KAMAN Rotor Tips

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ON THE COVER

Shown are the four H-2's which make up the SEASPRITE family. From the top are the HH-2C, UH-2A/B, UH-2C and HH-2D. Cover by E. M. Enders, Service Publications.

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FEATURES

DEPARTMENTS

The Seasprite 'Family'

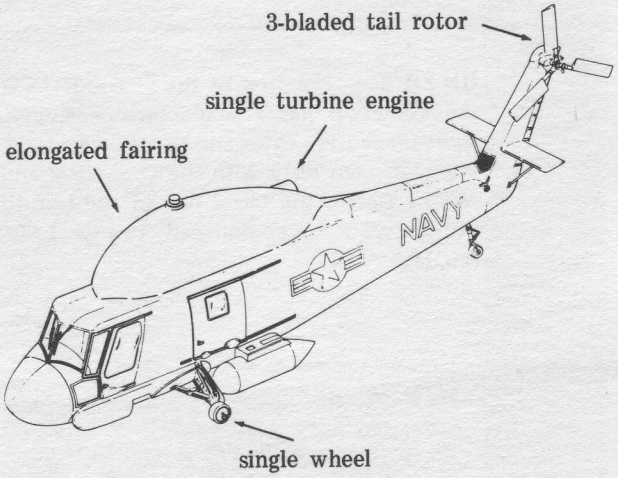
UH-2A/B — The first of the SEASPRITES, the UH-2A/B has a single turbine engine, three-bladed tail rotor and single wheel landing gear. On duty with the U.S. Navy and Marine Corps, the UH-2 has, in addition to utility work, accomplished nearly 1,000 rescues.

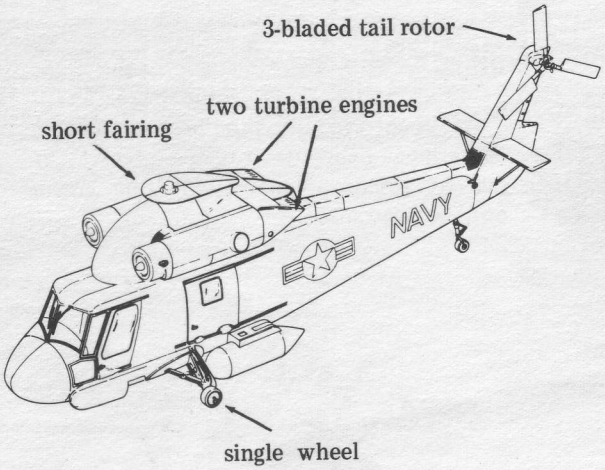
UH-2C — With twin-engine capability, the modified UH-2 significantly increased its gross weight capability and became the only operational helicopter capable of performing its rescue mission with one engine out, if warranted.

HH-2C — Heavily armored to protect crew and critical aircraft areas, the HH-2C is armed with a chin-mounted Minigun and waist-mounted machine guns. Additionally, it differs from the UH-2C by having an uprated transmission, dual landing wheels and a four-bladed tail rotor. HH-2C's are being deployed from DLG's that operate near the Vietnamese coast, and their primary mission is to rescue downed Navy pilots.

HH-2D — The latest model of the H-2 SEASPRITES, it is similar to the HH-2C configuration since the same "growth" items have been incorporated; however, the armor plate, gun turret and other combat equipment are not included. Both the HH-2C and HH-2D have higher gross weight capability than the UH-2C model.

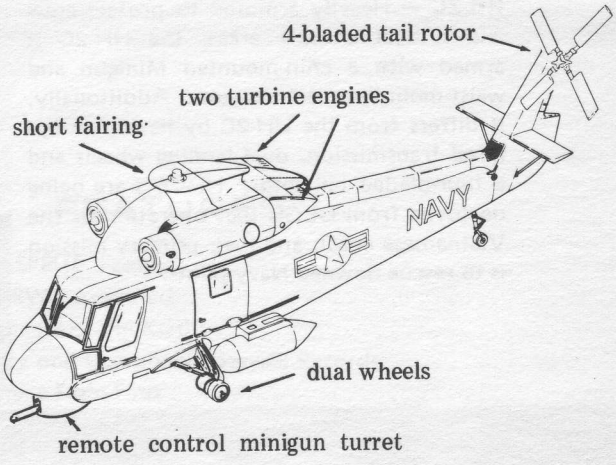
UH-2A/B—Powered by a single T58-GE-8B gas turbine developing 1250 SHP, the UH-2A/B was the first Navy utility/rescue helicopter capable of 140+knots speed in level flight. Retractable landing gear and a retractable rescue hoist provide reduction in drag to obtain excellent flight endurance and/or operational radius of action. The maximum takeoff gross weight is 10,000 pounds. Single point pressure refueling, droppable auxiliary fuel tanks, emergency flotation bags for crew evacuation, fuel dumping and anti-icing of rotor blades are a few of the special features of the SEASPRITE family of helicopters.

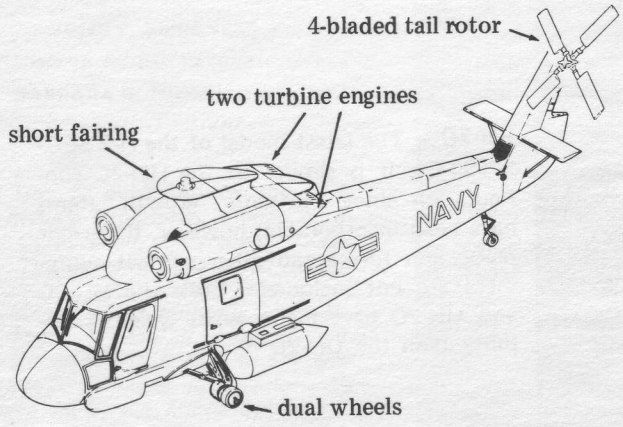




UH-2C—A second T58-GE-8B gas turbine was added to the UH-2A/B to provide twin engine reliability for the Navy utility/rescue mission. The power delivered, now 2500 SHP, readily handles the takeoff gross weight of 11,614 pounds which provides for an increase in payload. This helicopter has a level flight speed capability of 135+knots and its twin turbines provide for excellent altitude and hot day performance. The flat rating of the UH-2C SEASPRITE is maintained up to an O.A.T. of 128° F.

