

KAMAN

Rotor Tips



JANUARY-FEBRUARY, 1972

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Rotor Tips

Volume VII Number 2

ON THE COVER

Kaman turbine-powered SAVER (Stowable Aircrew Vehicle Escape Rotoseat) on its first test flight. At the controls is Andy Foster, KAC chief test pilot. With the initial flight, SAVER coincidentally became the world's first turbine-powered autogyro. (Flight photo by R. Cooke; static photo by W. McLaughlin)

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(KAMAN SAVER makes historic flight...



F. "Andy" Foster

Kaman Aerospace Corporation's SAVER (Stowable Aircrew Vehicle Escape Rotoseat), an advanced escape and rescue device for pilots who eject from disabled jet aircraft downed over enemy or hostile terrain, flew Jan. 10, 1972, in autogyro configuration with its operational rotor system. With its initial flights using a larger prototype rotor Dec. 29, 1971, at Barnes Municipal Airport, Westfield, Mass., SAVER coincidentally became the world's first turbine-powered autogyro, continuing the succession of historic precedents in rotary wing technology accomplished by the Kaman Corporation subsidiary. Kaman was first to apply a gas turbine to the helicopter in 1950.

SAVER, whose development is funded by the U. S. Naval Air Development Center, Warminster, Pa., is one of several parallel AERCAB (aerial escape and rescue capability) concepts under joint study by the U. S. Navy and Air Force. It is intended to provide the pilots of high performance aircraft, such as the F-14, F-4 and A-7, with the ability to eject from disabled aircraft and fly to more suitable areas, thus improving their chances of escape and rescue.

SAVER is a convertible ejection seat with deployable rotor, jet engine and controls which unfold automatically into a powered autogyro. The deployment sequence is initiated upon ejection and, even if the pilot were unconscious, the rescue seat would follow a radio beacon to a safer landing area where the pilot would be separated from the seat and descend to earth by parachute. Fuel is provided for a half-hour of flight at 100 knots.

Equipped in its test configuration with ground operation equipment, tricycle landing gear, an electrical system and basic flight and engine instruments, SAVER was operated in towed flight on December 28 by Kaman's chief test pilot, Francis A. Foster. The following day additional towed flights and high speed taxi runs on the turbofan engine preceded the start of free flights with the prototype rotor.

A few days later, Foster flew SAVER with its stowable operational rotor the length of Barnes' 9000-foot main runway at a maximum speed of 75 knots, using only half the available power on the 420-pound-thrust Williams Research Corp. WR-19 turbofan engine. The vehicle became air-



Photos: Top left, first flight in autogyro configuration with operational rotor system. At right, before free flight was attempted, preliminary towed training flights were made. SAVER is shown while flying in tow, Dec. 29th, behind a ground vehicle traveling 70 miles an hour.

borne at 55 knots, with 900 rpm on its 14-foot diameter telescoping aluminum rotor blades, at a gross weight of about 700 pounds. Handling and control qualities were as predicted before flight, Foster reported.

The test vehicle has a control stick for cyclic pitch, twin rudders activated by foot pedals and a throttle. For ground operation, braking on the main wheels and nosewheel steering also are accomplished by foot pedals.

Kaman's SAVER project began in December, 1968, with a preliminary design and feasibility study sponsored by NADC. Fabrication of a full scale wind tunnel model followed. This model was tested in the wind tunnel at NASA-Ames Research Center in California in September, 1970, and vehicle feasibility and rotor deployment were demonstrated.

Current phase of Kaman's contract calls for limited flight demonstrations of the autogyro-configured vehicle. Next milestone in the development sequence would be successful deployment of the basic vehicle in an unmanned air drop test. To date, the government has invested approximately a half million dollars in the SAVER program.



INITIAL FLIGHT—Preparations are made for first towed flight with prototype rotor. At left, SAVER waits behind an Air National Guard F-100 before receiving take-off clearance. Below, towed flight Jan. 10th.



KAMAN PILOT HONORED—Jack C. Goodwin, assistant chief test pilot, was the instructor during a recent UH-2C flight-training program at NAF Naples, Italy. A USNAF plaque was later presented to him in recognition of his services. Shown during presentation are, from left, Ens (now LTJG) Michael D. Meloy, assistant air terminal officer; Lt Richard G. Stout, personnel officer; Goodwin, LTJG Michael D. Morton, line officer; Lt Leroy Cook, maintenance/material control officer.

In addition, Capt Russell E. Blalack, NAF command officer, sent Kaman Aerospace a message praising Goodwin's "untiring efforts" during the training program. (USN photo by PH3 Lawain T. Knapp)



DET 1 PEDRO CREW SAVES TWO DESPITE OBSTACLES

Fog, rain, broken clouds, poor visibility, a day search over mountainous enemy territory, a night landing in a confined area on a beach....in spite of these and other obstacles, an HH-43 Pedro crew from Det 1, 3rd ARRGp, Phan Rang AB, rescued two downed pilots in urgent need of medical assistance.

The unusual mission began for Capt Robert M. Albers and his crew after an incomplete "Mayday" distress call was received. The HH-43 was airborne and heading for the supposed crash site two minutes later. A 20-minute search over the mountainous area, known to harbor hostile forces, failed to reveal the downed aircraft, however. Contact was established with an Army helicopter which was able to relay the full circumstances of the Mayday transmission. Acting on the information received, another 20-minute search was made in the gathering darkness. Efforts were further hampered by the poor weather—there were low scattered-to-broken clouds in the area, fog covered the lower terrain and a light-to-moderate rain was falling.

At this time, the Army helicopter monitored a radio transmission of "uncertain origin" that provided a clue to the location of the downed aircrew. The message said two men were in a Vietnamese fishing boat that was proceeding to a coastal fishing village. No further information was given....no contact could be established with the originator of the transmission....there were numerous fishing villages along the coast.

The crew of Pedro 20 was approximately two miles from the coast when this information was passed to them. Captain Albers headed directly for the coast and began a search for the boat. To this point, very little information had been given about the aircraft crash. The original Mayday contained only the call sign, the word "Mayday," and a garbled phrase, possibly "on fire." It was established by other means that there were two pilots aboard the aircraft.

A search of the nearby coastline revealed several fishing boats in the area. Capt Kevin M. Mahan, the copilot, noticed a flashlight being waved from one, and closer observation revealed that there were two injured Americans in the vessel. The Vietnamese fisherman was attempting to beach the boat on a sand bar about thirty yards from shore. It appeared that the most expeditious means of rescue would be to land on the adjacent beach and deploy

the helicopter mechanic and medical technician to aid the downed pilots.

Captain Albers selected a relatively level spot on the narrow beach and made an approach and landing. Due to the restricted area and best approach route, a crosswind landing was accomplished. Rotor tip clearance, especially on the left side of the aircraft, was extremely close. The sand rose on that side to within two feet of the blades. There were several beached boats in the area which also restricted blade clearance.

SSgt David P. Dickensheets, the medical technician, and SSgt Allyn L. Matheson, helicopter mechanic, deplaned and ran into the surf to aid the pilots. The downed airmen were helped out of the boat and aided to the aircraft. The survivors had serious lacerations, varying degrees of back injuries and both were in shock from loss of blood. After loading, Pedro 20 made an immediate takeoff for return to Phan Rang Dispensary. Sergeant Dickensheets treated the survivors for shock, and stopped the bleeding from their wounds.

At this time, complete darkness had fallen, and Pedro 20 was approximately thirty miles from Phan Rang. The weather had deteriorated rapidly after nightfall. Fog was more extensive, the rain was steady, visibility was poor and because of the need to stay below low broken clouds, "navaids" were useless. First following the coastline, then using lights and landmarks, Pedro 20 held maximum comfortable airspeed while returning to Phan Rang. Hospital personnel were standing by when Pedro 20 landed on the dispensary helipad.

Approximately five minutes later, Pedro 20 returned to the alert helicopter pad with less than twenty minutes of fuel remaining.

Vietnamese Colonel Medevaced

Flying over hostile territory and through a hazardous mountain pass, an HH-43 crew from Det 1, Phan Rang AB, medevaced a seriously-ill Vietnamese colonel to the hospital at Cam Ranh Bay. Rain showers were encountered several times during the 30-mile flight.

Capt Daniel J. Biezdad was pilot of the rescue helicopter and Capt Larry B. Doege was copilot. Also aboard were Capt Gary Kissel (MC), a flight surgeon; and Sgt Richard H. Taylor, crewman.



2000 HOURS—Capt John W. Christianson, Det 5, 40th ARRWg, Hahn AB, Germany, logged his 2000th hour in the HH-43 HUSKIE in September. He is shown with helicopter No. 62-4551 in which the milestone flight was made. It is the same aircraft which Captain Christianson saved by prompt action in a forced landing from low altitude and low airspeed on 14 May, 1971. For that action he received the MAC Outstanding Individual Safety Award. (USAF photo)

LAMPS Activities

*By Bruce Goodale,
LAMPS Program Manager*

Delivery of the SH-2D LAMPS SEASPRITES which began in September, 1971, continues on schedule at the rate of two to three per month. By the end of March, 1972, a total of 20 will be in Fleet use.

HC-4 at NAS Lakehurst, N. J., the designated LAMPS squadron for the Atlantic Fleet, was first to receive its SH-2D. It was deployed on a successful training cruise in November aboard the USS Wainwright (DLG 28). HC-4 also became the first to send the SH-2D to an operational theater when its LAMPS Detachment and helo were airlifted to the Mediterranean. Here they joined the USS Belknap (DLG 26) in early December.

HC-5 at NAS Imperial Beach, Calif., the designated LAMPS squadron for the Pacific Fleet, deployed its first SH-2D in mid-December on a successful training cruise operating from the USS Sterett (DLG 31). This first LAMPS Detachment from HC-5 is scheduled for operational deployment to the Pacific theater with the USS Sterett in January, 1972.

The high degree of enthusiasm shown by the Destroyer Navy in anticipation and acceptance of this new addition to their weapons system has been striking, as has been the cooperation between the ship and air personnel of both Fleets.

The Naval Air Development Center, Warminster, Pa., is tasked with developing the next generation of LAMPS equipment, called Mark II, for the SH-2D, and will flight test potential components as part of their D/V-98 At-Sea Program before mid-summer 1972. Kaman is working with NADC to configure two HH-2D's for these tests.

The next issue of Rotor Tips will report on early operational experiences with the SH-2D, and the progress of MK-II development.



FIRST FOR FLEET—Lt John Wright HC-4 pilot, turns over log books of the first SH-2D to be delivered to the fleet to Cdr J. M. Lang, commanding officer of HC-4, NAS Lakehurst, N. J. Watching the acceptance ceremony are, left to right, Cdr C. E. Myers, HC-4 executive officer; LCdr H. J. Fox, HC-4 maintenance officer; Horace F. Field, Kaman senior service representative; Donald E. Bonsall, KAC service representative; Cdr W. C. Powell, HC-4 operations officer and LCdr C. L. Duffie, officer-in-charge of the HC-4 LAMPS section. (USN photo)



DEPARTURE AND ARRIVAL—In left photo, Kaman personnel on hand to say goodbye, and Navy crew of the first SH-2D to be delivered to HC-5, NAS Imperial Beach, Calif. Left to right are, Lt Scott C. Milner, HC-5 pilot; Peter J. Russell, KAC chief production pilot; ADR2 Arthur J. Kowal, VRF-32, copilot; and Herbert R. Ross, production plant superintendent. In right photo, on hand to greet Lieutenant Milner and Petty Officer Kowal after their cross country flight are Capt George E. Smith, left, commanding officer of NAS Imperial Beach, and HC-5's commanding officer, Cdr George T. Crowell, right. (USN photos)



HC-5 LAMPS Det 1 Aboard The USS Sterett



At left, HC-4 SH-2D joins USS Belknap in the Mediterranean. The first LAMPS helicopter to be sent to an operational theatre, the aircraft was airlifted to Crete in an Air Force C-5A, see below, and then flown to ship. At right, HC-5 SH-2D lands on USS Sterett for operational deployment to the Pacific theatre. Below, Capt Jack Hilton, skipper of the Sterett, welcomes aboard Lt Robert Clark, OinC of LAMPS Det 1.



