flier down deep in the jungles of North Vietnam.

During the 30-mile flight to the rescue site, LtCom- mander Pharis and his copilot, Lt(jg) Samuel H. Arun- dale, had repeatedly taken evasive action to avoid the paths of fire thrown up from the villages and ridges be- low. Now, as the UH-2 hovered over the chute hanging in the tall trees, snipers began steadily firing at the al- most stationary target. Disregarding the danger, the SEASPRITE crew lowered the forest penetrator and for five long minutes probed the dense growth until it be- came apparent that the injured survivor was unable to mount the seat — someone from the helicopter would have to go to his assistance.

LtCommander Pharis moved the helo down the slope to a small clearing and asked for a volunteer. But Han- son, even though on his last combat rescue mission be- fore rotating, was already preparing to make the haz- ardous trip "down the wire," ADJAN(AC) Paul L. Swartz lowered the seat and, when it was within 10 feet of the ground, Hanson leaped off. "I jumped because I figured it would save time, and the ground looked pretty good. I was scared," Hanson said.

While Hanson was on the ground, Navy A-1 SKYRAID- ERS flew close air support in an effort to curtail enemy ground fire or deflect it away from the rescue scene. For seven minutes the sailor fought his way through the brush and vines, some as "big as his thumb," and finally located the survivor. The pilot's leg was broken, blood streamed from a head injury, and he was partially in shock. Hanson removed the survivor's harness, tied his feet together with pieces of shroudline, and then be- gan dragging the survivor to the clearing 35 yards away.

"I had to slide him under vines and once got his head stuck in a tree limb. Just about the time I got to the clearing, the chopper got there too," Hanson said.



**UH-2 RESCUE TEAM**—Navy crew from HC-1 which rescued downed USAF pilot from North Vietnam while under enemy fire. Left to right, Lt(jg) Samuel H. Arundale, copilot; LCdr Wade J. Pharis, pilot; ADJAN(AC) Paul L. Swartz, second crewman; ATN2(AC) Anthony C. Hanson, first crewman. Hanson has been recommended for the Navy Cross and LtCommander Pharis recently received the Silver Star for the hazard- ous mission. Lieutenant Arundale was also rec- ommended for the Silver Star and Airman Swartz was cited for a Distinguished Flying Cross. (USN photo by SN Kenneth B. Dalecki, Editor - "The Afterburner," NAS Cubi Point, R. P.) The crew also received Kaman Scrolls of Honor for their achievement. Hanson's Scroll was pre- sented to him by William E. Zins, director of customer service at Kaman. The petty officer was part of an HC-1 crew which accepted a UH- 2C (background, second photo) for delivery to NAAS Ream Field. Pilots in the helo are LCdr James H. Weatherly and LCdr Jack Riding.

"I didn't have time to put him in the seat," Hanson continued, "I could hear gunfire. I just held him in the chair, hooked myself in and Swartz pulled us up."

To bring the penetrator within reach of the men on the ground, Swartz had leaned out and started swinging the cable until Hanson grabbed it. LtCommander Pharis, meanwhile, was holding the UH-2 in a hover with the rotor tips clearing the nearby trees by only a few feet. While the two were being hoisted to the SEASPRITE, gun- fire became heavier as the snipers tried in vain to hit the aircraft or the figures dangling helplessly below it. With the men aboard, the pilot headed for the sea and the USS Reeves from which the UH-2, attached to Det 15, had earlier launched. On the flight back the rescue helo was again subjected to fire but received no hits.

The landing aboard the ship was the "best I ever ex- perience," Hanson said afterward.

### UH-2's Aid Forrestal Survivors

Two survivors who fell or leaped into the water from the burning flight deck of the USS Forrestal were re- scued by a UH-2 crew from HC-1's Det 17 deployed a- board the USS Fox. A third sailor who jumped over- board to avoid exploding bombs during the tragedy was hoisted to safety by a SEASPRITE crew from another HC-1 detachment, Det Lima, aboard the USS Bon Homme Richard.

Lt Jaque L. Meiling and his crew were transferring fire fighting equipment to the Forrestal when the two

survivors were spotted as they clung to a wing tank floating in the wake of the ship. Both were hoisted a- board without incident. Lt Andrew J. Curtin was co- pilot of the rescue helo and the aircrewmen were Richard H. Hall, ADJ3, and Allen E. Salsbury, AN. The third survivor, supported by a kapok life jacket, was also sighted near the burning ship. After his rescue, the search continued for other swimmers. LCdr E. M. Stewart was pilot of the UH-2 and Ens A. J. Billings was copilot. Crewmen were R. M. Martin, AE3, and Robert G. Timm, ATN3.

## USS ORISKANY

Two minutes after a pre-dawn launch, a UH-2 crew from HC-1's Det Golf had rescued the pilot of an F-8 Crusader which plunged into the South China Sea near the USS Oriskany. The speedy pickup was made by Lt(jg) John H. Fraser, pilot; Ens Richard S. Gerrodette, copilot; Leonard E. Teigland, AMS2, and John B. Miller, Jr., ADJAN, crewmen. Miller entered the water to assist the downed pilot.