HH-2C—Armor plating for combat rescue protection has been added to the UH-2C in addition to a minigun turret and side-mounted machine gun positions. These features of the HH-2C SEASPRITE, along with self-sealing fuel tanks and the twin engine reliability, provide for a high probability of success for rescue missions in hostile environments. This helicopter has an increased power transmission rating, dual wheels and a four bladed tail rotor to handle the increased gross weight of 12,500 pounds. The "gun ship" level flight speed capability is 130+knots with a hot-day flat rating capability.





HH-2D—The removal of the hostile environment "gun ship" features (armor, armament, etc) of the HH-2C provides for an 800 pound increase in the payload of this SEASPRITE model. The gross weight remains at 12,500 pounds because there is no change in the 2500 SHP and all the growth components of the HH-2C are retained. The effect of the combination of the above facts is improved mission flexibility for this SEASPRITE. Twin engine reliability along with 130+knots level flight speed and a hot-day flat rating are also retained in the HH-2D SEASPRITE.

DOWNED BUT RESCUED, UH-2 PILOT RECEIVES KAC PLAQUE

Navy Lt Timothy S. Melecosky, right, a veteran UH-2 combat flyer attached to HC-7, NAS Atsugi, Japan, was presented a 1,000-hour pilot plaque recently by Robert C. Belisle, Kaman service representative. The plaque is awarded by Kaman Aerospace Corporation to pilots logging 1,000 hours in helicopters produced by the company.

A member of HC-7 for the past two and a half years, Lieutenant Melecosky flew many of his UH-2 hours while engaged in numerous rescue missions in Southeast Asia. He has been awarded four Distinguished Flying Crosses, six Air Medals, the Navy Commendation Medal, and the Vietnam Air Gallentry Medal. He has all nine campaign ribbons for Vietnam.

Like a great many other pilots and crewmen in HC-7, Lieutenant Melecosky has often come under fire while rescuing downed airmen. On one occasion he and his crew were shot down but then were rescued by another helicopter. The incident occurred sometime ago near the outskirts of Haiphong. Accompanied by A-1's and A-4's, Lieutenant Melecosky and his crew made four passes, from four different directions, in an attempt to pick up a downed pilot. On all four passes, intensive small arms fire was experienced less than 100 yards from the pickup point. On the final approach, the fuel tanks in the helicopter were hit and the pilot was forced to leave the area. Twenty miles from the rescue site the engine lost power due to fuel starvation and Lieutenant Melecosky autorotated to a soft water landing. All hands exited without incident. Afterward, numerous bullet holes, some the size of a fist, were seen in various parts of the helicopter. Sharing in the hazardous mission with Lieutenant Melecosky were Lt(jg) James P. Brenan, Jr., copilot; AMH2 Gary L. Fleck; and ADJ3 Gary L. Schwake.

Lieutenant Melecosky entered the Navy in 1961 as an enlisted man and two years later enrolled in the Naval Aviation Cadet program. He received his wings and commission in 1964. His next duty station will be Training Squadron Two at Whiting Field, Fla.

KAMAN
CORPORATION

FIELD SERVICE REPORT

NAS CUBI POINT, R. P.–Lt Douglas H. Wassemer, HC-7 senior test pilot, and Lt Charles Kiseljack, *Air Boss USS Vancouver, and Jerry Boutin, Kaman Aerospace Corporation, started out to conduct a normal test flight of aircraft. With ground checks and turn-up completed, the ship lifted off smoothly, and departed over the bay headed for the mountains. It was at this time HC-7 received word that a Medevac was required for a five-year-old Filipino girl that needed brain surgery ASAP. A call was put out to Lieutenant Wassemer to return for the girl if no flight discrepancies had been noted.

This writer was in the operation area when the ship set down and watched the ambulance back up to the door. Under the supervision of the KAC crewman, the girl was loaded aboard and a hurried departure was made for Clark AB, R. P. The return trip from Clark to Cubi had our KAC crewman aiding VIP's that made the return trip. Upon landing and off-loading the passengers, Lieutenant Wassemer again taxied out to continue his test flight when again a Medevac was called in to them. A sailor in San Miguel suffering from blood poison had to be airlifted to Clark AB for treatment. This was done very rapidly by the UH-2 crew. With the completion of this mission Lieutenant Wassemer decided to conduct his test flight on the return trip to Cubi. Upon return to HC-7 ramp all systems were go and Jerry Boutin, KAC, became a "qualified Medevac and SAR crewman," in one day. His name is going to be placed on the crewmen's board as a back-up or alternate when needed.

Robert C. Belisle

*Lt Kiseljack, formerly assigned to HC-2, NAS Lakehurst, N. J., has 2600 hours in UH-2's.

Greeting From KAC–William R. Murray, left, vice president, Kaman Aerospace Corporation, meets Lt Barry R. Geise, officer in charge of HC-4's Det 47 aboard the USS Little Rock. Det 47 consists of three officers and eight enlisted men. The Little Rock, flagship of the U.S. Sixth Fleet, was anchored off Barcelona at the time. Mr. Murray was in the Mediterranean area recently to visit the various Navy detachments that fly Kaman UH-2 SEASPRITE helicopters. He was accompanied by Jack King, Kaman Senior Service Representative at NAF Naples, Italy. Lieutenant Geise, a helicopter pilot previously attached to HC-4's Det 36 in Southeast Asia, is wearing one of the coveted "Tonkin Gulf Yacht Club" patches on his jacket. Such patches are worn by the men who flew missions in the Tonkin Gulf area. One of Mr. Murray's most prized possessions is a similar patch presented to him more than a year ago when he visited UH-2 rescue crews aboard ships operating off the Vietnamese shore. (USN photo by PHAN David Aurand)

Responsible for North and South American SAR

39th ARRWg ACTIVATED AT RICHARDS-GEBAUR AFB

SCOTT AFB, Ill.–The 39th Aerospace Rescue and Recovery Wing, newly activated at Richards-Gebaur AFB, Mo., began directing the Air Force's search and rescue forces in North and South America April 1.

Nearly 100 people are programmed into the newest unit of the worldwide Aerospace Rescue and Recovery Service, with headquarters at Scott AFB.