Front, LCdr H. E. Higginbotham, OIC, HC-4 LAMPS Det aboard USS Wainwright; first row, AMH1 B. M. Laurendeau; AE2 D. S. Olsen; AN C. D. Averett; AW1 C. E. Cade. Second row, ATAN K. R. Balcom; AT1 R. L. Daniel; ATAN R. Hooten; back row, AMSC T. C. Leonard; AXC Benton; LCdr F. O. Dammon; Lt J. D. Dickinson; Lt(jg) A. T. Goldberg; Lt(jg) R. E. Schmidt.





ABOARD THE FLAGSHIP—RAdm Sheldon H. Kinney, Commander, Cruiser Destroyer Force, U. S. Pacific Fleet, and William R. Murray, vice president of Test and Development for Kaman Aerospace Corporation, examine SEASPRITE model on the admiral's desk aboard his flagship, the USS Dixie (AD14). The Dixie is a destroyer tender. Admiral Kinney was host for the San Diego Navy Base press briefing at which the SH-2D LAMPS SEASPRITE was introduced and the LAMPS mission explained to the press. Admiral Kinney recalled that his first association with Kaman helicopters was in 1958 when he was commanding officer of the frigate USS Mitscher (DL-2), during flight tests of the Kaman HTK radio controlled helicopter.

The SH-2D LAMPS SEASPRITE was introduced to the U. S. Pacific Fleet and to West Coast newsmen on November 19. During the day-long briefing, a series of programs was presented at NAS Imperial Beach, Calif., by HC-5 and aboard the USS Sterett (DLG 31) and USS Dixie (AD14) at San Diego Navy Base by the public affairs office of the Commander Cruiser Destroyer Force Pacific (COMCRU-DESPAC).

The guided missile frigate Sterett is the first Pacific Fleet warship to be equipped with the Light Airborne Multi-Purpose System and was scheduled for deployment to the Western Pacific in January.

RAdm Sheldon H. Kinney, COMCRU-DESPAC, and Capt Jack Hilton, skipper of the Sterett, told newsmen that the

(Continued on next page)



HC-5 DEMONSTRATION—Lt Scott C. Milner, HC-5 pilot who flew the first West Coast LAMPS SH-2D across country in November, demonstrates tail rotor blade folding for a representative of the San Diego press at NAS Imperial Beach during day-long press briefing.



FLIGHT DECK DISCUSSION—On the flight deck of the USS Sterett (DLG 31), KAC Vice President Murray, and William McLaughlin, manager of public relations, discuss LAMPS deployment with LCdr Steve Abrams of the Sterett. At left, is Lt(jg) Sharon Bridwell, public affairs officer for HC-5, who arranged the static and flight demonstrations at Imperial Beach. (Photos by Teledyne Ryan Aeronautical)



ABOARD THE STERETT—Capt Jack Hilton, left, skipper of the guided missile frigate, and LCdr John A. Georg, public affairs officer for COMCRU-DESPAC, are shown on the deck of the USS Sterett while conducting members of the press on a tour of the ship. The vessel has been dubbed the "Sterett Hilton" by crewmen. Recently returned from a Southeast Asia tour, the DLG had counted more than 1000 helo landings on its flight deck.

LAMPS helo provided the fleet with a new defensive capability to meet submarine and missile threats. The new system, they said, promises substantial tactical advantages to the U. S. Navy during the coming decade, particularly by extending the destroyer's detection capabilities beyond the ship's radar horizon.

The press briefing began in the HC-5 ready room at Imperial Beach. LCdr John A. Georg, public affairs officer for COMCRUDESPAC presented a background film on the Navy's D/V-98 program which prepared the way for development of LAMPS. Participating in the program were Cdr George T. Crowell, commanding officer of HC-5, LCdr LaRon L. Stoker, OIC of the HC-5 LAMPS detachment, and LCdr Richard Groggett, LAMPS coordinator for Cruiser-Destroyer Force-Pacific, and Lt(jg) Sharon Bridwell, public affairs officer for HC-5.

Following the program introduction, SH-2D static display and flight demonstration at Imperial Beach, the briefing continued in Capt Hilton's quarters aboard the Sterett. Captain Hilton and his staff guided newsmen and visitors on a tour of the Sterett's helo flight deck, hangar and CIC. Later, newsmen had the opportunity to interview Admiral Kinney in his quarters aboard the USS Dixie (AD14), flagship of CRUDESPAC.

Kaman Aerospace Corporation was represented at the briefings by William R. Murray, vice president of test and development, and William McLaughlin, manager of public relations.



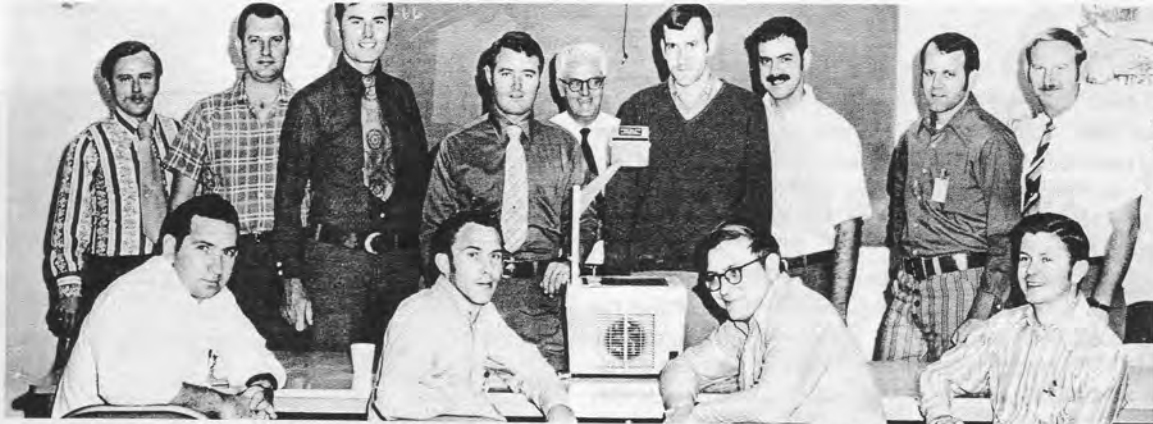
LAMPS GOES TO WAR COLLEGE—To graphically illustrate a LAMPS program presentation by RAdm D. V. Cox, this SH-2D was displayed on the lawn of the Naval War College in Newport, R. I. Admiral Cox, program coordinator for surface ship aviation integration in CNO, spoke before the senior officers attending the War College. LCdr Carl Megonigle (commander selectee), DCASO Kaman, flew the helicopter from the KAC plant in Bloomfield, Conn. With him were Bruce Goodale, KAC LAMPS program manager, and Fred Silverio, LAMPS avionics manager. They described features of the SH-2D to classes at the college.



CELEBRATION—When the first HC-4 LAMPS detachment at NAS Lakehurst, N. J., became operational the occasion called for—of course—a party! Shown during the festivities are, left to right, Mendel Turner, Texas Instrument representative on the USS Belknap; AMC Tommy C. Leonard, POinC; Joseph A. Peluso, KAC service representative; LCdr Harry E. Higginbotham, OinC of the detachment. In the background are, Horace F. Field, senior service representative; William R. Murray, vice president, Test Operations/Customer Service; and Robert L. Bassett, supervisor, Customer Operations Section, all from Kaman. With them is LCdr Fred Dammonn from Fleet Airwing Five and assigned to HC-4 as an advisor. (USN photo)



READY TO BITE—Using imagination and bold brush strokes on the radar nose of this modified Kaman HH-2D SEASPRITE, a Chinese-American engineer at the Naval Weapons Center, China Lake, Calif., transformed the helicopter into an Oriental "monster." Jack Goodwin, KAC assistant chief test pilot, recently flew the aircraft back to Kaman Aerospace Corporation's Bloomfield, Conn., facilities for overhaul and further modification following tests of its electronic equipment at the Navy center. It will rejoin the fleet next spring. (Ruggiero photo)



ATO/SENSOR CLASS—Seated, left to right, AW1 John J. Stinebaugh, AW1 Lawrence R. Waugh, AW1 Alfred G. Stymiest, AW1 Herschel M. Sloan, HC-4; NAS Lakehurst, N. J. Standing, Instructor Richard L. Smith; AW1 Robert J. Stanton, HC-4, Lt Scott F. Milner, Lt James G. Marsh, HC-5, NAS Imperial Beach Calif.; Instructor Robert C. Belisle; Lt John C. Adamson, Lt Allen Petrie, Lt Robert A. Smith, HC-4; Lt Curt W. Huffman, HC-5.



ORGANIZATIONAL MAINTENANCE CLASS—From HC-4, NAS Lakehurst, N.J. are: Front row, left to right, AT1 Victor J. Turosky, AX1 William S. Eberle, AT1 Robert L. Daniel, AT2 Harry M. Holden. Second row, AT2 Charles P. Crosby, AT2 David L. Fry, AX2 Thomas P. Askey. Rear row, AX3 Gary W. Vanderbur, AXAN J. T. Richardson. Instructor is Terrence R. Provost.

PERSONNEL TRAIN. . .

ATO/SENSOR CLASS—Front row, left to right, AW1 Al Blood, Lt(jg) Robert Phillips, Lt(jg) T. J. Corcoran, HC-4; AW1 Edward A. Jeffers, Lt Randall Olsen, HC-5. Second row, Instructor Richard L. Smith; Lt Bob Wolfe, HC-4, AW1 Ronald R. Hodgkiss, AWCS Norvel Wood, Ens David Rannels, Lt(jg) Steven Crenshaw, HC-5; and Instructor Herman M. Demulling.



INTERMEDIATE MAINTENANCE CLASS—Seated, left to right, AX1 John Young, AT1 Charles Newfeld, AT1 Dan Hoff, ATAN Miki Normand, HC-4. Standing, AT2 Timothy Floyd, HC-4; AT2 Larry Dick, HC-5; AT2 Wayne Foreman, AT2 Don Higgins, AX2 Nash Flanagan, HC-4; Instructors Donald R. Delaney and Lionel A. Bentley.

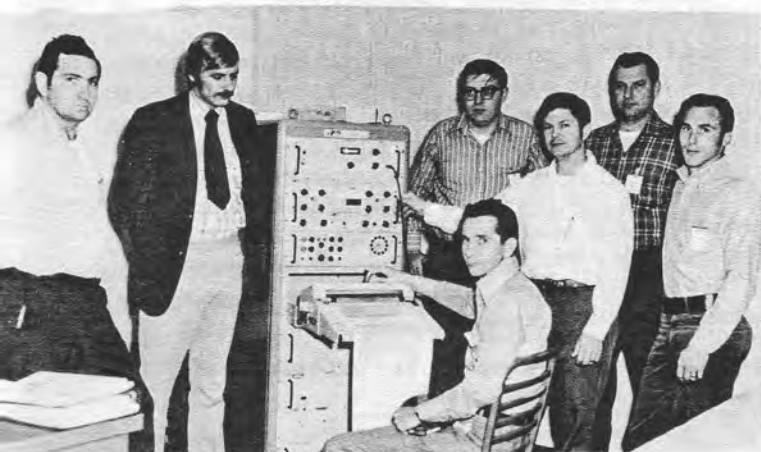


ORGANIZATIONAL MAINTENANCE CLASS—Front row, left to right, AT3 Nagle Winfield, AXAN Thomas Gregory, AX1 Thomas Stewart, AT3 William Anguilm, HC-5. Back row, Instructor Robert C. Belisle; AXAN Bryan Barber, AT2 Wayne Smith, AT3 Walter Storm, AT2 Chris Gibson, AT2 Richard Palcic, AXAN Allen Reeve, HC-5.