In another mission, two Air Force pilots were rescued soon after ejecting from their crippled F-4. The plane crashed about a mile from the Oriskany. Twice, Petty Officer Teigland leaped into the water from the hovering SEASPRITE to aid the survivors in freeing themselves from entangling shroud lines. They were hoisted aboard the rescue helicopter by Terrell M. Wheelock, AMS2. Lt David E. Clement, with five previous rescues, was pilot of the UH-2 and Ensign Gerrodette, with one previous rescue, was copilot. Each crewman had made one rescue previously.

## USS CONSTELLATION

An Air Force pilot who ejected 24 miles from the USS Constellation was plucked from the South China Sea soon afterward by a UH-2 crew from HC-1's Det Fox-trot aboard the carrier. SEASPRITE crewman Jon W. Bucher, AN, leaped into the water, cut the survivor's shroud lines, and then helped him onto the rescue seat. LCdr Robert E. Long was pilot of the helo and Lt(jg) A. H. Sandt was copilot. The hoist operator was Don K. Hudson, AMS3. In another mission, a sailor who fell overboard was rescued a few minutes later by LtCommander Long and his Det Foxtrot crew. Lieutenant Sandt was UH-2 copilot and the crewmen were Michael W. Crosley, AN, and R. Douglas Rechard, PRAN.

## USS INTREPID

An A-4 pilot who ejected close to the USS Intrepid was rescued a few minutes later by a plane guard UH-2 from HC-2's Det 11 aboard the carrier. Ens R. L. Sitts was pilot of the SEASPRITE and Lt B. G. Blackwelder was copilot. Crewmen were T. R. Smith, ADJ3, and R. Sitarzewski, AK3.

## USS FOX

For Det 107 deployed aboard the USS Fox it was the ninth rescue in the Tonkin Gulf. For UH-2 pilot Lt Jaque L. Meiling the mission had an additional significance — the downed pilot plucked from the water near the enemy shore was a personal friend.

As Lieutenant Meiling held the SEASPRITE in a low hover to let crewman Richard H. Hall, ADJ3, enter the water, the pilot got a quick look at the survivor below and immediately recognized a friend of long standing. However, due to the circumstances, a reunion was postponed for awhile. The helicopter moved off while Hall made repeated dives beneath the muddy water from a nearby delta area to cut the rescuee loose from entangling nylon lines. The UH-2 then moved back in and Allen E. Salsbury, AN, hoisted the two men aboard. Copilot of the rescue helicopter was Lt Andrew J. Curtin.

On a similar combat rescue mission, Lieutenant Curtin didn't know the pilot rescued from the Gulf of Tonkin, but he did find out they were from the same town. However, once again, circumstances left little time for discussion. The pickup area was surrounded by enemy-held islands and hostile fire and small craft had been reported in the area. Lieutenant Meiling hovered the rescue helicopter as Michael J. Rigby, ATN2, leaped into the water to help the survivor. As he did so, the UH-2 fired precautionary bursts at a distant target. Both men were hoisted aboard by Petty Officer Hall and the SEASPRITE headed for a safer area.

In a third mission, the UH-2 from the Fox threaded its way through enemy islands to pick up a downed pilot a minute after his chute hit the water. Petty Officer Rigby leaped into the water to aid the survivor and both men were hoisted aboard the SEASPRITE by William C. Wood, AN. Lieutenants Meiling and Curtin were pilots on the rescue.

"My crew fully understood our mission and its importance and performed their duty in an outstanding manner.... I could have nothing but praise for my entire crew.... when we fly, we do so as a team...." Lt Jaque L. Meiling after completion of eight combat rescues.

continued from page 5

## CURRENT CHANGES

NAVAIR 01-260HCB-6-2 - POST FLIGHT/SERVICING/ CONDITIONAL MAINTENANCE REQUIREMENTS CARDS, Model UH-2C Aircraft	1 June 1967
NAVAIR 01-260HCB-6-3 - DAILY/SPECIAL MAINTENANCE REQUIREMENTS CARDS, Model UH-2C Aircraft	1 June 1967
NAVAIR 01-260HCB-6-4 - CALENDAR MAINTENANCE REQUIREMENTS CARDS, Model UH-2C Aircraft	1 June 1967
NAVAIR 01-260HCB-6-4.1 - CALENDAR MAINTENANCE REQUIREMENTS CARDS, T58-GE-8B Engine	1 June 1967
NAVAIR 01-260HCB-6-5 - SEQUENCE CONTROL CHART (Calendar) UH-2C Aircraft	1 June 1967
NAVAIR 01-260HCB-6-5.1 - SEQUENCE CONTROL CHART (Calendar) T58-GE-8B Engine	1 June 1967
NAVAIR 01-260HCB-6-6 - FUNCTIONAL TEST FLIGHT CHECKLIST, Navy Model UH-2C Helicopter	1 June 1967
NAVAIR 03-95D-10 - Technical Manual, Overhaul Instructions, Navy Model UH-2A/UH-2B Helicopters, DRIVE SHAFT AND COUPLING SYSTEM	1 December 1965 changed 1 September 1967
Support Equipment Change 798 - BLADE RETAINING FOLDING ASSEMBLY, Modification of Part Number K604011-301	13 October 1967