"This new rescue wing fills a gap in ARRS' command management structure in this hemisphere," explained MajGen Allison C. Brooks, ARRS commander.

"We already have rescue wings to control search, rescue and aircrew recovery in the European and Pacific areas. When the 39th Wing becomes operational, North and South America will also have optimum organizational control."

Previously, the responsibility for search and rescue in the Western Hemisphere was divided among three Aerospace Rescue and Recovery Centers (ARRC's), each also controlling local rescue helicopter detachments located on many Air Force bases.

ARRS headquarters directly monitored the centers, three U. S. based squadrons and five ARRS Reserve squadrons. Now the 39th ARRWg will exercise control over the centers and squadrons.

The three centers were redesignated to signify their new positions, but will continue to fulfill their role as rescue coordination centers for their regions. Western ARRC at Hamilton AFB, Calif., became the 42d ARRSq; Central ARRC at Richards-Gebaur is now the 43d ARRSq; and Eastern ARRC, based at Robins AFB, Ga., is the 44th ARRSq.

In addition to the three renamed centers and three U. S. squadrons, the 39th ARRWg controls a new squadron, the 71st, recently activated at Elmendorf AFB, Alaska. Two Joint Rescue Coordination Centers, one aligned with the U. S. Southern Command in the Canal Zone and the other aligned with the Alaskan Command at Elmendorf, are now assigned to the 39th.

Four HH-3 or HH-53 heavy-lift helicopter detachments, in being or soon to be activated, will be assigned to the new wing. These units will perform aircrew recovery.

The units of the 39th ARRWg will continue to control, coordinate and participate in search and rescue missions. The operational squadrons equipped with HC-130 fixed-wing search and control aircraft, and the HH-43B equipped detachments aid military and civilian pilots who declare emergencies; campers, hikers and mountain climbers who are lost or injured and victims of natural disasters.

At the request of foreign governments, 39th ARRWg units will provide similar aid to their citizens.

The units may also be called upon to aid in the recovery of astronauts and space hardware by the National Aeronautics and Space Administration and the Department of Defense.

LtCol McGuire Commands 71st ARRSq

LtCol Dale A. McGuire, formerly assigned to the office of the inspector general for Hq Aerospace Rescue and Recovery Service, has become the first commander of a new rescue squadron recently formed in Alaska. The 71st ARRSq, at Elmendorf AFB, was activated March 8. The unit's 24 officers and 129 enlisted men will fly and maintain four HC-130 search and rescue aircraft.

"The addition of the HC-130 will greatly enhance the rescue capability in Alaska," McGuire said. "This will be the first time Alaska has had a rescue-dedicated force."

All search and rescue (SAR) in Alaska is controlled and coordinated by a non-flying ARRS unit–Detachment 1, 39th ARRWg; Civil Air Patrol pilots have volunteered to fly SAR missions, and Alaskan Air Command and U. S. Coast Guard helicopters have performed SAR as a secondary role. Because of Alaska's large number of private pilots and many wilderness areas, Detachment 1 is one of the busiest ARRS units. The unit averaged a mission per day last year, including searches for lost hunters and fishermen, snowbound private and military aircraft, stranded mountain climbers and sinking ocean vessels. The 71st ARRSq has been assigned to the newly activated 39th ARRWg at Richards-Gebaur AFB.

RESCUE COMMANDER PROMOTED

Gen Jack J. Catton, commander of the Military Airlift Command, pins the second star on MajGen Allison C. Brooks, commander of MAC's Aerospace Rescue and Recovery Service, in ceremonies at Scott AFB, Ill. Looking on is Mrs. Brooks. General Brooks has been ARRS Commander since March 8, 1965. ARRS aircraft and personnel are stationed at 90 locations around the world. (USAF photo by SSgt Bobby J. Jones)

Development of the K-700

HH-43

K1125

K700

The HH-43B, over a period of 10 years of service, has established an outstanding operational ready rate and excellent safety record–it is a proven local base rescue helicopter. To enhance the HUSKIE's excellent record, additional power was provided when the T-53-11 was installed. This changed the model designation from B to F. A decision was also made by Kaman not to stop with just additional power, but to carry on with the HUSKIE improvement by prototyping and flight testing new concepts.

The HH-43B/F is stable in hover and very safe in full autorotation. Taking a look at other operational characteristics of the HUSKIE, where improvement was desired by the operators, changes were made to: increase speed, provide twin turbine reliability, reduce vibration, increase radius of action, increase power capability of the dynamic systems and provide directional stability for the accomplishment of instrument flight.

Starting with a basic HH-43B, new concepts in design to achieve these improvements resulted in the configuration of the twin turbine and single tail boom helicopter model K-1125. The K-1125 was test flown until these new concepts were proven satisfactory for production incorporation. The flight test program extended over 12 months, accumulated 200 flight hours and included demonstration flights for military and commercial helicopter operations.

The K-1125 never went into production primarily because there was no written requirement for an improved local base rescue helicopter. The K-1125 did, however, stimulate thinking along this line, for now such a requirement exists. The major configuration characteristics that are presently required, but were not in the K-1125 are: anti-icing of rotor blades and exposed dynamic components, integral fire suppression system capability with airborne fire fighting boom and nozzle, additional avionics equipment, variable speed rescue hoist and explosion proof/self sealing fuel tanks. It is primarily these outstanding improvements that have been configured into the K-700, the Kaman model helicopter which fully meets the U. S. Air Force's written requirement for a new, improved, twin-engined, all weather local base rescue helicopter.

The K-700, has the benefit of logistic commonality with the HH-43B/F to the extent of permitting the continued use of 45% of the H-43 spare parts. This, of course, provides dollar savings in support. The K-700 is ready to be compared with all competitive helicopters in its ability to perform the mission parameters of the improved local base rescue helicopter.