Kaman Aerospace Corporation has contracted Diagnostic/Retrieval Systems Inc., Mt. Vernon, N. Y., to conduct operation and organizational level maintenance courses on the LAMPS Low frequency Acoustic Vernier Analyzer (LAVA) System. Photos of some of these classes appear below.



LAVA ORGANIZATIONAL MAINTENANCE CLASS—Seated, left to right, ET1 Gerald E. Miller, ET1 Vance L. Holley, Jr., Advanced Electronics School, NAVSTA, San Diego, Calif.; STG2 John P. Gavin, USS Biddle; ET1 Michael E. Norton, USS Marvin Shields. Standing, ST1 Allen W. Stilley, STCS Jesse M. Newton, USS Fleet Training Center, Norfolk, Va.; STG3 James A. Klein, USS Marvin Shields; Instructor Robert Caldwell; STG2 John D. Stout, STC Jerome A. Ferneding, USS Wainwright.



LAVA OPERATION CLASS—Standing, left to right, AW1 I. I. Stinebaugh, HC-4; Instructor D. E. Negethon; AW1 A. G. Stymiest, AW1 H. M. Sloan, AW1 R. J. Stanton, AW1 L. R. Waugh, HC-4. Seated, AW2 R. D. Liley, HC-4.



LAVA OPERATION CLASS—Left to right, Instructor D. E. Negethon, AW1 A. N. Blood, AW1 E. A. Jeffers, AWCS N. L. Wood, AW1 R. R. Hodgkiss, HC-5.

LAVA ORGANIZATIONAL MAINTENANCE CLASS—Seated, left to right, STG2 Craig E. Taylor, STG2 Joseph R. Horling, USS Hewes; Sheldon A. Hastings, FAETUPAC, San Diego, Calif.; Gaddis G. McKee, NAESU, NAS Imperial Beach. Second row, ST1 Samuel R. Norvell, STG2 Daniel E. Courtright, USS Truxton; Instructor Robert Caldwell; STC Lester E. Price, COMCRUDESPAC, San Diego, Calif., STG2 Scott A. Styverson, USS Biddle. (continued page 19)





SEASPRITE ACTIVITIES

Varied Missions For Oceana SAR Unit

During a two-week period, HH-2D SEASPRITE crews from the SAR Unit at NAS Oceana, Va.: medevaced a man with an injured eye from the USS Biddle to the hospital; guided ground parties to the site where an H-46 had made a forced landing at night; also at night, located a small civilian boat in Chesapeake Bay and assisted the Coast Guard; medevaced an injured sailor from the USS Boulder.

Manning the HH-2D on the first mission were Lt(jg) John S. Mastin, pilot; Lt William R. Butler, Jr., copilot; ADR1 Edward B. Hess and AMS3 Walter P. Mueller, crewmen. To make the pickup, Lieutenant Mastin landed on the deck of the Biddle and the patient and a corpsman were taken aboard. Less than half an hour later the injured man was in Portsmouth Naval Hospital.

A few days later, NAS Oceana received the following message of appreciation from the USS Biddle:

"Please express my appreciation to all concerned with arranging air medevac on Biddle, 4 Nov 71. Individual medevaced recuperating at Navhosp, Portsmouth, and is expected to return to full duty in near future. It is comforting to know that responsive individuals are as close as the radio in time of need."

In another message, from COMNAVAIRLANT, VAdm Robert L. Townsend said that he had "noted with pleasure" the message from the Biddle.

The second mission began with a call for assistance after an H-46 with 10 people aboard had a dual engine flame-out shortly after 10:15 p.m. and landed in a small pond in about three feet of water. The HH-2D crew was over the accident site 15 minutes after launching in response to the emergency.

After ascertaining that all aboard the downed helo were uninjured, the SEASPRITE crew used flood lights and the loud hailer to direct the ground rescue crew to the scene.

After the ground party arrived, Lt Robert H. Pasco landed the HH-2D on a sandy landfill next to the pond and picked up four persons and their baggage from the H-46 and airlifted them to NAS Norfolk. Another Navy helo and one from the Coast Guard picked up the rest of the survivors.

Flying with Lieutenant Pasco on the mission were Lt(jg) John J. Stahl, copilot; AMH2 Kenneth N. Conner and AMEAN Timothy J. Patrick, crewmen.

The Oceana HH-2D launched into the moonless sky on the third mission after a small boat, out of gas in Chesapeake Bay, flashed an SOS which was spotted by a passing civilian plane. The SEASPRITE was on the scene 15 minutes later. Lt David D. Bashista hovered the helicopter above the dark waters of the bay and by using the loud hailer, it was determined that no medical assistance was necessary. A flare was dropped by the HH-2D crew to aid a Coast Guard cutter in locating the stranded boat and the position was also radioed to the surface vessel.

The SEASPRITE left the scene after the cutter appeared alongside and advised that no further assistance was needed. Other members of the rescue helicopter's crew were Lt(jg) Robert R. Stone, copilot; AMS2 Ernest Parnell and ADR2 Harold C. Jackson, crewmen.

On the fourth mission, Lieutenant Pasco and his crew took off from NAS Oceana and headed for the USS Boulder, after a call for assistance was received from the LST a few miles off-shore. Shortly afterward, the HH-2D landed on the deck of the vessel and the injured sailor, who had suffered internal injuries in a fall down a ladder, was placed aboard the helicopter. A corpsman from the ship accompanied the patient on the flight to the Portsmouth Naval Hospital where a landing was made in a nearby baseball field. With Lieutenant Pasco on the mission were Lt(jg) Jean H. Daugherty, the copilot; Petty Officer Mueller and Airman Patrick, crewmen.

(Another mission carried out by the Oceana Unit appears on the opposite page)

FIRST FOR PENSACOLA DET—The last issue of Rotor Tips reported on a medevac made by a UH-2C crew from the Pensacola CVT SAR Det deployed aboard the USS Lexington. An injured man was hoisted from a fishing boat and taken to the Pensacola Baptist Hospital where the SEASPRITE landed, see photos at right, on the recently completed roof-top helicopter pad. It was the first landing made to deliver a patient, although an Air Force helicopter had landed earlier to make a pickup. Members of the UH-2C crew were Lt Richard French, pilot; Lt(jg) Michael O'Leary, copilot; AE3 Stephen Stai and AM3 George Cianteo, crewmen.



KAMAN ROTOR TIPS

Adak "You Call, We Haul" Unit Rescues Two

"During the hover, the airspeed on the UH-2C was rising and falling between 0 and 45 knots as the gusty winds swept down the narrow canyon, bouncing off the canyon wall and creating a considerable amount of turbulence...."

The above describes the conditions under which a SEASPRITE crew from the SAR Unit at NS Adak, Alaska, rescued two hunters who had failed to return from a trip to a mountainous area five miles from the naval station.

The rescue was made the day after the men failed to report in. Hard rain, a very low ceiling and winds gusting to 50 knots prevented the SAR search from getting underway immediately. The next morning the UH-2C launched and, despite wind-driven snow showers, quickly located the lost hunters. The area in which they were located was on a small piece of land jutting out from the side of a sheer canyon wall rising to a height of 200 feet or more. Across a stream, the wall of the canyon rose in a like manner. The canyon itself opened onto open water into Kuluk Bay near the island of Adak. As the small land mass was too rough to even attempt a landing, fuel was dumped from the aft tank and the SEASPRITE was hovered in the narrow, wind-swept confines of the canyon while the hunters were hoisted aboard. They were cold and wet but otherwise unharmed.

Piloting the helicopter on the hazardous mission was LCdr Kenneth L. Sterling. Lt(jg) Paul T. McMahon was copilot; AMHC D. R. Robideaux and AE3 G. D. Deslatte were crewmen.

III Civilian Aided By Oceana Unit

A Norfolk man who became seriously-ill aboard a fishing boat, was airlifted to the hospital by an HH-2D crew from the SAR Unit at NAS Oceana, Va. Lt John Mastin and his crew launched at 1315 after receiving a call for help from the Coast Guard. Flying through haze and overcast, the SEASPRITE arrived over the fishing vessel at 1400. It was located approximately 25 miles east of Cape Henry and 65 miles from the air station.

AE2 Theodore Wicker was lowered to the fishing boat to prepare the patient for hoisting. The operation was carried out successfully, despite four-foot swells which bounced the boat around, and soon afterward the evacuee was aboard the SEASPRITE and headed for a medical facility. Others manning the SEASPRITE during the mission were LCdr Dave Smith, copilot; and ADJ1 Robert L. Smith, first crewman.

C OF C NAVY MAN OF THE YEAR

The Imperial Beach, Calif., Chamber of Commerce recently selected AMS2 Alfred F. O'Meally as its Navy man of the year for 1971. Petty Officer O'Meally is assigned to HC-7, NAS Imperial Beach, where he has compiled an exemplary record of achievements. Among these are six search and rescue detachment cruises to the Gulf of Tonkin, detachment petty officer-in-charge, quality assurance inspector for the HH-2C "SEASPRITE," two letters of commendation, and the good conduct medal. In addition, he is a first crewman and instructor crewman in the HH-2C, and has been selected for advancement to first class petty officer.



Selected from a highly competitive field representing the nine commands at NAS Imperial Beach, Petty Officer O'Meally has been personally commended in the past for his leadership, perseverance, and dedication. Mrs. O'Meally is a registered nurse who voluntarily devotes one day a week of her talents to the dependents' clinic at the NAS Imperial Beach Dispensary, and who has been nominated for the Imperial Beach Navy wife of the year award herself.

A resident of Imperial Beach, Petty Officer O'Meally will represent his community at various functions during the coming year.

HC-2 Det Saves Man Overboard

A sailor, blown from the flight deck of the USS America by the exhaust blast from an A-7E, was rescued from the sea by an HH-2D crew from HC-2's Det 66. Manning the SEASPRITE were Lt Robert B. Pothier, pilot; Lt William M. Calhoun, copilot; AMS3 William S. Keehn, first crewman; and ADJAN Baldemar Miles, wetcrewman.

Only nine minutes elapsed from the time the "man overboard" alert was received until the survivor was back on the deck of the carrier. During the rescue, Petty Officer Miles was lowered on the hoist cable to assist the survivor.





HUSKIE HAPPENINGS

Det 22 MAST Mission Saves Two

Three-day weekends are a joy to most people—Columbus Day weekend was just such a holiday and most people were out enjoying an outing or working in the yard in the “Indian Summer” weather. But for the men of Det 22, 42 ARRSq, it was “business as usual.” During the four-day period from Thursday to Sunday, the detachment, working under the MAST Program (Military Assistance to Safety and Traffic), launched an HH-43B from Mountain Home AFB, Id., four times on rescue missions and recorded two saves.

The action started Wednesday night when a call was received from the Elmore County, Id., sheriff that a hunter had been kicked by a horse and had a suspected broken leg. The victim was at a small lake in the Trinity Mountain area at the 7500-foot level. Because of the darkness and rugged terrain, the aircraft commander elected for a first light take off. The helicopter left the base at daybreak Thursday morning, proceeded to the site, and landed in a nearby clearing. The crew then hiked over a small hill to the injured person's camp. Because of the rough walk back to the HUSKIE, it was decided to hover over the victim and hoist him out in the Stokes litter. He was then flown to a Boise Hospital and treated for severe leg injuries.

Friday morning the unit received another plea for aid. A man working on a road crew in the mountains about 50 miles north of Boise had suffered a heart attack. The helicopter left at 1000 for the site. After landing at a nearby Ranger Station the flight surgeon, Capt Peter Swanson (MC), and medical technician, TSgt Bedford T. Lockard, administered emergency treatment, including oxygen. At the time of pickup the patient was in poor condition. He was flown to a Boise Hospital where it was determined that the quick action of the rescue crew saved his life.

The third mission occurred Saturday. A party of deer

hunters was hunting near Owyhee, Nev., about 50 miles north of Elko, when one was thrown from his horse. He suffered extensive internal injuries along with several broken bones. The rescue crew arrived on the scene about 1930, at twilight, but managed to locate the accident victim in the failing light. A landing was made at the 9000-foot level. He was picked up and airlifted back to a local ranch where he was treated by a physician who was in the hunting party.