Support Equipment Change 804 - ENGINE DOLLY SET, Modification of Part Number K604502-201	13 October 1967
Support Equipment Change 805 - TRANSPORT DOLLY ASSEMBLY, Modification of Part Number K604504-201	13 October 1967
T.O. 1H-43(H)B-580 - TCTO, INSTALLATION OF 5-INCH ATTITUDE INDICATOR, HH-43B/F Helicopters	30 September 1967
T.O. 1H-43(H)B-6CF-1 - Technical Manual, ACCEPTANCE AND/OR FUNCTIONAL CHECK FLIGHT PROCEDURES, HH-43B and HH-43F Helicopters	1 August 1967
T.O. 1H-43(H)B-6CF-1CL-1 - ACCEPTANCE AND/OR FUNCTIONAL CHECK FLIGHT CHECKLIST, USAF Series HH-43B and HH-43F Helicopters	1 August 1967
T.O. 1H-43(H)F-1 - FLIGHT MANUAL, HH-43F Helicopter	22 September 1966 changed 20 September 1967
T.O. 36A11-8-6-4 - Technical Manual, Illustrated Parts Breakdown, TRAILER MOUNTED AIRBORNE FIRE EXTINGUISHER, P/N 58C49, A58C49	12 November 1964 changed 11 January 1967

F. G. Weber, Supervisor, Service Publications

# HH-43 ENGINE YOKE FITTING REMOVAL TOOL

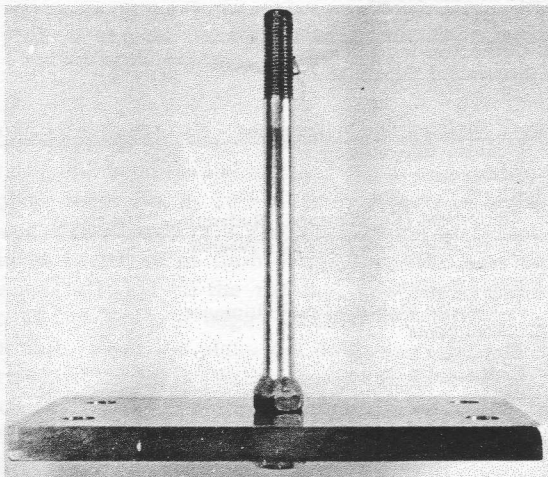
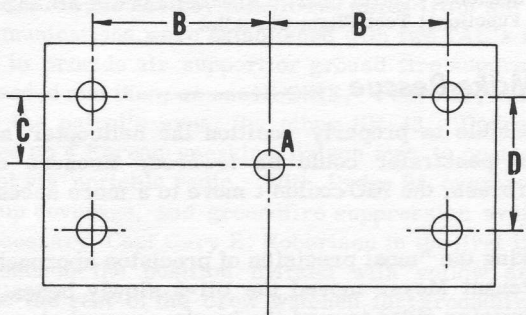


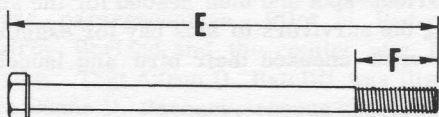
PHOTO ONE

Occasionally, due to torque and corrosion, the engine end yoke fitting, P/N K774681-13, binds and resists normal removal efforts. The tool shown in Photo 1 will supply the required force to overcome this resistance. It's a relatively simple tool, consisting of a steel plate, a 3/8 inch nut, and a 3/8-24 bolt — all may be salvaged from scrap. The plate must measure at least 3 by 5-3/4 inches and, preferably, should be 1/2 inch thick because of the bending stresses which may be imposed.

Begin fabrication by locating the exact center of the plate. Mark and drill five 7/16 inch diameter holes according to the dimensions listed beside the drawing. Drill out the threads in the 3/8 inch nut and extend the bolt threads to at least 1 inch.



**DIMENSIONS:** All holes 7/16-inch;  
Minimum plate size 3 X 5-3/4 inches  
A - Exact center of plate  
B - 2.25 inches  
C - 0.843 inch  
D - 1.686 inches  
E - 5.00 inches  
F - 1.00 inch  
G - 3/8 nut



Abraham R. Thomas, who originated this fitting removal tool, has been commended for his "outstanding performance" while serving as a Kaman technical representative with the Imperial Iranian Army Aviation Battalion. In his letter of commendation, Maj Peter M. Kracht, ARMISH/MAAG, also told Thomas that his professional attitude and intricate knowledge of the H-43F were "invaluable" in providing training and maintenance assistance to the helicopter mechanics in the Battalion.