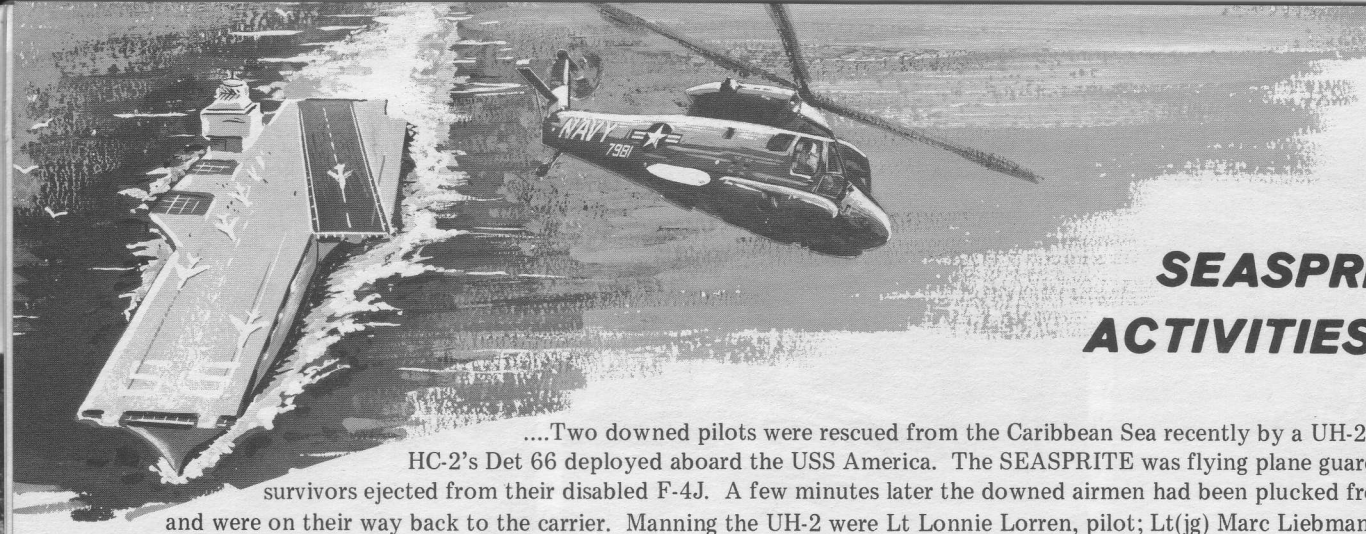
FIRE, EXPLOSION DANGER IGNORED TO MAKE RESCUE

An AC-119 was down in a marshy pond near Da Nang AB and fuel from the ruptured tanks was spreading toward the flaming number one engine. This was the situation rescuemen aboard an HH-43 found when they arrived soon after the aircraft crashed in the early morning darkness.

Capt Walter F. Hogan, Det 7, 38th ARRSq, quickly positioned Pedro overhead and snuffed out the flames with the rotor downwash. The helicopter pilot then landed on the dry shoulder to which six of the survivors had made their way after the crash. They informed the rescue crew that two more men were thought to be in the downed aircraft which was partially submerged in the four to six-foot deep waters. Immediately, all four HH-43 crewmen leaped from the chopper and began splashing their way through the fuel and oil-covered water surrounding the wreck. Disregarding the obvious danger of a fire or explosion, they entered the aircraft. Although the AC-119 still was in a "power-on condition" (all the electrical switches were on), greatly increasing the hazard, the rescuers never hesistated. Groping their way through the wreckage in the fume-filled interior, they found and freed two gunners trapped in the rear of the AC-119.

During this time, Captain Hogan and his copilot, Capt Roger F. Hill, were maintaining the HH-43 in a hover over the site in order to light the otherwise pitch black area. The injured survivors were carried ashore, Pedro landed to make the pickup and a minute or two later the two men were headed for the hospital.

Members of the rescue crew who went to the aid of the trapped men were TSgt Gordon L. Ball, flight engineer; SSgt Reginald Ramseur and SSgt Cecil H. James, airborne firemen; and TSgt Donald G. Smith, pararescuemen.



SEASPRITE ACTIVITIES

....Two downed pilots were rescued from the Caribbean Sea recently by a UH-2 crew from HC-2's Det 66 deployed aboard the USS America. The SEASPRITE was flying plane guard when the survivors ejected from their disabled F-4J. A few minutes later the downed airmen had been plucked from the sea and were on their way back to the carrier. Manning the UH-2 were Lt Lonnie Lorren, pilot; Lt(jg) Marc Liebman, copilot; ABH1 Dennis Wisniewski and ADR1 Manuel Pintor, rescue aircrewmen....

....A UH-2 crew from the SAR Unit at MCAS, Beaufort, S. C., launched at night to pick up a seriously-injured patient at the Naval Hospital on the station and then transported him to the Naval Hospital at Charleston. Crew of the SEASPRITE were Capt A. W. Trent, SSgt A. R. McCann and SSgt R. K. Mole.

...A UH-2 crew from HC-4's Det 36 aboard the USS Dubuque responded after a call for a medevac was received from the USS Cleveland. A sailor, seriously injured in a fall, was picked up by the SEASPRITE and taken to the Naval Hospital at Subic Bay, RP. The patient was accompanied on the trip by a doctor and corpsman. Manning the UH-2 on the mercy flight were Lt Michael A. Graham, pilot; Lt(jg) Robert R. Jernigan, copilot; and ATRAN Heinz P. Heer, crewman.

HC-1 DET HONORED BY KAMAN FOR VIETNAM MISSIONS

Thirteen officers and men from an HC-1 detachment aboard the USS Oriskany received awards from Kaman Aerospace recently for missions flown while operating off the shores of Vietnam. Recipients were: LCdr Laurence D. White, Lt Leroy W. Livermore, Lt Gerald E. Kuecker, Lt(jg) William L. Walton, Lt(jg) Ronald P. Cirre, Lt(jg) Daniel G. Hartley, PR2 George E. Morgan, AE2 Peter A. Biedrzycki, ADJ2 Richard M. Hathorne, ADJ3 Edward E. Brown, ADJ2 William T. Gribben, AMSAN Edward H. McElvain and ADJ3 Robert J. Bolding. All were members of Det 2 (previously 34) aboard the Oriskany.

On one mission, a pilot who ejected from his flaming A-4 was rescued soon afterward by a UH-2C crew flying plane guard for the carrier. McElvain left the helicopter and swam to the aid of the survivor. Both were then hoisted aboard. Other members of the SEASPRITE crew were Lieutenants Livermore and Cirre and Petty Officer Gribben.