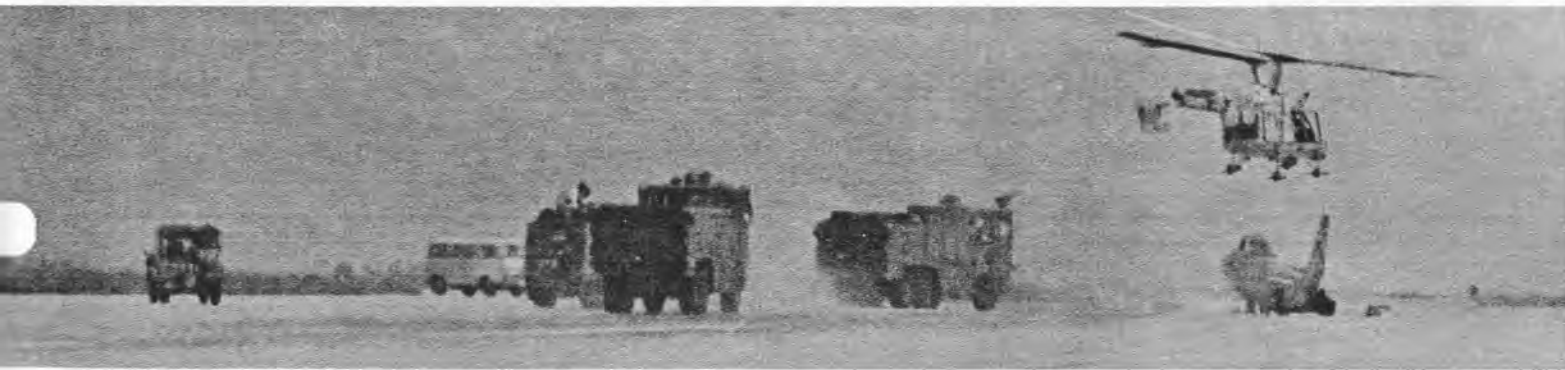
The helicopter crew stayed at the ranch over night and flew back to Mountain Home AFB the next morning. Because of the severity of the man's injuries, the doctor felt sure he would not have survived the night in the rugged terrain and cold weather. Det 22 was credited with another save.

Sunday afternoon the fourth call was received at about 1400. A man had been shot while hunting in a rugged mountainous area, 45 miles northeast of the Mountain Home AFB. The HH-43 launched again and proceeded to the site. The man was quickly found, the helicopter landed nearby and first aid was given to the victim. He was then flown in the HUSKIE to a hospital in Mountain Home.

During this busy weekend the detachment flew 19 sorties with a total of more than 8 flying hours. Crew on the flight Thursday were Capt Harold W. Jackson, Jr., aircraft commander; Capt John W. Petersen, copilot; MSgt Hubert O. Marsh, helicopter mechanic; and Sgt Sam Arroyo, medical technician. Crew on Friday were Capt John M. Higbie, aircraft commander; Maj Roger L. Engstrom, copilot; Sgt Danny Prachyl, helicopter mechanic; Capt Peter Swanson, flight surgeon; and TSgt Bedford T. Lockard, medical technician. The crew on Saturday and Sunday were the same, except for Captain Swanson.



MAST AT WORK—Capt John Petersen, right, and MSgt Bert Marsh, left, prepare an injured deer hunter for evacuation in an HH-43B HUSKIE, while Sgt Sam Arroyo, background, readies the equipment. (USAF photo)



SPANISH-U. S. EFFORT SAVES PILOT

ACTION AT ZARAGOZA—In top photo, ground firefighting equipment and hovering HH-43 are shown just after pilot of F-86 was saved by their timely arrival. At left, the F-86 is shown a few minutes before it came in for a wheels-up landing. Seconds later, both wing tanks were in flames as the aircraft belly-slid down the runway. (USAF photos)

Close cooperation between Spanish and U. S. firefighters and an HH-43 crew from Det 15, 40th ARRWg, Zaragoza AB, Spain, helped prevent a possible tragedy after a Spanish F-86 made an emergency wheels-up landing.

The pilot escaped from the aircraft unharmed after it screeched to a halt on the runway. Both wing tanks had exploded in flames as the fighter slid down the runway. The burning aircraft was closely trailed by "Pedro 05," the HH-43, with Maj Oger J. Ven Dange as aircraft commander, SSgts Joseph Walenta and Michael D. Havens, firefighters and TSgt Larry A. Hutchins, medical technician. As the F-86 came to a halt, the flames from the burning tanks were suppressed in the cockpit area, allowing the pilot to leap out and escape to safety. Sergeants Walenta and Havens were deplaned to assist the base fire department, which had immediately followed Pedro 05 down the run-

way, to snuff out the fire.

The Spanish pilot was forced to land his fighter with both main landing gear up when his left main gear could not be lowered. Although firefighters were not given enough warning time to cover part of the runway with flame suppressing foam, the damage to the aircraft was limited to its under carriage.

Col Jose Maria Martinez, commander of Zaragoza AB, thanked the crew of Pedro 05 and the USAF firefighters in a letter to Col Paul P. Hoza, group commander. Colonel Martinez said he "personally observed the efficient preparation of all firefighting personnel who demonstrated their great capacities in this emergency. In consideration of the great importance that this means to the pilots, it is a pleasure for me to congratulate everyone and to thank you for your magnificent collaboration."

CANADIAN PILOT SAVED BY DET 4

Quick action by HH-43 crewmembers from Det 4, 40th ARRWg, Ramstein AB, Germany, was credited with saving the life of a Canadian Air Force pilot who was seriously injured after parachuting into a heavily forested area.

The mission began when the two occupants of a crippled CF-104 ejected eight miles from the base. The rescue crew, in "Pedro 26," scrambled and after a short search located a parachute entangled in the trees. Since there were no signs of life, Capt Harold N. Hansen landed the HH-43 in a small clearing nearby and deployed SSgt William G. Wilson, the crewchief; and SSgt Robert J. Cyree, the medic; to search the woods for the survivor. Maj Juan H. Migia, the copilot, remained with Captain Hansen.

At the same time, "Pedro 25," commanded by LtCol Carl G. Layman, had launched from Ramstein to aid in the search for the other downed airman. Maj John H. Sharp, a flight surgeon, was included in the crew. Others aboard were Capt George H. Hopkins, copilot; SSgt Darryl B.

McPherson and SSgt James E. Trusty, firefighters.

Meanwhile, the crew of Pedro 26 located the first survivor, still attached to his chute, in a wooded area enclosed by a seven-foot cyclone and barbed wire fence. From the unusual position of the pilot's body, a broken back was suspected. A bolt cutter from the crash entry kit was utilized to cut through the fence and, while the injured man was given first aid, Captain Hansen contacted LtColonel Layman and requested the flight surgeon's assistance. Pedro 25 landed in the clearing and Major Sharp examined the injured man. He was then placed on a litter and loaded on board Pedro 26. At this time, it was learned that the second pilot had been located and picked up by a German civilian ambulance. Both Pedros then flew back to Ramstein.

Afterward, Det 4 was notified that the professional aid provided by the Pedro crewmembers and immediate evacuation of the injured man to the hospital by the HH-43 was responsible for saving the pilot's life.

Southeast Asia



A Helicopter Called "Pedro"

photos by

MSgt E. V. Agana



SCRAMBLE—When the crash phone blares, rescuemen waste no time getting to their assigned "Pedro." Every man knows his job and each knows exactly what to do.



SECONDS TO LIFTOFF—With each rescueman carrying out his assigned task in a minimum of time, the Pedro can lift off in less than 90 seconds after the alert phone sounds.

TAN SON NHUT AB, RVN (7AF)—The men who built it named it "HUSKIE," and its sure lived up to the name. When introduced into the U. S. Air Force inventory, it set helicopter records for weight lifting, altitude and distance.

In Southeast Asia the HH-43 got a new name, "Pedro." And in Southeast Asia it tallied achievements that make a proud name, too. Pedro is credited with saving 1,880 people, many from certain death or capture, since it arrived in 1964. This is more than one half of the 3,400 saves of the Third Aerospace Rescue and Recovery Group, the parent rescue unit in the Republic of Vietnam. In fact, Pedro has rescued more people than any other single U. S. Air Force aircraft in Southeast Asia.

Pedro is a unique aircraft in several ways. It is the only active aircraft in the U. S. Air Force inventory to have non-metal rotor blades. Pedro can launch faster than any other aircraft in Southeast Asia. Its single jet engine requires no warmup, and its five-man crew is airborne in less than 90 seconds after the crash phone sounds.

Probably its most recognizable eccentricity is the "strange tank" suspended by cables under the aircraft, the Fire Suppression Kit. In the event that a downed aircraft bursts into flames, asbestos-clad firemen may be deployed with the kit to extinguish a path in the fire by which to rescue the downed crew.

Because it has a combat radius of only 75 miles without auxiliary fuel, the tiny Pedro is now assigned primarily to the fire-suppression role and local base rescue. The larger HH-3 Jolly Green Giants and HH-53 Super Jolly Green Giants do the heavy and long-distance work.

It was not always so. In the early days the HH-43 flew far into North Vietnam to effect daring rescues. With 50-gallon fuel drums strapped in the cabin and the fuel hand-pumped into the aircraft's tanks to extend the range, Pedro flew within 40 miles of Hanoi. It took men of iron to fly



FSK HOOKUP—A fireman stretches out the door of an HH-43 Pedro to make sure the Fire Suppression Kit is properly fastened. The kit is designed to make a path to trapped crewmembers in the event of a crash, not totally extinguish a large fire.



MAINTAINING PROFICIENCY—A Pedro with a Fire Suppression Kit suspended beneath it prepares to move into a practice fire area.

over the air defense network of North Vietnam in the tiny, single-engined helicopter.

Although her days for dashing over the DMZ to pull downed airmen from the hands of the North Vietnamese are over, she still manages to get her fair share of the glory. Serving side-by-side with active combat units at bases scattered throughout the Republic of Vietnam and Thailand, Pedro rescue helicopters are ready to answer any call for help. During the past 10 months, HH-43s in Southeast Asia have rescued 13 persons, participated in civic action projects, assisted in numerous medical evacuation missions, fought fires and acted as an airborne command post directing fire fighters.

There's no doubt that Pedro is a life saver, and people affected by the little bird's actions do not forget it!



IT'S CALLED PEDRO—Returning from a fire suppression mission, the crew goes over the HH-43 very closely. Being inspected are the hub and composite rotor blades.



LIFESAVER—More than 1000 combat personnel saves have been made by HH-43 Pedros since arriving in Southeast Asia. Pedros have played many roles in the war: air crew recovery, fire suppression, medical evacuation, civic actions, and others. The proud and unbeaten Pedro maintains 24-hour alert to follow through on the motto of the 3rd Aerospace Rescue and Recovery Group—"That Others May Live."

Det 14 Rescues Two Wounded Vietnamese

An HH-43 Pedro rescue crew from Det 14, 3rd ARRGp, Tan Son Nhut AB, ended a harrowing day recently for two seriously-wounded Republic of Vietnam Air Force (VNAF) members. The pair, along with five others, had been in a VNAF helicopter, shot down approximately 60 miles from Saigon. Despite heavy ground-fire, a U. S. Army helicopter succeeded in picking up the two men. While proceeding to Tan Son Nhut, the Army UH-1 developed trouble, lost a tail rotor and had to crash-land.

A U. S. Air Force HH-43 rescue helicopter was scrambled and arrived at the crash site within 10 minutes. The two wounded VNAF men were then airlifted to the Vietnam hospital at Tan Son Nhut. U. S. Army troops secured the remaining men that were aboard the Army helicopter.

The Pedro crew members were Capts Henry G. Hamby III, aircraft commander, and Clayton L. Coston, copilot; SSgts Norman B. Tenny and Ellis A. Thompson, firefighters, and Anthony M. Fiducia.

During the first nine months in 1971, ARRS saved the lives of 548 people throughout the world. Ninety-six of those were in combat in Southeast Asia.