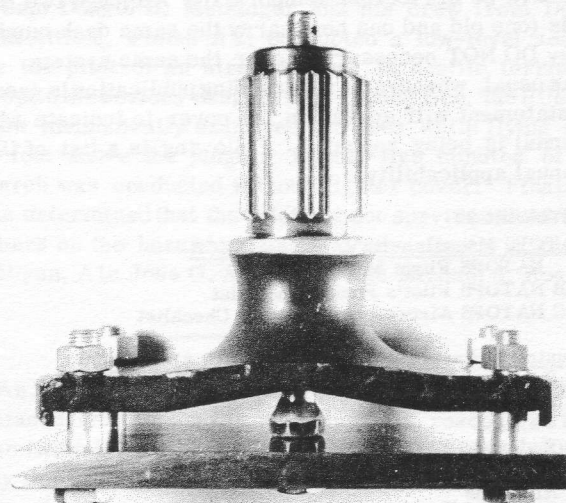


PHOTO TWO

Assemble the tool by inserting the bolt through the center hole in the plate and slide the nut up the shank of the bolt. Position the nut close to the plate and leave enough clearance so that the plate may rotate freely between the bolthead and the drilled nut. Maintain this clearance and weld the nut to the bolt.

In use, the bolt is passed through the center of the yoke fitting and threaded into the engine shaft. Make sure the bolt bottoms into the engine shaft so that applied pressure will be on the bolt and not on the bolt threads. Bolt the plate to the yoke similar to the method shown in Photo 2. Tighten the bolts evenly until the yoke breaks free on the splines. Remove the tool and lift out the yoke.

## 1000-Hour Pilot Awards

Three more pilots — two Air Force and one Navy — have joined the ranks of those who have logged 1000 hours in Kaman-produced helicopters. Thousand-hour plaques have been presented by the company to: **Maj Gerald A. Jones**, Headquarters, CARRC, Richards-Gebaur AFB, Mo.; **Capt Henry P. Fogg**, Det 7, EARRC, Seymour Johnson AFB, N. C.; and **Lt Paul W. Kayle**, HC-2, NAS Lakehurst, N. J. Major Jones logged his 1000 hours in an HH-43B HUSKIE. Captain Fogg, who passed the magic mark while on duty in Southeast Asia, flew his time in HH-43A and HH-43B helicopters. Lieutenant Kayle compiled his 1000 hours at the controls of a UH-2 SEASPRITE.

# INFORMATION ON UH-2 MANUALS

In conjunction with delivery of the UH-2C to the Fleet, supporting publications are being introduced to the field. In the interest of economy, it was decided by Naval Air Technical Services Facility to combine UH-2A, UH-2B and UH-2C information when practical and, where necessary, to issue separate publications for the UH-2C. The following designations have been assigned:

1. Publications pertaining only to the UH-2C will be identified with HCB (NAVAIR 01-260HCB-).

2. HCA (NAVAIR 01-260HCA-) will remain on those publications pertaining only to the UH-2A and UH-2B helicopters except:

3. HCA-2 (Maintenance Instruction Manual); HCA-3 (Structural Repair) and HCA-N2 (Cross Servicing Schedule) will apply to UH-2A, UH-2B and UH-2C models.

While in the process of changeover, it is likely that two maintenance manuals carrying the same dash number will be in Fleet use temporarily. Although two manuals (one old and one new) carry the same dash number, they DO NOT necessarily cover the same system.

As usual, whenever a superseding publication is issued, a statement will appear on the cover to indicate which manual is being replaced. Following is a list of UH-2 manual applicability.

## UH-2A/UH-2B

### NATOPS Manuals - NAVAIR 01-260HCA

- 1 NATOPS Flight Manual
- 1B NATOPS Pilot's Pocket Checklist
- 1C NATOPS Aircrewman's Pocket Checklist

### Illustrated Parts Breakdown - NAVAIR 01-260HCA-4

- 1 Rotors and Controls
- 2 Drive Systems
- 3 Utilities
- 4 Radio and Electrical
- 5 Furnishings
- 6 Airframe
- 7 Special Tools and Equipment
- 8 Numerical Index

### Periodic Maintenance Requirements - NAVAIR 01-260HCA-6

- Periodic Maintenance Requirements Manual
- 1 Preflight Maintenance Requirements Cards
- 2 Post Flight/Operational Maintenance Requirements Cards
- 3 Daily Maintenance Requirements Cards
- 4 Calendar Maintenance Requirements Cards
- 5 Calendar Sequence Control Chart
- 6 Functional Test Flight Checklist

by Frank G. Weber  
Supervisor, Service Publications

## UH-2A/UH-2B/UH-2C

### Miscellaneous - NAVAIR 01-260HCA

- N2 Cross Servicing Schedule
- 3 Structural Repair Manual

### Manual, Maintenance Instructions - NAVAIR 01-260HCA-2

- 1 General Information
- 2 Airframe
- 2.1 Flight Controls
- 3 Equipment (Furnishings, Hydraulics, Utilities)
- 4 Power Plant and Related Systems
- 4.1 Transmission System
- 4.2 Rotor System
- 5 Automatic Stabilization Equipment
- 5.1 Instruments
- 6 Electrical System
- 7 Radio and Radar Systems
- 8 Wiring Data - UH-2A/UH-2B
- 8.1 Wiring Data - UH-2C