Another pilot was picked up under similar circumstances after he ejected when the aircraft controls malfunctioned. Manning the UH-2C were LtCommander White, Lieutenant Hartley and Petty Officers Morgan and Biedrzycki. Biedrzycki went into the water to aid the survivor. An F-8 pilot whose aircraft ran out of fuel was plucked from the water by a UH-2C manned by LtCommander White, Lieutenant Walton and Petty Officers Brown and Hathorne. Hathorne went into the water to assist the downed airman.

In a similar incident, another F-8 pilot was rescued after he ejected when the aircraft plunged into the sea from the angled deck of the carrier. Despite wind-driven seas and rain, Petty Officer Biedrzycki leaped from the helicopter and went to the aid of the survivor who was tangled in his shroud lines. After the pilot was cut loose, both men were hoisted to the UH-2C. Others aboard were Lieutenant Kuecker, Lieutenant Cirre, and Petty Officer Morgan.

Last Flight—LCdr Richard "Bull" Dawson, a Navy officer who flight tested and accepted 71 Kaman-produced UH-2's, retired recently while attached to HC-4, NAS Lakehurst, N. J. It was in the early 60's that LtCommander Dawson flight tested the UH-2's. At the time he was the contract administrator of all government contracts at Kaman. In that capacity he also tested 39 Air Force HH-43 HUSKIES. Coincidentally, LtCommander Dawson's 828th and last flight was in "Scooter 50," one of the UH-2's he tested and accepted on Jan 20, 1962. In the photo Cdr L. E. Perry, right, commanding officer of HC-4, greets LCdr Dawson after the last flight. HC-4's executive officer, Cdr E. W. Hille, was also on hand to meet LtCommander Dawson. (USN photo by Jim Longstreet)

Flight Line Ceremony—Shown before taking off in the first HH-2D's to be delivered to HC-2, NAS Lakehurst, N. J., are, left to right, Lt Jack D. Ossont, Lt William L. Gsand, LCdr Drexel L. Matthews, Andy Foster, KAC chief test pilot; Cdr James F. Mozley, squadron commander; LCdr Harley A. Backstrom, Robert Bassett, assistant manager, Customer Service, KAC; Lt James Hitch.

First HH-2D's Delivered to HC-2

A few weeks ago HC-2, NAS Lakehurst, N. J., received the first HH-2D's to be delivered to the U. S. Navy. Cdr James F. Mozley, commanding officer of the squadron, flew one of the helos from the Kaman Aerospace Corporation facility at Bradley Field, Conn., to NAS Lakehurst. LCdr H. A. Backstrom was copilot for Cdr Mozley. Pilots of the second HH-2D to be delivered were: LCdr Drexel Matthews and Lt William Gsand. The HH-2D's received were the first UH-2A/B model helicopters to be modified to the "D" configuration and delivered to the Navy by Kaman. Further information on the HH-2D appears on Pages 3 and 4.

Two SEASPRITES For NAS Lemoore

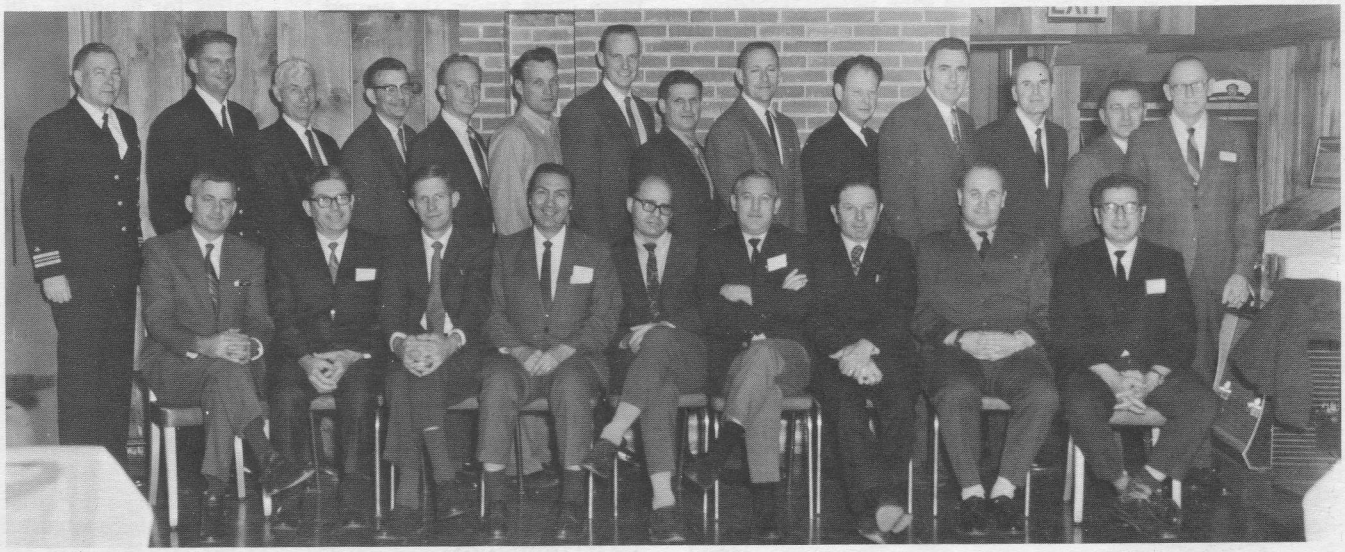
With the acquisition of two UH-2C "Seasprite" helicopters, Naval Air Station Lemoore, Calif., has taken a giant step forward in improving its Search and Rescue (SAR) capabilities.

The "Seasprites," with twin turbines, replace another type helo, in service here since September 1968. The first UH-2C was delivered on Dec. 1, with the second coming a week later. The twin-jet helo virtually doubles the station's SAR capabilities, having an 8,000-foot mean altitude hover capability as compared to the previous helo's 4,000-foot mean altitude. The increased altitude capability is required for the higher elevation points in the nearby Sierra mountain ranges which are an ever-present hazard to Lemoore-based aviation units.

Another feature of the UH-2C is the rescue hoist fishpole boom which provides better cockpit visibility of rescue operations.

The four NAS Lemoore pilots on continous standby are Lt T. M. Close and Lts(jg) B. B. Racely, M. R. Sutton II, and V. C. Ammendola.