HUSKIE Happenings - continued from page 15

Det 8 There When Needed

An HH-43 crew on a cross-country training flight came upon a head-on car collision on Highway 71 near Garfield, Texas, just seconds after it occurred. Holding the HUSKIE in a hover over the accident scene, Maj Harry T. Raisor of Talcott, commander of Det 8, 43rd ARRSq, Bergstrom AFB, Texas, used the loud speaker system aboard the helicopter to ask the people below if any assistance was needed. The people on the ground motioned to the crew for help, so the HH-43 landed in a nearby field.

The crew discovered that the driver of one of the cars was bleeding profusely due to serious head injuries. No ambulance was at the scene, so the crew put the injured

man on the helicopter's litter, arrested the bleeding and placed him inside the chopper. By this time, an ambulance had arrived but it was decided that, to save the man's life, the helicopter should be used. Major Raisor and his copilot, Capt William T. Lyon flew the HH-43 to Breckenridge Hospital in Austin, about 25 miles away. Doctors at the hospital credited the helicopter crew with saving the man's life, and today he is reported in satisfactory condition.

Other members of the HUSKIE crew were SSgt Robert L. Schmidt, Capt Leas D. Dickey, A1C Ernest Amader and A1C Howard G. Garrett.



LBR AT HOLLOMAN—The 49th Tactical Fighter Wing located at Holloman AFB, N.M., is receiving local base rescue protection from Det 6, 42nd ARRSq, which was established at the base several weeks ago. The detachment is also furnishing a search and rescue capability for the surrounding area, both military and civilian. The crew of "Pedro 40," the first of two HH-43's to be attached to the detachment, is shown after the helicopter touched down at Holloman, "ready for duty." Left to right are, Maj Richard D. Fisher, Capt Russell T. Birmingham, pilots, and Sgt William L. Wilcox, helicopter mechanic. Pedro 40's journey began in Misawa, Japan. (USAF photo)



1000 HOURS—In photo, LCdr Lawrence B. Kaufman, right, HC-2, NAS Lakehurst, N. J., receives a Kaman Aerospace Corporation plaque after logging 1000 hours in the H-2 SEASPRITE. Making the presentation is Horace F. Field, Kaman senior service representative. Another Navy pilot who recently qualified for the award is Lt Douglas B. Hackett, HC-5, NAS Imperial Beach, Calif. Three members of the Imperial Iranian Air Force who are to receive similar plaques for logging 1000 hours each in the HH-43 HUSKIE are: Capt A. R. Rabiee, Lt Hossein Arzegar and Lt Maghsoud Javadi. (USN photo)



LAVA ORGANIZATIONAL MAINTENANCE CLASS—Front row, left to right, STC Earl L. Freeman, Fleet Training Group, NS Guantanamo Bay, Cuba; STC James H. Petrausch, USS Joseph Hewes; STG2 Richard L. Stahl, USS Harold E. Holt. Standing, Robert J. Caldwell, instructor. Rear, ET1 William H. Heard, and STC Michael Skurzewski, USS Harold E. Holt.

Midnight Medevac By Da Nang Unit

Responding to a midnight call, an HH-43 crew from the Pedro Section, 37th ARRSq, Da Nang Airfield, medevaced three officers who had suffered severe fragmentation injuries in an explosion at the base.

Capt John N. Drexler set the Pedro down on the helicopter pad near the 366th Dispensary and the first patient, who had been critically wounded, was placed aboard. He was accompanied by the flight medical officer, Capt Richard J. Emerson (MC). The HH-43 immediately took off, delivered the wounded man to the 95th USA Hospital, and returned to Da Nang. Captain Emerson remained at the hospital with his patient.

At Da Nang, Pedro picked up the second patient and delivered him to the Army hospital. Captain Emerson was returned to Da Nang. Two hours later, the Pedro Section was notified that it would be necessary to medevac the third wounded man. Again the HH-43 crew took to the air, made the pickup and airlifted the patient to the hospital. Pedro returned to the ramp shortly before 3 a.m., the aircraft was serviced and the crew assumed an alert status once again.

Accompanying Captain Drexler on the medevacs were Capt Michael F. Schmidt, copilot; A1C Robert S. Bos, flight mechanic; and Sgt Earl Brooks, Jr., medical technician.



LAVA OPERATION CLASS—Left to right, D. E. Negethon, instructor; AW1 Edward P. Connelly; AWC Milfred P. Price; AWC Richard L. Minnish and AWC Josh Pierce, HC-4.



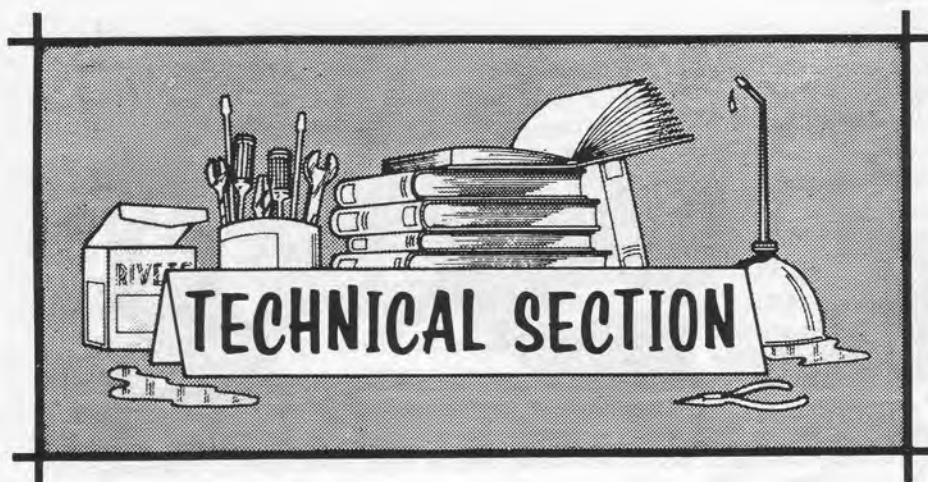
LAVA OPERATION CLASS—Standing, left to right, D. E. Negethon, instructor; AW1 Konrad Kerr, AW1 John M. Keith, AW1 Thomas F. Terrell III, HC-5. Seated, AW1 George R. Smith, HC-5. (Ruggiero photos)

FASTEST RESCUE—An HH-43 Pedro from the 3rd Aerospace Rescue and Recovery Group's Det 6 at Bien Hoa AB recently made the fastest U. S. Air Force rescue during 1971. While flying a routine training mission at Bien Hoa, the Pedro received a call saying a VNAF A-1 Skyraider had crashed off the end of the runway and was in an unsecure area. The time was 9:58 a.m.

The HH-43 was at the scene a minute later and by 10:02 a.m., a happy if somewhat damp, Republic of Vietnam Air Force pilot had been lifted from a rice paddy and was safely aboard the Pedro.

Making the four-minute rescue—a record for the year—were, left to right, Capt Verl K. Diamond, copilot; Maj Kenneth S. Smith, pilot; and SSgt Ronald L. Wilson, medical technician. (USAF photo)





Information presented in the Technical Section of Rotor Tips has been reviewed and approved by the Service Engineering Section.

G. M. Legault, Supervisor

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ELECTRIC THROTTLE TRIM POTS

H-2

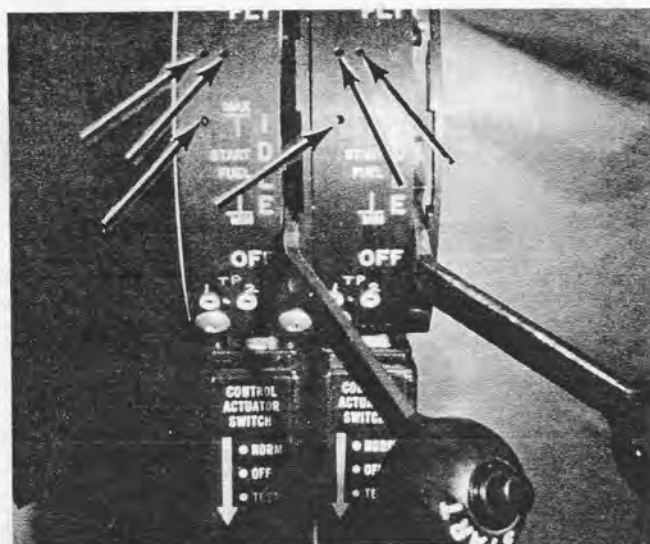


Photo A

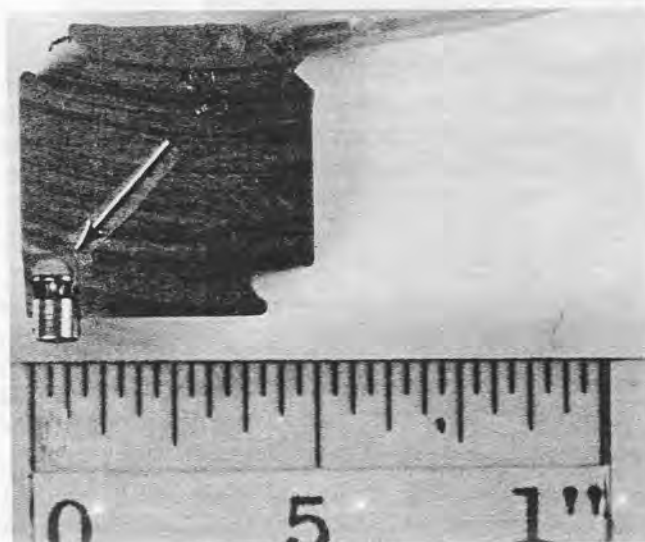


Photo B

Field reports indicate electric throttle actuator trim pots are being damaged as shown in Photo B. The cause is generally believed to be pot misalignment with the access holes provided in the electric throttle quadrant cover (arrows, Photo A).

Investigation reveals some minor misalignment due to tolerances, but the screws are accessible. The problem apparently arises when unqualified personnel, not always maintenance oriented, attempt to adjust the pots and, instead of engaging the adjustment screw, the screwdriver slides between the screw and the shoulder of the trim pot. When the screwdriver is turned, the trim pot breaks as

shown in Photo B. Although the component is small, qualified maintenance personnel should have little difficulty in accomplishing the necessary adjustment without causing damage.

A recent Kaman authorized Change will enlarge the access holes in the quadrant from 0.093-inch to 0.125-inch. Enlarging the holes will aid authorized maintenance personnel and cut down on pots damaged during NORMAL maintenance but this should not encourage other personnel to make adjustments.