## UH-2C

### NATOPS Manuals - NAVAIR 01-260HCB

- 1 NATOPS Flight Manual
- 1B NATOPS Pilot's Pocket Checklist
- 1C NATOPS Aircrewman's Pocket Checklist

### Illustrated Parts Breakdown - NAVAIR 01-260HCB-4

- 1 Numerical Index and Reference Designation Index
- 2 Airframe
- 3 Flight Controls
- 4 Equipment (Furnishings, Hydraulics, Instruments, Utilities)
- 5 Power Plant and Related Systems
- 6 Transmission System
- 7 Rotors
- 8 Radio and Electrical
- 9 Special Support Equipment

### Periodic Maintenance Requirements - NAVAIR 01-260HCB-6

- Periodic Maintenance Requirements Manual
- 1 Preflight Maintenance Requirements Cards
- 2 Post Flight/Servicing/Conditional Maintenance Requirements Cards
- 3 Daily/Special Maintenance Requirements Cards
- 4 Calendar Maintenance Requirements Cards
- 4.1 Calendar Maintenance Requirements Cards T58-GE-8B Engine
- 5 Sequence Control Chart (Calendar)
- 5.1 Sequence Control Chart (Calendar) T58-GE-8B Engine
- 6 Functional Test Flight Checklist

## UH-2 Chops Wood To Make Rescue

For UH-2 pilot Lt Frederick C. Meyer, Jr., and his crew from HC-1's Det 108, the first part of the mission was comparatively simple. After launching from the USS William V. Pratt, the SEASPRITE skirted several known heavy flak concentrations and then arrived in the area where the pilot of a battle-damaged F-4 Phantom had ejected over enemy territory. He had landed near the top of a 2800-foot mountain and only a few hundred yards from an outpost which, luckily, was unoccupied. With his weapon ready, Ernest M. Meyer, ATR2, warily watched the enemy installation as John W. Freeman, AMH3, lowered the forest penetrator and hoisted the survivor aboard.

Picking up the RIO, the second member of the F-4 crew, was anything but simple. After a half-hour search, he was located at 2500 feet on the side of a steeply banked, concave ridge covered with a dense, 30-foot-high canopy of entwined branches. Even though he was only a few feet away from the SEASPRITE, it was almost

impossible to properly position the helicopter so the forest penetrator could be lowered. Because of the underbrush, the RIO couldn't move to a more accessible area.

Making the "most precision of precision approaches," Lieutenant Meyer moved the UH-2 slowly beneath the overhanging ridge toward the jungle-covered slope. He then held the helicopter in the tree tops as the rescue seat was lowered.

"At this point," Ens C. H. Yates, III, the copilot said, "we were chopping off small tree limbs with our rotor blades and munched a few leaves with the tail rotor."

As the rescuee was being hoisted to safety, the SEASPRITE pilot began maneuvering the rescue helicopter out of the precarious spot and then headed for the ship. After delivering the survivors to sick bay for examination, the UH-2 crew checked their bird and launched again.

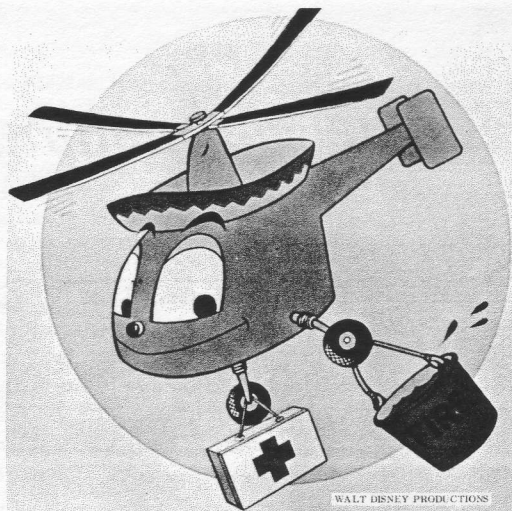
continued from page 12

**HELP IS ON THE WAY**—Personnel from Det 7, 38th ARRSq, Da Nang AB, are proudly displaying this insignia which Walt Disney Productions designed at their request. It combines the "Pedro" call letters often assigned to the HH-43 with the HUSKIE'S dual role of fire suppression and air crew recovery. (USAF photo)

The flaming wreckage was loaded with bombs and a warning had been issued to clear the area — but an HH-43 crew from Det 8, 38th ARRSq, moved in anyway to evacuate an injured pilot from the dangerous area. The incident occurred at Cam Ranh Bay AB after a plane crashed, skidded off the runway, and finally came to a stop at the water's edge. Aboard the HUSKIE which scrambled when the plane set down were Capt Allen R. Martin, RCC; 1stLt Willie L. Farrow, copilot; SSgt Jacob V. Carter, medical technician; SSgt Hubert R. Perkins and A1c Gunther Koppenhofer, rescue specialists.