Two pilots from HC-1, Lt Michael Bugelski and Lt(jg) John Fears, delivered the new helo to Lemoore from their home base at Imperial Beach, Calif. They remained at Lemoore in a temporary additional duty status to instruct the Lemoore SAR pilots on the new aircraft.



H-2 PAR Review—Participants in the three-day conference held recently at Kaman Aerospace Corporation, Bloomfield, Conn., front row, left to right, V. E. Sizemore, NAVAIRSYSCOMHQ; H. R. Ross, Production, D. M. Rush, Contracts, KAC; N. J. Sabato, R. N. Taylor, NASCREPLANT; N. Centore, Quality Assurance, KAC; D. Cardono, DCASO Engineering, LCdr C. E. Megonigle, chief, DCASO J. L. Cardello, GFE Stores, KAC; LCdr G. L. McCann, Chief Petty Officer N. N. Dettloff, HC-5, NAS Imperial Beach, Calif.; E. Babiarz, Engineering, G. M. Legault, Service Engineering, R. J. Myer, Manager, Customer Service, KAC; Petty Officer W. V. Larmie, HC-2, NAS Lakehurst, N. J.; LCdr R. H. Jesberg, CNAL; J. E. LaPlante, NAVAIREWFAC, NAS Quonset, R. I.; Cdr V. E. Frank, CNAP; Cdr G. Harper, COMFAIR, NAS Quonset; R. H. Chapdelaine, G. L. Wood, Service Publications, KAC; R. W. Street, HC-2, NAS Lakehurst, N. J.; E. L. Newman, NAILSC, NAS Patuxent River, Md.

You may find this hard to believe, but just the one Accessory & Component Service Record on the right could be worth $5,000 or more.

INSTALLATION DATA							REMOVAL DATA				
DATE	INSTALLED ON	SERIAL NO.	BY (ACTIVITY)	TOTAL A/C OR EQUIP HOURS	ACC./COMP. HRS. Since New	ACC./COMP. HRS. Since O/H	DATE	TOTAL A/C OR EQUIP HOURS	ACC./COMP. HRS. Since New	ACC./COMP. HRS. Since O/H	REASON FOR REMOVAL ACTIVITY & UR NO.
6-12-69	UH-2C	150000	HC-5	1140	NEW	- -	10-3-69	1300	220	- -	HC-5 2M0-9276-334

WANTED
$5,000.00 REWARD

FEDERAL STOCK NUMBER (FSN)	MANUFACTURER	RETIREMENT TIME (If Applicable)	Replacement Interval	Replace
1615-838-6477-BH7X	KAMAN AIRCRAFT CORP.	1200 HRS. "A" 2500 HRS. "A/B"	1200 HRS. "C" 2500 HRS. "../B"	
NOMENCLATURE	SERIAL NUMBER	PART NUMBER		
BLADE, MAIN ROTOR	C-66-687	K611008-309		

$5,000? That's a lot of money! Are you sure?

Absolutely. Read what Chief Isbell has to say about these cards and you 'll see why.

ACCESSORY AND COMPONENT SERVICE RECORDS

By H. A. Isbell, AZC (AC)
Helicopter Combat Support Squadron Five
NAS Imperial Beach, Calif.

If an Accessory and Component Service Record Card (NAVAIR FORM 13090/9A) is lost, misplaced, damaged, mutilated, or destroyed, and the past operating history on component is not available, it would result in the scrapping of the component. This could result in the unnecessary destruction of such high value components as main rotor blade and main gearbox assemblies with price tags in the five digit figures. It is, therefore, essential that all who deal with these record cards be aware of their importance. It is imperative that the people who actually deal with these cards know the proper procedures for handling and maintaining them and do so in correct and efficient manner. In order to assure this, personnel assigned to work with these cards should be intimately familiar with the following information and procedures:

1. What is the Accessory and Component Service Record?

It provides for the recording of complete maintenance history, installation and usage data on a given serialized component. It shall be maintained as part of the Aircraft Log Book or the Aeronautical Equipment Service Record as long as the accessory or component is installed. When the accessory or component is removed from the aircraft or equipment, the Service Record form shall accompany the part.

2. What Components Require an Accessory and Component Record?

Components requiring service records are designated by NAVAIRSYSCOM and are listed in the Handbook of Inspection Requirements or Periodic Maintenance Requirements Manual for each model. An individual component service record shall be initiated for each item so listed and shall accompany the item throughout its service life.

3. Who Originates the Original Record Card?

Original component service records shall be initiated by the selling agency or activity accepting the component (whether installed or a new RFI spare) for the Navy.

4. What about Records for Overhauled Components?

Naval Air Rework Facilities shall insure that service records accompany overhauled accessories and component either as part of the log book or securely attached to the item if returned to the supply system as a spare. These records will not necessarily be originals but may, in some instances, be new transcriptions or consolidations of old service records.

5. What if Records are Lost?

If records are lost, it shall be the responsibility of the activity having custody of the component at time of loss to initiate a new record containing all available information. Activities receiving components without records shall request corrective action from the previous custodian. In certain instances where corrective action cannot be obtained, the activity having custody of the component shall initiate a new component record, provided the component is not subject to a finite life. If the component is subject to a finite life, the component record shall be forwarded to the designated overhaul point for continued research of its operating history. When returning a component service record to a designated overhaul point, be sure to include with it any information which you may have that would help the overhaul point locate the component. The overhaul activity in conjunction with cognizant Naval Air System Command technical representatives will make the decision as to whether component can be salvaged with appropriate penalties or must be disposed of as scrap material.

6. What about Damaged Records?

When records become damaged or mutilated, the activity having current custody shall initiate a new record. All information shall be transcribed to the new record. When this is done, great care should be taken to insure that the record is transcribed correctly.

7. What about Record Maintenance?

Entries shall be typed or printed in ink (neatly). Since this record contains information of importance in compiling usage data, it is imperative that all available required information be entered thereon. When a record contains no space or additional entries, a new record shall be prepared and both shall accompany the component until the record is consolidated at the rework facility.