N. Hanks, Service Engineer

MAIN FUEL TANK SYSTEM TROUBLE SHOOTING

H-2

The following information will be added to paragraph 8-21, titled, "TROUBLESHOOTING—MAIN FUEL TANK SYSTEM," listed on page 236 of NAVAIR 01-260HCA-2-4, dated 1 October, 1967, Changed 1 February, 1968. In the "Trouble" column, item which reads: "Cycling of DC boost pump indicated by EMERG PUMP ON caution light going on and off" will be changed to read "With AC POWER ON, cycling of DC boost pump indicated by

EMERG PUMP ON caution light going ON and OFF." The "Probable Cause" and "Remedy" columns will remain as shown. Also, the following will be added to the paragraph:

Trouble	Probable Cause	Remedy
With DC POWER ON, EMERG PUMP ON caution light cycling ON and OFF.	AC boost pump check valve stuck open allowing DC Pump pressure to actuate switch.	Inspect AC pump Check valve. Replace if defective

H. Zubkoff, Service Engineer

TECHNICAL SECTION

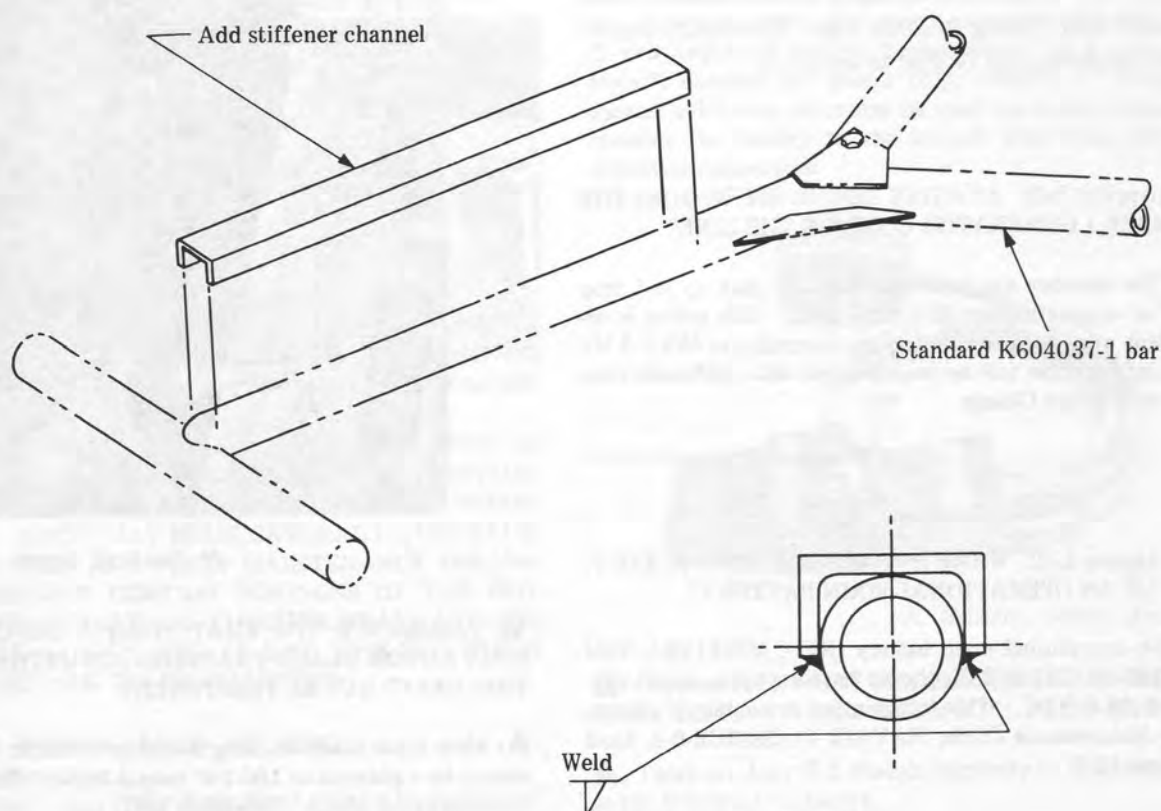
TAIL WHEEL STEERING BAR HANDLE

H-2

Several reports from the field have indicated that the handle portion of the tail wheel steering bar, P/N K604037-1 (FSN RM1730-992-7417BH6X) will bend or distort when subjected to restricted turning conditions aboard DLG landing pads during helicopter spotting operations. A future Airframe Change will relocate the SH-2D tail wheel 6 feet forward from its present position, thus providing a smaller landing footprint. Along with this AFC, a new tail

wheel steering bar will be introduced; in the interim, however, the standard tail wheel steering bar must be utilized with the standard tail wheel.

The accompanying illustration shows one method of strengthening the steering handle to prevent distortion and/or bending. If "U" channel is not readily available, any suitable material will suffice. Be sure to fillet the weld for maximum strength.



R. Trella, Service Engineer

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CUSTOMER OPERATIONS SECTION — ROBERT L. BASSETT, Supervisor

QUESTIONS & ANSWERS

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 H-2) AT WHAT ROTOR SPEED DOES THE NUMBER 1 GENERATOR COME ON THE LINE?

A. The number one generator should "pick-up and drop out" at approximately 88% rotor RPM. This action is dependent upon properly setting the controller at 355 ± 5 HZ. This information will be incorporated into applicable manuals by a future Change.

N. Hankins, Service Engineer

Q. (Applies H-2) WHAT IS THE OPEN CIRCUIT VOLTAGE OF AN OPERATIONAL MAIN BATTERY?

A. An operational main battery (RFI), MS18122-1, FSN RD6140-880-5913BH3X, should have an open circuit voltage of 25.6 VDC. This information is contained on the Daily Maintenance Cards, NAVAIR 01-260HCB-6-3, Card Number 10.3.

N. Hankins, Service Engineer

Q. (Applies H-2) IF ROTOR ENGAGEMENT IS MADE ON ONE ENGINE AND TRANSIENT OVERTORQUE INDICATION IS EXPERIENCED, WHAT SHOULD FOLLOW?

A. NAVAIR 01-260HCA-2-4.1, titled Overtorque Criteria, contains these instructions:

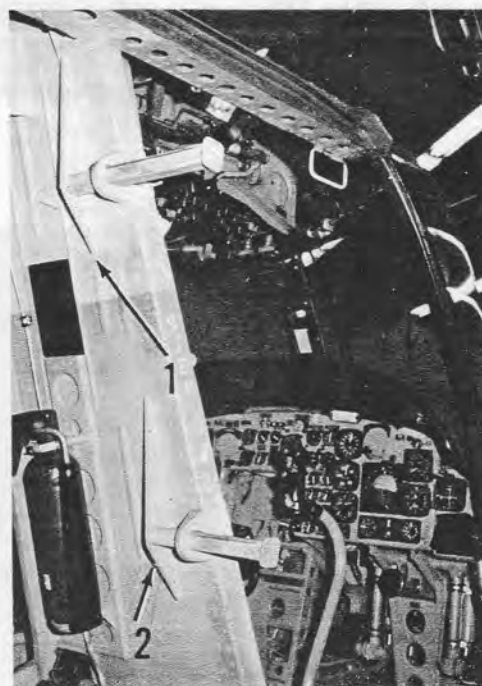
"Unless otherwise indicated, all torques referred to are matched engine torques, or average of the two indicated torques in the case where the power output of the two engines is not matched at the time of the overspeed."

Therefore, in the previously stated occurrence, the average of the two engines would be used to determine overtorque inspection requirements.

R. Trella, Service Engineer

Q. (Applies H-2) WHAT ARE THE PART NUMBERS FOR THE INBOARD STEP BRACKETS LOCATED ON THE RIGHT-HAND CANTED FRAME?

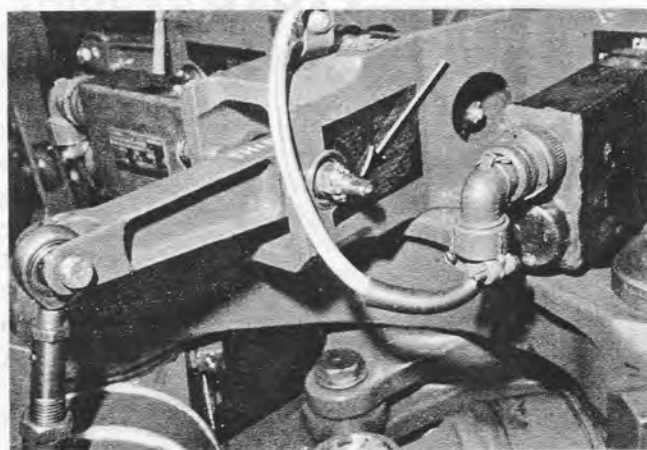
A. The inboard step brackets shown in the accompanying Photo are: 1, upper step inboard bracket, P/N K631731-13, (NSL), and 2, lower step inboard bracket, P/N K631731-11, (NSL). This information will be incorporated into NAVVAIR 01-260HCB-4-2 by a future Change.



H. Zubkoff, Service Engineer

Q. (Applies H-2) TO WHAT TORQUE SHOULD THE MAIN ROTOR BLADE TRACKING ACTUATOR ECCENTRIC SHAFT NUT BE TIGHTENED?

A. Main rotor blade tracking actuator eccentric shaft nuts should be tightened to 160-190 pound-inches. Refer to the accompanying photo. Paragraph 4-81, step c, in NAVAIR 01-260HCA-2-4.2 will be changed to specify the above torque requirement.

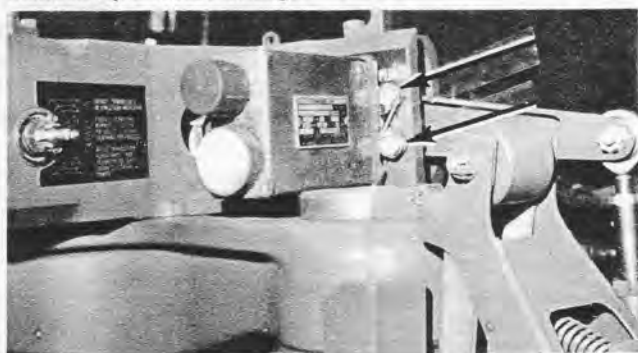


W. Wagemaker, Service Engineer

TECHNICAL SECTION

Q. (Applies H-2) WHAT IS THE PART NUMBER FOR THE BOLTS USED TO SECURE THE ROTARY TRACKING ACTUATOR MOTOR ASSEMBLIES TO THE MAIN ROTOR HUB?

A. Main rotor blade rotary tracking actuator motors should be secured to the main rotor hub with socket head cap screws, P/N NAS1351-3H16P. (The screws are shown in Photo A.) These cap screws supersede the AN3H10A bolts formerly authorized for use. The change was effected because of reported damage to the tracking motor case seal when using the socket wrench to secure the AN3H10A bolt. This information will be incorporated into applicable manuals by a future Change.



W. Wagemaker, Service Engineer

Q. (Applies H-2) THE MARCH/APRIL, 1971 ISSUE OF KAMAN ROTOR TIPS PRESENTED THE FIRST DETAILED AUXILIARY BATTERY SERVICING PROCEDURES. SINCE THAT ISSUE, SEVERAL INPUTS FROM KAMAN REPS AND FLEET MAINTENANCE PERSONNEL INDICATE CERTAIN PORTIONS OF THE PROCEDURES SHOULD BE FURTHER STANDARDIZED FOR THE 14 DAY AND 56 DAY CYCLES. WHICH PORTIONS ARE TO BE CHANGED?

A. The following changes will apply:

14-Day Procedure

Item 7 - The load voltage check may be accomplished using either the 28-ohm resistor for 10 minutes or the 56-ohm resistor for 5 minutes.

Item 8 - Maximum current leakage between cell and case should never exceed 2ma. If this value cannot be reached, induct the battery into the 56-day cycle.

Both Procedures add **CAUTION** to read:

Batteries charged by the constant current method can overheat unless carefully monitored, particularly during the latter portion of the charge.

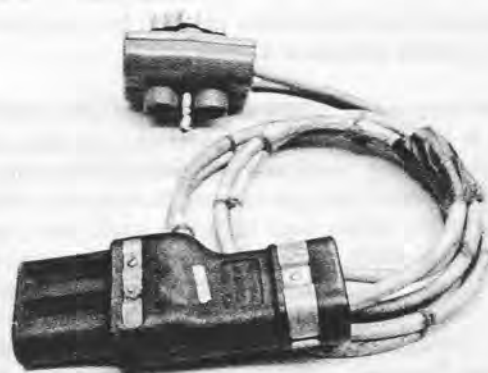
Operation, maintenance and overhaul of batteries is serious and sometimes hazardous business so proper servicing cannot be over-emphasized. The following publications should be available and used in conjunction with these procedures: NAVAIR 17-BAD-1; MIL-B-8565; and MS3319-1.

N. Hankins, Service Engineer

Q. (Applies H-2) THE H-2 HAS BATTERY-START CAPABILITIES, BUT WHEN CONDITIONS ARE MARGINAL, IS IT POSSIBLE TO USE TWO BATTERIES TO START THE AIRCRAFT?

A. Yes, two batteries may be employed to start the aircraft, provided care is exercised. For example: Kaman Experimental Flight Test fabricated the harness shown in the accompanying Photo. In use, the harness is connected to an RFI, MS21822-1, battery and then to the aircraft external power receptacle. The BAT Start switch is then placed to ON and a normal battery start is accomplished. This procedure should be used only as an emergency procedure when an APU is not available.