The HH-43 was hovering over the flaming aircraft with the fire suppression kit when crash trucks arrived, so Captain Martin used rotor downwash to aid the ground rescuers in approaching the plane. Soon afterward, as the HH-43 withdrew in response to a signal from the fire chief, the helicopter crew spotted a pilot lying in the water a short distance from the wreckage. As the FSK was set down and a landing made approximately 100 feet from the survivor, the tower advised the rescuers to evacuate the area because the time factor on the bombs had elapsed and the fire vehicles had already moved away. Instead, the HUSKIE crewmen left the helicopter and hurried toward the burning wreckage. As they did so, the crackling of the flames was suddenly penetrated by a series of small explosions — they kept on! The pilot was placed on a stretcher, carried to the waiting helicopter, and then airlifted to the hospital.

Two HH-43F's from Det 12, 38th ARRSq, Nha Trang AB, teamed up to evacuate a Korean infantryman injured on a search and destroy mission 20 miles from the base. Communications were established with two FAC's in the area to provide air support or ground fire suppression as needed and then, as one HUSKIE, "Pedro 99," circled near the patrol's area, the other HH-43, "Pedro 98," picked up a Korean-speaking liaison man to contact the patrol via portable radio. With Pedro 98 overhead for backup coverage, and groundfire suppression available if necessary, Capt Gary E. Robertson in the first HH-43 approached the position marked with yellow smoke. While the rest of the crew watched for groundfire and advised as to tree-rotor blade clearance, Captain Robertson hovered approximately 200 feet above the ground with the bear paws in the tree tops. Gustly winds and the small opening in the trees required precision hovering as the hoist cable was let out almost its entire length. For 15 minutes the HUSKIE was held in the position until the litter bearing the patient was safely aboard. With Captain Robertson were Capt John L. Belina, copilot; A1c Jonnie R. Childress, flight engineer; and SSgt James Souza, pararescueman. Pilot of Pedro 98 was Capt Melroy Borland and the copilot was Capt Arden L. Blythe. TSgt Adron D. Ratcliff was flight engineer and A1c Duane D. Hackney, rescue specialist.



Capt Donald D. Metzinger and his crew from Det 9, 38th ARRSq, Pleiku AB, conducted a low-level search for the pilot of an aircraft down in hostile territory. Despite the obvious danger from ground fire, the HUSKIE crew methodically examined the area while flying only 10 feet above the jungle. Twenty-five minutes of the search was conducted without fighter cover. Finally it was determined that the pilot had not survived the crash. Others on the hazardous mission were Capt Francis B. Gilligan, A1c Jose G. Abara and A2c Michael J. Rosler.

An F-100 pilot who splashed into the water a short distance from a hostile shoreline was rescued in less than two minutes by an HH-43 from Det 11, 38th ARRSq, Tuy Hoa AB. Pilots of the rescue HUSKIE were Capt Troy G. Irvin, RCC, and 1stLt James P. F. Egbert. Crewmen were SSgt James A. Phillips, flight engineer, and A1c Paul J. Volges, aeromedical specialist. Earlier, the HH-43 crew scrambled and hooked up the FSK when the F-100 reported low oil pressure. However, the pilot then advised that he was heading for the sea to bail out. The FSK was repositioned, the firemen dropped off, and the flight engineer picked up in a matter of seconds. The chopper was hovering 100 yards from the downed pilot as he entered the water. For Lieutenant Egbert the mission was a particularly satisfying one — it was his first "save" although he had been with the detachment for several months and had participated in numerous missions made under combat or similar "hairy" conditions.

Flying at night through rain showers and thunderstorms, an HH-43 crew from Det 3, 38th ARRSq, Ubon AB, Thailand, evacuated a US civilian whose neck had been broken in a truck accident 50 nautical miles from the base. Frequent lightning strikes in the area, coupled with a lack of proper equipment on the ground, prevented ground communication to the helicopter. Failure of the air direction finder further complicated the mission for Capt Ted Schroeder and his crew, however, a successful landing was made with the aid of automobile headlights. The return trip with the injured man was made under the same conditions. Sharing in the hazardous evacuation were 1stLt Thomas E. Kullgren, copilot, and SSgt Billy R. Bloomer, crewman.

# Huskie Happenings

...A civilian, suffering from second and third degree burns over most of his body after a stove explosion, was evacuated from a rugged, mountainous area 45 miles from Paine Field by an HH-43 crew from Det 5, WARRC (MAC), McChord AFB, Wash. To make the pickup, Maj Erling R. Drangstveit landed the HUSKIE in a small, confined area at 5300 feet and then held the helicopter in position to compensate for the uneven ground which prevented all four wheels from touching. Other members of the rescue crew were SSgt's James T. Hines, Joseph J. Brown and Eusebio Cantu. The HUSKIE flew a total of 210 miles to evacuate the patient. It would have taken an estimated six to eight hours to pack him out on foot.