8. How do you show Technical Directive Compliance?

Since helicopter components are modified or changed by airframe changes or bulletins, the technical directives part of this record is provided for recording them. This column designated "Directive" will indicate the type directive and number; e.g., AFC 160. Status codes and category designations shall be entered when applicable. Operating activities shall use separate entry procedure. Original Accepting Activities Contractors and Naval Air Rework Facilities shall use block entry procedure when possible.

9. What about Disposition?

Component service records may be destroyed when the component is no longer serviceable and the record is no longer required for historical purposes, usage data or investigation.

Chief H. A. Isbell

10. How are these Records Protected in Shipment?

The return material documents envelop shall be used for the protection of component service records when accompanying shipments of individually packaged components, and they should be securely retained in provided compartments in component containers.

11. What about Times at Installation and Removal?

The "Installation Data" and "Removal Data" blocks of the Accessory and Component Service Record each contain a column for total hours of the aircraft or equipment. The information entered in these columns is for use in computing the "Time Since New" and "Time Since Overhaul" for accessories and components. Aircraft or equipment time is used as the measuring factor since accessories and components rarely accumuate significant operating time unless they are installed on aircraft or equipment. The columns entitled "Installed On" and BUNO or Ser No." refer to the aircraft for airframe accessories and helicopter components; and to the equipment (engine, propeller, etc.) for accessories associated with such equipment. When dealing with record cards for components which can be inter-changed between different aircraft models such as the UH-2A/B and UH-2C, it is imperative that the person maintaining these records be thoroughly familiar with the proper method of prorating service time such as use of related nomographs in order that component TBOs (Time Between Overhaul) or a retirement time are correctly established and are not exceeded.

The next time you see one of these little yellow cards, treat it as you would your life savings. Who knows, some day you may save Uncle Sam a considerable sum of money.

EDITORS NOTE:

Shortly after receiving the above article from Chief Isbell, a UH-2 component review was conducted at Kaman by NAVAIRSYSCOM, NAVAIRREPLANT, DCASO and Contractor personnel. The review was held to establish disposition of more than $850,000 worth of high-value components received at Kaman for overhaul or repair since 1967. No service record cards had been sent with these components. Through diligent research, and judgement, over $535,000 worth of these components were salvaged. However, a group valued at approximately $195,000 was designated scrap. Another group valued at approximately $120,000 is being held pending further research.

PRE-DAWN AT DA NANG—Crewmen from Det 7, 38th ARRSq, check out an HH-43 for yet another mission. The slower moving helicopters will often be ordered into the air ahead of the fighter-bombers. When a strike is made, the choppers will already be in place waiting for a "Mayday" call. (USAF photo)

Bien Hoa Rescuemen Make Pickup

Two of the four members of a helicopter crew whose chopper crashed in a field near Bien Hoa AB were taken to the base by an HH-43 crew from Det 6, 38th ARRSq. The other two downed airmen were picked up by another helicopter. None of the survivors were injured. Manning Pedro were Capt Richard S. Dunlap, pilot; Capt Edward L. Coleman, copilot; and Sgt Roy T. Vogel, pararescuemen.

Snake - Bite Victim Saved By Det 8

A Vietnamese soldier who had been bitten by a snake was evacuated by an HH-43 Pedro crew from Det 8, 38th ARRSq, Cam Ranh Bay AB. A jungle penetrator seat was used to make the pickup from a small clearing in the jungle near the top of a 2400-foot mountain. As Capt Peter F. Dineen hovered over the large trees, Sgt Kenneth J. Musnicki, a pararescueman, was lowered on the penetrator. He secured the soldier on the seat and then he and the evacuee were hoisted through the double tree canopy to the helicopter. Others participating in the mission were Capt Jay W. Hansen, the copilot; and SSgt Thomas W. Seibert, flight engineer.

Det 14 Crew Aids Coast Guard

A sailor suffering from severe abdominal pains was airlifted to shore by an HH-43B crew from Det 14, 38th ARRSq, at Tan Son Nhut AB. The pickup was made from the U. S. Coast Guard Cutter "Kingdom Bravo" after Capt Michael C. Kiefl landed on the vessel's helipad. To make the landing in the gathering darkness, the helicopter pilot first flew formation with the moving ship, then hovered over the helipad until synchronization was established with the ship's pitch and roll. It was Captain Kiefl's first landing of this kind. Others manning the HH-43 were Capt Patrick J. McDaniel, copilot; SSgt Richard W. Peterson, flight engineer; and Sgt Arthur Luna, medical technician.

Det 3 Saves Thai Girl, Rescues Pilots

An HH-43 launched in the dark from Ubon Airfield, Thailand, after word was received that a seriously injured Thai girl was bleeding severely and in need of immediate medical attention. At the pickup site, 15 miles from Ubon, Capt Michael C. Kiefl found an approach route between 100-foot trees and landed in a small clearing illuminated by a truck's headlights. The border of the site was outlined by flashlights. With the patient aboard, a restricted area takeoff was made and the patient was soon at the hospital. Other members of the HH-43 crew, all from Det 3, 38th ARRSq, at Ubon, were Capt Allen E. Spalt, copilot; Sgt Jeffery W. Fehr, medical technician; Sgt John D. Chilson, flight engineer; Capt John R. Pettigrove (MC), doctor.

Four combat saves were also chalked up recently by Det 3. A navigator who ejected from a crippled aircraft was picked up from a rice paddy by HH-43 pilot Capt Marvin A. Cleveland and Sgt Ronald L. Kaylor, flight engineer. A second HH-43 located the downed aircraft and found that the pilot had failed to survive. Manning this helicopter were Captain Kiehl, Captain Spalt, Sergeant Chilson, and Sergeant Fehr.

Two airmen who ejected from their crippled aircraft were picked up from a rice paddy by an HH-43 manned by Captain Spalt, pilot; Maj Floyd R. Dooley, copilot; SSgt Rufus B. Russell, flight engineer; and Sgt Gerald E. Kent, medical technician. Another downed pilot was picked up from a small jungle clearing by Captain Kiefl and his crew: Sgt John F. O'Neill, flight engineer; Sergeant Fehr, medical technician; and SSgt William J. Selke and Sgt Jessee L. Bunche, firefighters.

Report From Det 5

Det 5, 38th ARRSq, Udorn AB, Thailand, was activated in July, 1965. During more than four years of operation since that time the unit has not had a single accident. In 1969, Det 5 flew 800 hours without incident and made six saves.