The harness consists of a battery connector, P/N MS25782-2, two lengths of Number 2 cable (6 to 8 feet long), and an aircraft external DC power plug, AN2551-1. Longer or shorter cable may of course be used but do not attempt to connect the battery to the aircraft with other than the approved connectors.



N. Hankins, Service Engineer

Q. (Applies H-2) WHAT MODELS H-2 ARE IN USE AND WHAT DISTINGUISHES ONE MODEL FROM ANOTHER?

A. There are four H-2 models currently in Fleet inventory as the following list shows.

UH-2C — Original twin engine H-2. Three bladed tail rotor, single wheel on each main landing gear. Maximum gross weight: 11,600 pounds.

HH-2D — Uprated twin. Higher capacity transmission, 4 bladed tail rotor, dual wheel landing gear. Maximum gross weight: 12,500 pounds.

HH-2C — Armored version of HH-2D with gun turrets and armor. Max gross weight: 12,500 pounds.

SH-2D — LAMPS version of HH-2D aircraft, including electronic gear to accomplish LAMPS (Light, Airborne, Multi-Purpose System) mission. Max gross weight: 12,800 pounds.

All UH-2A/B (single engine) models have been or are in the process of being converted to one of the twin engine models listed here.

W. Wagemaker, Service Engineer

TIMELY TIPS

FIRE DETECTION/EXTINGUISHING SYSTEM— AMERICAN STANDARD CONTAINERS

H-2

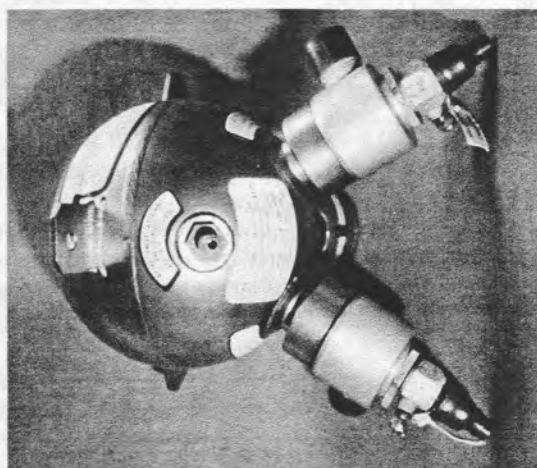
Two containers, together with associated lines, check valves, and discharge nozzles comprise the H-2 fire extinguishing system. One container is provided for each engine. Cross-feed provisions permit use of both containers, if necessary, for either engine compartment. Two photo-electric type flame detectors, on each engine bellmouth, together with the associated amplifier, wiring, warning lights and cockpit controls, complete the system. Complete fire extinguishing system details are contained in NAVAIR 01-260HCA-2-4. Complete fire detection system details are contained in NAVAIR 01-260HCA-2-6. Both systems are, of course, dependent upon properly serviced fire suppressant containers. The information presented here reflects the latest available servicing information and will be included in the -2-4 by a future handbook Change.

The fire suppressant bottle or container, P/N 30407001 (shown in the accompanying illustration), has dual outlets, which provide for cross-feed utilization, a pressure gage, and a filler valve with an integral thermal relief feature. The two outlet valves each include a squib and a built-in swivel feature which allows proper alignment with the discharge tubes. Container specifications are as follows:

Internal Volume.86 cubic inches
Operating Pressure.600 Psig, +25-0
Proof Pressure.1600 Psig
Burst Pressure.2700 Psig
Electrical Requirements.18-30Vdc, 3 Amps

Weights: (Pounds):

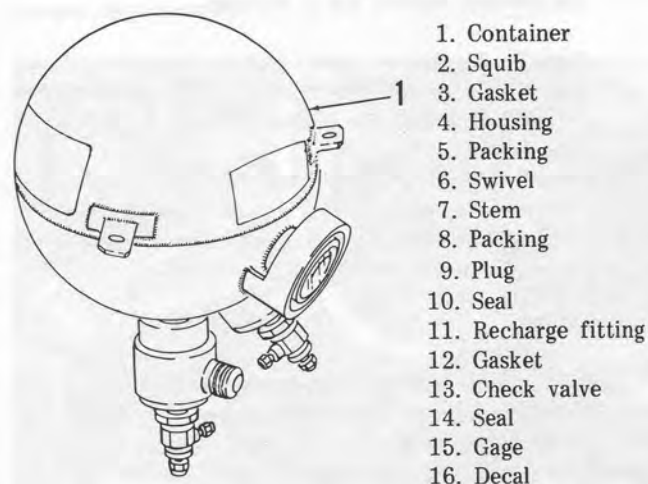
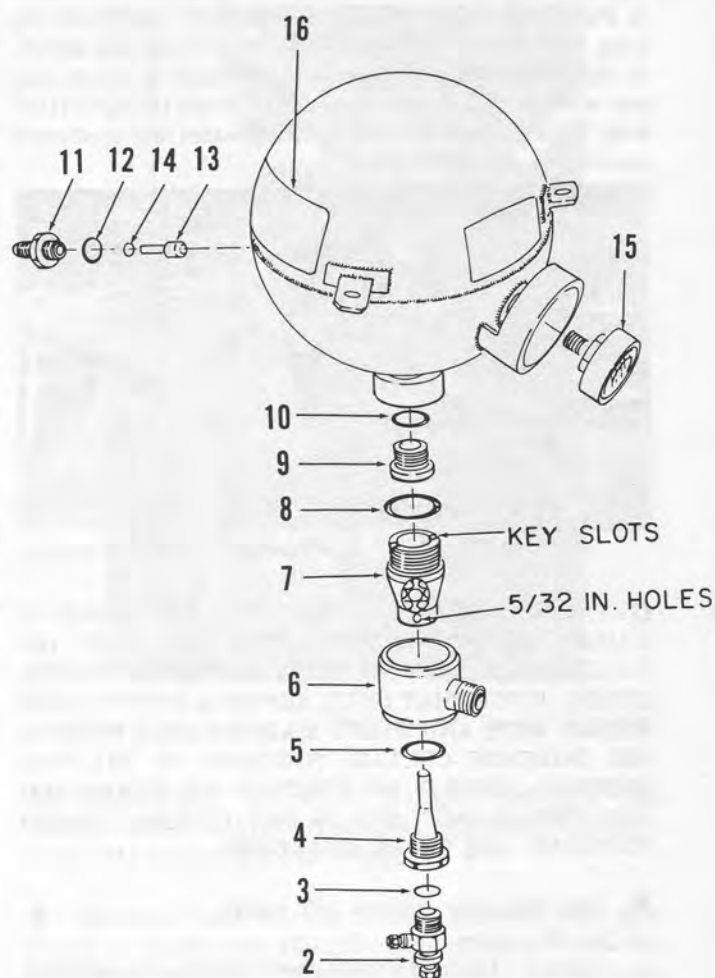
Empty Container Assembly . . 3.19, +0.12
Agent 2.50, +0.25
Nitrogen 0.08, +0.03
Charged Container 5.77, +0.25-0.0



The extinguishing agent is: Freon 1301, Bromotrifluoromethane (CBrF₃), conforming to MIL-B-12218.

NOTE

Agent is discharged as a clear, odorless, non-corrosive gas.



1. Container
2. Squib
3. Gasket
4. Housing
5. Packing
6. Swivel
7. Stem
8. Packing
9. Plug
10. Seal
11. Recharge fitting
12. Gasket
13. Check valve
14. Seal
15. Gage
16. Decal

H. Zubkoff, Service Engineer

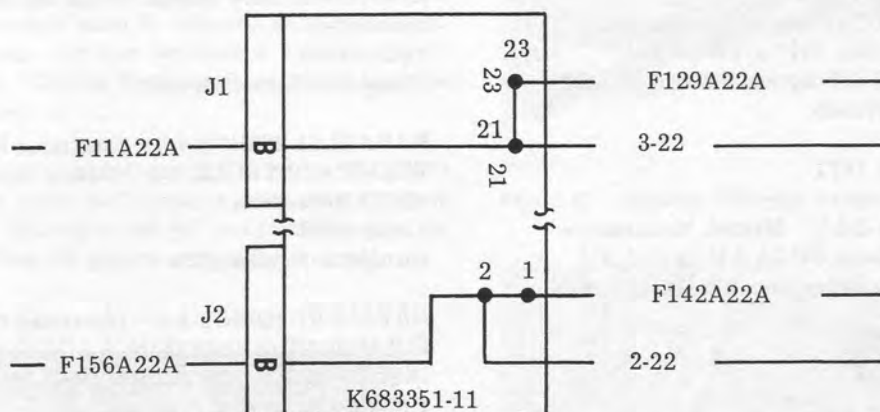
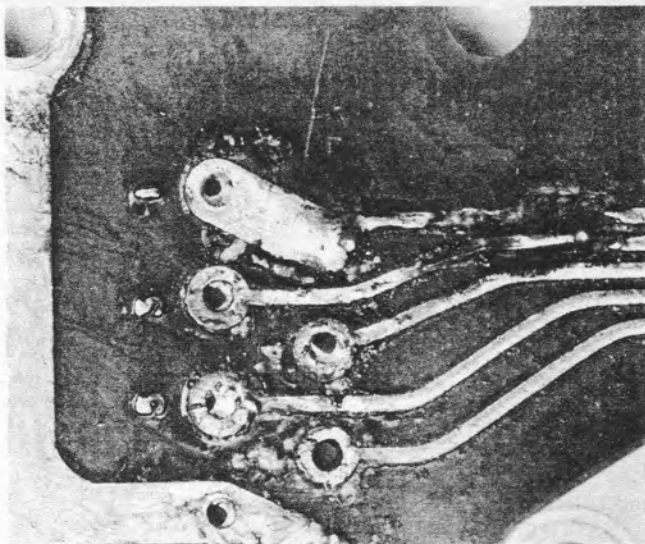
KAMAN ROTOR TIPS

REMOTE ATTITUDE INDICATOR SWITCHING BOARD

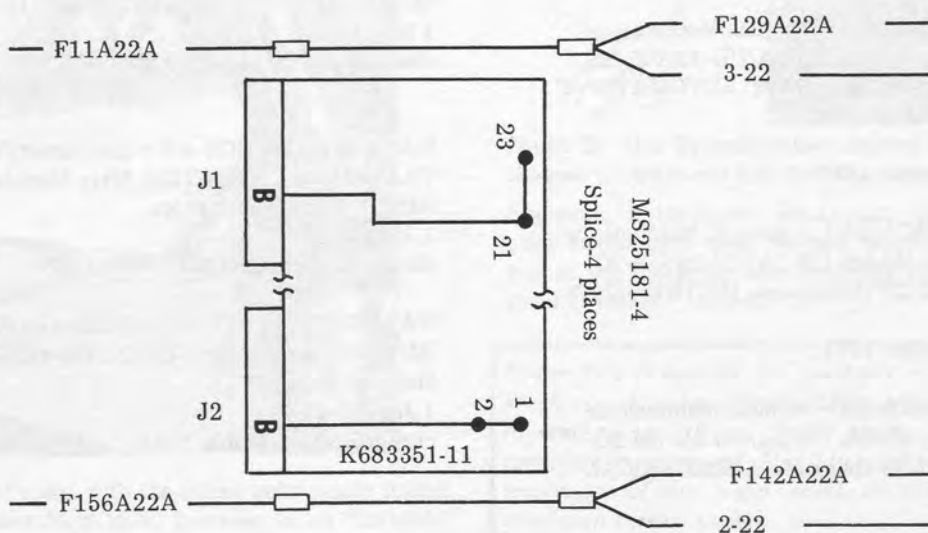
H-2

The Remote Attitude Indicator (RAI) switching circuitry is contained on a printed circuit board, P/N K683351-1. Several of these boards have reportedly shorted out between the 28 VDC and the 115 VAC conductors as the close-up Photo shows.