...In an unusual mission, an HH-43B HUSKIE crew from Det 4, AARRC (MAC), Ramstein AB, Germany, located the drop scene after an F-102 pilot reported accidentally releasing a six-foot-long training dummy missile. The missile had penetrated the roof of a one-story building and then exited through the wall without causing injury to personnel. Warnings to stay clear of the area were given on the helicopter's loud hailer and then the HH-43 returned to base, picked up a base representative and flew him to the site. Capt Joseph V. Leech made a confined area landing on a driveway and let off the representative to survey the damage and make recovery plans. With Captain Leech were SSgts Fabian Soto and D. Person, rescue specialists, and A1c B. Fernan, crewman.

...An HH-43B crew from Det 15, WARRC, Luke AFB, Ariz., made a 350-mile-round-trip flight to save the life of a newborn "blue" baby. The 10-hour-old infant, who had other ills in addition to the serious respiratory problem, was evacuated from a Supai Indian village located at 4,000 feet in the Grand Canyon. The mother, in fair condition, was also airlifted to the hospital by Capt Ellis E. Wallace and his crew. En route, the baby stopped breathing but revived after heart massage and the administration of oxygen by Capt Steven K. Wilson (MC), flight surgeon. Others sharing in the mercy mission were 2ndLt Wayne A. Grant, III, copilot; A1c E. G. Parker, helicopter mechanic; and A1c Kenneth A. Parker, medical technician.

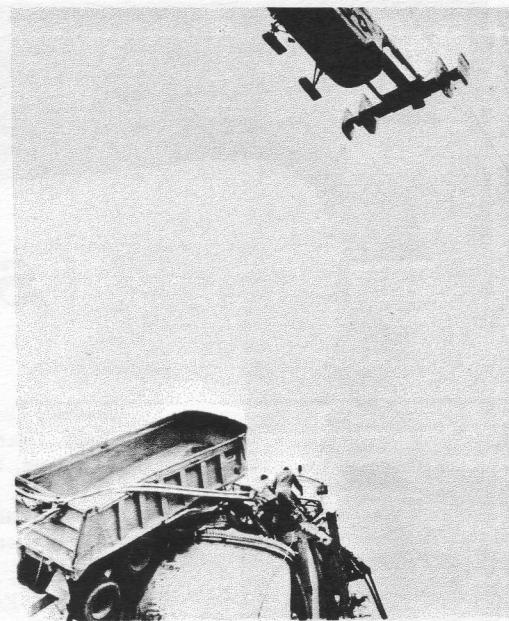
...A fisherman, reported missing after he wandered into the woods west of Eckerman, Mich., was located in an after-midnight mission flown by an HH-43 crew from Det 6, CARRC(MAC), at Kincheloe AFB. After searching for more than an hour, the fisherman's campfire was located and SSgt Lawrence O. Gibson, rescue survival specialist, was lowered to aid the rescuee into the hoist. The HUSKIE was piloted by Capt Kenneth G. Griffis and John H. Denham. SSgt Keith P. Hague was crew chief.

...Two HH-43B's, "Pedro One and Pedro Two," from Det 18, EARRC(MAC), Thule AB, Greenland, took part in a search mission that resulted in the rescue of the base's assistant Danish postmaster. The HUSKIES took off after it was reported the postmaster was seven hours overdue on a 110-mile trip by water in a 14-foot aluminum boat. Thirty-five miles north of Thule the missing man was located — he had been rowing for 12 hours and had about 15 miles to go. The rest of the trip was made aboard one of the rescue choppers. Members of the Pedro One crew were 1stLt Albert C. Schube, pilot; Capt John J. Duggan, copilot; and A1c Wendell D. Granstaff, crew chief. Aboard Pedro Two were Capt George R. Ehler, pilot; Capt Harold L. Hiner, copilot; and A1c Gary D. McGrew, crew chief. Others taking part in the operation were Cdr Svend Oleson, Danish liaison officer at Thule, Jens Zinglersen, Danish postmaster, and Maj Leroy E. Weeks (MC), flight surgeon.





**PARAMEDIC AT WORK**—Risking his own life, MSgt Francis Dean, paramedic, extricates an injured truck driver from the cab of his vehicle as an HH-43B from Det 9, CARRC, England AFB, La., hovers overhead. The gravel truck was precariously suspended atop a 40-foot-high support when the bridge, at Derry, La., collapsed. After being lowered from the helicopter, Dean climbed through the wreckage to reach the injured man. He was then placed in a rescue basket and hoisted to the helicopter. At left is the crew which carried out the spectacular aerial rescue. Left to right, Alc Huel Wilson, hoist operator; Sergeant Dean, Capt John L. Debevec, copilot; and Maj Lucian A. Gunter, pilot. (USAF photos)



**NEW EQUIPMENT FOR HUSKIE**—A Kaman-developed installation of FM radio and IFF radar equipment is being tested in a USAF HH-43B for possible use in Southeast Asia. The radar set provides ground stations with a means of positively identifying the rescue helicopter. Other specialized equipment is also being tested. Cliff Packard, project engineer, is showing one of the structural changes made necessary by the installation to Frank L. Fragomeni, mechanic, Karl F. Recoulle, electrician, and A2c Philip M. Cosco, Det 8, CARRC, Selfridge AFB, Mich., helicopter crew chief. In second photo, Lt Richard E. Klein, USN, DCASO representative at Kaman, operates the newly installed radio from the cockpit while test engineer Bert Howard, in foreground, records results on test set. Assisting are Recoulle and Airman Cosco.