Detachments may, at their discretion, elect to bypass the board by incorporating the change shown in Schematic 1. Schematic 2 shows what is now contained in NAVAIR 01-260HCA-2-8.1, Figure 32, Pilot's and Copilot's RAI and Vertical Gyro's (Sheet 2). As can be seen, the change removes both 115 VAC circuits from the board. This information will be incorporated into the -2-8.1 by a future change.



Schematic 2



Schematic 1

N. Hankins, Service Engineer

CURRENT CHANGES

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

NAVAIR 01-260HCA-2-1 — Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C/HH-2C/HH-2D/SH-2D Helicopters, GENERAL INFORMATION

1 December 1969

changed 15 December 1971

NAVAIR 01-260HCA-2-2 — Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C/HH-2C/HH-2D/SH-2D Helicopters, AIRFRAME

30 November 1971

NAVAIR 01-260HCA-2-3 — Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C/HH-2C/HH-2D/SH-2D Helicopters, EQUIPMENT (FURNISHINGS, HYDRAULICS, UTILITIES, ARMAMENT)

15 December 1969

changed 30 November 1971

NAVAIR 01-260HCA-2-4 — Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C/HH-2C/HH-2D/SH-2D Helicopters, POWER PLANT AND RELATED SYSTEMS

1 October 1967

changed 30 November 1971

NAVAIR 01-260HCA-2-4.1 — Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C/HH-2C/HH-2D/SH-2D Helicopters, TRANSMISSION SYSTEM

1 July 1971

changed 15 January 1972

NAVAIR 01-260HCA-2-4.2 — Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C/HH-2C/HH-2D/SH-2D Helicopters, ROTOR SYSTEM

1 October 1967

changed 30 November 1971

NAVAIR 01-260HCA-2-5 — Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C/HH-2C/HH-2D/SH-2D Helicopters, AUTOMATIC STABILIZATION EQUIPMENT

1 October 1967

changed 30 November 1971

NAVAIR 01-260HCA-2-5.1 — Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C/HH-2C/HH-2D/SH-2D Helicopters, INSTRUMENTS

1 October 1967

changed 15 December 1971

NAVAIR 01-260HCA-2-6 — Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C/HH-2C/HH-2D/SH-2D Helicopters, ELECTRICAL SYSTEM

1 October 1967

changed 15 December 1971

NAVAIR 01-260HCA-2-7 — Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C/HH-2C/HH-2D/SH-2D Helicopters, RADIO AND RADAR SYSTEMS

1 October 1967

NAVAIR 01-260HCA-2-8.1 — Manual, Maintenance Instructions, Navy Models UH-2C/HH-2C/HH-2D/SH-2D Helicopters, WIRING DATA

1 October 1967

changed 30 November 1971

NAVAIR 01-260HCB-4-1 — Illustrated Parts Breakdown, NUMERICAL INDEX AND REFERENCE DESIGNATION INDEX, Navy Models UH-2C/HH-2C/HH-2D/SH-2D Helicopters

30 November 1971

NAVAIR 01-260HCB-4-2 — Illustrated Parts Breakdown, AIRFRAME, Navy Models UH-2C/HH-2C/HH-2D/SH-2D Helicopters

1 June 1967

changed 30 November 1971

NAVAIR 01-260HCB-4-3 — Illustrated Parts Breakdown, FLIGHT CONTROLS, Navy Models UH-2C/HH-2C/HH-2D/SH-2D Helicopters

1 June 1967

changed 1 October 1971

NAVAIR 01-260HCB-4-4 — Illustrated Parts Breakdown, EQUIPMENT (FURNISHINGS, HYDRAULICS, INSTRUMENTS, HH-2C/HH-2D/SH-2D Helicopters

1 May 1969

changed 30 November 1971

NAVAIR 01-260HCB-4-5 — Illustrated Parts Breakdown, POWER PLANT AND RELATED SYSTEMS, Navy Models UH-2C/HH-2C/HH-2D/SH-2D Helicopters

1 May 1969

changed 30 November 1971

NAVAIR 01-260HCB-4-6 — Illustrated Parts Breakdown, TRANSMISSION SYSTEM, Navy Models UH-2C/HH-2C/HH-2D/SH-2D Helicopters

1 June 1967

changed 1 October 1971

NAVAIR 01-260HCB-4-7 — Illustrated Parts Breakdown, ROTORS, Navy Models UH-2C/HH-2C/HH-2D/SH-2D Helicopters

1 June 1967

changed 30 November 1971

R. H. Chapdelaine, Supervisor, Service Publications



DARFO! Detect And Remove Foreign Objects before they can cause FOD.

The example of DARFO shown here was reported by P. T. Napoli, Group Leader, Kaman PAR/MOD. Mr. Napoli was performing a routine maintenance task and suddenly. . . .DARFO!

Unfortunately, some personnel continue to stuff tools into pockets or hang them onto belt loops. Other personnel place tools on or in places where they should not be. Sometimes, these tools seem to just disappear from sight. When that happens, this too becomes a Foreign Object waiting to inflict FOD to the aircraft or ready to cause injury to personnel.

For example: It is accepted practice to sit on the pilot's and copilot's seat while performing a maintenance task in the cockpit area. Nobody could get hurt from this practice, right??? Well, follow the photos and see for yourself.

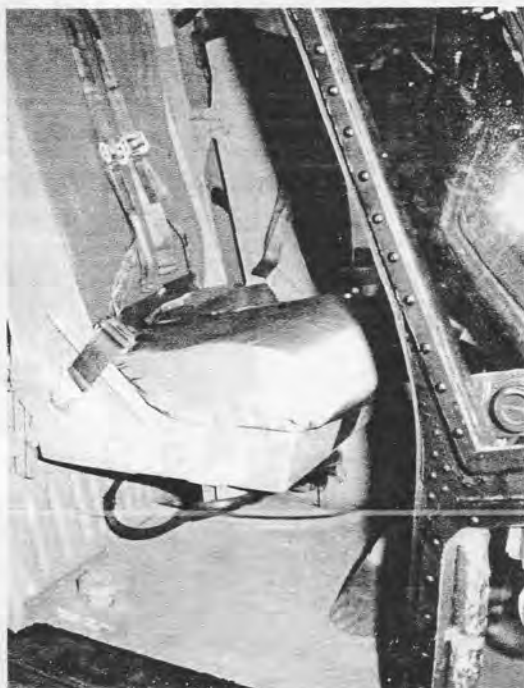


Photo A. A pilot's seat with the safety belts neatly folded. Somewhere, hidden from view, however, is an "invisible" tool waiting for an unsuspecting derriere. (Not necessarily the pilot's!)



Photo B. Same seat, different angle and a much closer view. The tool, well hidden, defies detection.



Photo C. Extreme close-up reveals something. What is it?

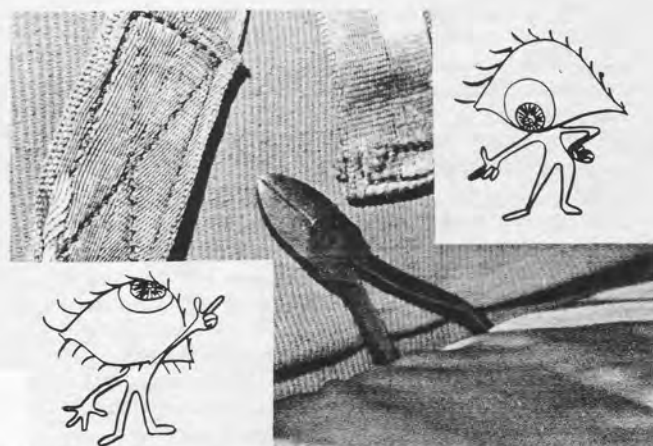


Photo D. Our Eyeballers have moved the belts and pulled the pair of dykes out into full view.

Someone, a mechanic, electrician, inspector, copilot or pilot could have been severely injured by this stray tool but as the mechanic was removing the seat pad, he practiced DARFO. Do you?

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

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

AN OPEN LETTER TO ALL FORMER MEMBERS OF HC-7 COMBAT SAR DETS



*From: Lt Richard Jaeger, OinC, Det 105
Lt Richard Basore, OinC, Det 107
Lt Joseph Behunin, OinC, Det 104
Lt Carroll Lee, OinC, Det 108*

*And other HC-7 Officers-in-Charge
who had the privilege of serving
with these men.*

HELICOPTER COMBAT SUPPORT SQUADRON SEVEN

Now that the Vietnam conflict is winding down, some of us former Officers-in-Charge of H-2 Combat SAR Detachments have time to look back and think about where the credit belongs for the success of the Dets.

HC-7 Combat SAR Dets have continuously performed flawlessly under some of the most trying conditions imaginable, and although the list of medals, awards and letters is lengthy, it does not adequately reflect the selfless job performed by the detachments' enlisted members. Constantly moving from one ship to another, often without warning, can be difficult in itself. When the problems related to this gypsy-type life are considered, such as limited maintenance equipment, no laundry service or clean clothes and not even a "rack" to call home, your performance becomes impressive.

Morale problems would be expected, but quite the contrary seems to be true. Living on DE's, DEG's, DLG's, cruisers and even occasional amphibious ships and aircraft carriers for as many as 100 days without seeing friendly land or having a respite from combat operations is very difficult. When those three to five day-in-port periods did occur—only to be filled by 18-hour maintenance days to do the maintenance that can only be performed ashore—you continuously rose to the occasion. We can remember some things that happened to you that seemed to be extremely demoralizing (missing promotions due to the failure of exams to catch up with the Det, a mail system that seemed not to know of your existence, insufficient parts and an agonizingly slow supply system) all these things contributed to making an already rough life even rougher.

However, it seems the more difficult the job, the better you men performed. With only eight enlisted men and two pilots, most jobs were doubled up. Upon returning to the ship after a long mission, you combat rescue aircrewmen cheerfully swapped your flight suits for maintenance duds. You non-crewmen worked on the flight deck landing and launching the helo, and operating complex ground equipment. The only answer to the question of "why," can be professionalism and dedication. Throughout the years, our helos have been ready to respond to the distressed whenever needed. Being on a 15-minute alert 24 hours a day, every day, left little time to battle the ever-present corrosion. Changing engines in two hours, replacing gear boxes in one and a half hours and rotor blades in three hours without the support equipment normally required was not uncommon.

Although the survivors whose lives were snatched from the jaws of death or imprisonment are thankful, it is unfortunate that the sacrifices made by you men—the long hours of stand-by and long nights on open decks in rough seas—are little known to those fortunate enough never to need our SAR service. Even the daily routine missions that we performed for the fleet are recognized by only a few as making our SAR watch a little more difficult to maintain.

Throughout all this, there has been humor, to such a degree at times, that recalling instances brings tears to our eyes. The cocky metalsmith who was also an aircrewman strutting around the mess decks impressing the "black shoes" of the new host ship, only to trip and fall to the deck. . . or the time a combat rescue demonstration was being performed for the eyes and cameras of ships company and the swimmer, wanting to be Buster Crabbe and do a flashy water entry forgot to unbuckle his gunners belt before jumping. . . or the special aircraft modifications to fit the SAR crew's needs: cassette tape decks hooked into the ICS system, the automobile cigarette lighter in the instrument panel or the copilot "ejection system" to impress the rookie copilot; these are things that released those pent-up forces resulting from the pressures of combat and constant SAR alert.

Now that it is nearly all said and done, the amazing record of no rescue being missed due to maintenance error, and an outstanding safety record, could in no way have been accomplished without the 110% effort put forth by every one of you members past and present of HC-7's H-2 Combat SAR Dets.

You men have earned our lasting admiration and respect for performance and support. From us, the OinC's who are still in HC-7, and we are sure, for those who have departed, we thank you from our hearts.

COMBAT SAR VETERANS—Left to right, Lt Lee, Lt Behunin, AMH3 David P. Lanave, AT3 Michael Shepherd, AE3 William T. Collins, AT1 Phillip Poisson, ADJ1 Melvin McMichael, AMHAN Richard E. Dugan, ADJ1 James D. Strickland, ADJAN Gary Brockman, Lt Jaeger. (USN photo by J. W. Donovan)