**BEHIND EVERY ARRS MISSION**—When not engaged in the real thing, ARRS detachments maintain their life-saving proficiency with almost constant training. Shown during one phase of such a session is an HH-43B crew from Det 11, CARRC(MAC), Laughlin AFB, Texas. At left a litter is lowered prior to picking up a 150-pound "survivor." In second photo, the "rescuee" is hoisted to safety. In third photo, a simulated fire suppression kit is placed in a designated spot. Shown above is MSgt William Penman, medic, as he directs the pilot into position. Training ended for the day, Capt Thomas Scharf records flight time as SSgt Jesus Munoz watches. The photographs accompanied a feature story on the detachment by Janice Law and originally appeared in the "Border Eagle."

## SCROLL OF HONOR

1965

Nadler, Charles P., Capt, USAF  
Nagy, Charles W., A1c, USAF  
O'Beirne, Henry J., A1c, USAF  
O'Connor, Edward R., Cpl, USMC  
Odak, Kutikitsok, Civilian  
O'Dell, Dennis L., A2c, USAF  
Paparella, Andrew C., A2c, USAF  
Perkins, Kenneth L., TSgt, USAF  
Petty, Jimmie D., AMS3, USN  
Phelan, Joseph P., 1stLt, USAF  
Pipa, J. L., Capt, USMC  
Pitsenbarger, William H., A1c, USAF  
Potter, Dale L., Capt, USAF  
Precious, Thomas D., 1stLt, USAF  
Prince, Philip S., Capt, USAF  
Purvine, Bruce M., Capt, USAF  
Radcliffe, Lynn K., Cpl, USMC  
Rafiq, M., FltLt, PAF  
Ramsey, Homer L., SSgt, USAF  
Reed, Alvin C., TSgt, USAF  
Regan, John G., TSgt, USAF  
Riederich, John B., Capt, USAF  
Riley, James T., Capt, USAF  
Robinson, William A., A1c, USAF  
Rodenberg, James C., Capt, USAF  
Rodriguez, Roberto, SSgt, USAF  
Romisch, Herbert H., A1c, USAF  
Roth, James E., Lt, USN  
Rush, Charles P., Capt, USAF  
Saintsing, E. T., Lt, USN  
Salmon, Daniel H., A2c, USAF  
Sanders, Bill W., A2c, USAF  
Sans, Richard J., 1stLt, USAF  
Sapp, Charles S., LCdr, USN  
Schaetzl, Stanley O., Capt, USAF  
Scheer, Kenneth R., A1c, USAF  
Schiele, Robert A., ADR3, USN  
Schildgen, Paul R., Capt, USAF  
Schipper, George E., SSgt, USAF  
Schrock, Richard R., SSgt, USAF  
Sever, J. G., Lt, USN  
Severns, Charles D., SSgt, USAF  
Shah, Riaz, FltOff, PAF  
Singleton, Herman R., A1c, USAF  
Sira, H. N., AMH3, USN  
Skov, Ole, Dr., Civilian  
Smith, J. C., ADJ3, USN  
Smith, Randolph M., A2c, USAF  
Solberg, Harold A., Capt, USAF  
Sonnenberg, Norman L., A1c, USAF  
Sprague, Stanley B., Lt, USMC  
Stamper, Jackie L., A1c, USAF  
Stevenson, Billie B., ADR3, USN  
Strayer, Jay M., Capt, USAF  
Stroud, Harold G., SSgt, USAF  
Sullivan, Charles A., SSgt, USAF  
Sumrall, William H., Lt, USN  
Sweet, Charles R., 1stLt, USAF  
Sylvester, R. A., ADJ1, USN  
Tadewald, Lyle J., A1c, USAF  
Thomassy, Louis E., Lt(jg), USN  
Turk, Walter F., 1stLt, USAF  
Tyler, James L., SSgt, USAF  
Uhl, William R., Capt, USAF  
Vandervelde, Kent M., Lt(jg), USN  
Veasey, Charles R., A1c, USAF  
Vick, Ralph E., 1stLt, USAF  
Vigare, Lenote C. MSgt, USAF  
Walker, Thomas, Capt, USAF  
Wallace, Richard A., A2c, USAF  
Watson, Donald L., SSgt, USAF  
Watson, James W., TSgt, USAF  
Watson, Joe H., Capt, USAF  
Wege, David J., Capt, USAF  
Welsh, Donald M., 1stLt, USAF  
Wetzel, Weslie W., LCdr, USN  
Wheeler, David J., SSgt, USAF  
Wilhelm, Carl F., A2c, USAF  
Wilkins, Calvin, TSgt, USAF  
Yancy, Curtis F., SSgt, USAF  
Young, Jon H., A1c, USAF  
Zaidi, A. Y., Sgt, PAF  
Zalewski, Zigmund W., 1stLt, USAF

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.