Southeast Asia

HH-43 CREWS DRILL DAY AND NIGHT

Det 1 Crews Now Practice 'At Home'

PHAN RANG AB, RVN (7AF)—Air Force Det 1, 38th ARRSq, recently acquired its own firefighting practice area, complete with simulated aircraft fuselage. Detachment crewmembers previously journeyed to either Cam Ranh Bay AB or to Thailand for their proficiency training.

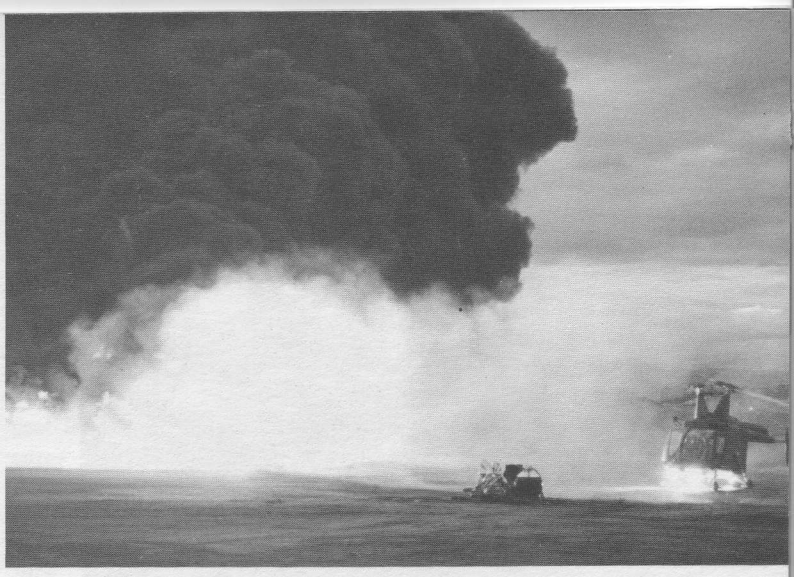
One of the unit's missions is to remove crewmembers from aircraft which have crashed on the runway and are burning, or are in danger of burning. The HH-43 Pedro is used for the rescue work. When a landing aircraft experiences mechanical difficulties or has been hit by enemy ground fire, the unit is one of several which respond, standing by to help in case the aircraft does fail to make a safe landing.

"Our practice firefighting is designed to closely resemble an actual situation so each crewmember can perfect his duties and work as a member of a team," said Maj Raymond L. Foster, detachment commander.

Frequently, as many as four firemen may participate in a practice drill. "Besides two experienced men, we may have some new arrivals. This training supplements that which they have already received. It also provides an important safety factor, so the most realistic training can be provided with little comparative danger," Maj Foster said.

Practice fires are fought both during the day and at night. The late evening drills are designed to enhance the crew's depth perception, which normally is greatly impaired because of inadequate light. During an actual crash, firetrucks from the 35th Civil Engineering Squadron also use large amounts of foam to help put out the fire.

"But ours is the most crucial responsibility—getting out the people," concluded Maj Foster. "Working as a quick-moving, efficient team—matured by constant practice—is vital to fulfilling our responsibility and motto: 'These Things We Do, That Others May Live'."



Inferno—An HH-43 Pedro rescue helicopter from Det 1, 38th ARRSq, sets down to let off firefighters and a medic before tackling 500 gallons of blazing fuel. The fire suppression kit (FSK) had been set in place a few seconds before. A metal structure simulating an aircraft is in the fire's midst. Firemen use a foam mixture from the FSK to cut a path to the wreckage, where, in an actual situation, they would remove people from the aircraft. The helicopter would meanwhile hover above the flame, its rotorwash helping to clear a path while providing cool, life-sustaining air for the firemen and people in the plane.

Dust And Smoke—A firefighter from Det 1 prepares a fire suppression kit (FSK) while an HH-43 Pedro rescue helicopter hovers above the flaming fuel. The detachment recently acquired its own practice crash rescue area where members of the unit practice frequently to build up teamwork and to completely familiarize each man with his equipment.

Casual Spectator—A medic, right foreground, relaxes against a fire suppression kit (FSK) while Det 1 firefighters practice entering a fire. (USAF photos by A1c William Cannava)

SMALL BUT VITAL——DET 13 IS LIFE SAVER

100% Operational Ready Status For Two Years

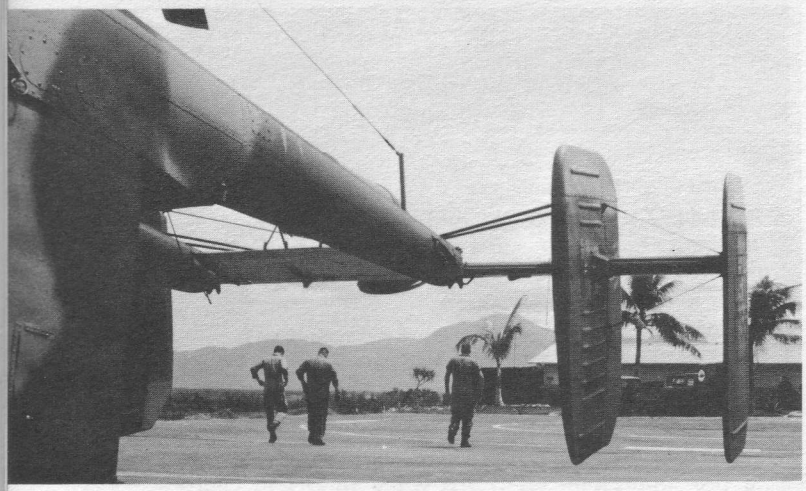
By Sgt Ralph Saenz

PHU CAT AB, RVN (7AF)–There is a small unit here that performs a vital function–the saving of human lives. Det 13, 38th ARRSq has two missions, local base rescue and aircrew recovery. "We fly mostly local base rescue missions averaging two or three scrambles a day," said Maj Ernest A. Headberg, Jr., commander of the unit.

When the horn sounds at the detachment area, four men race to an HH-43 Pedro helicopter. Two of the men are pilots. The other two are firemen attached to the unit from the 37th Civil Engineering Squadron. There are six firemen assigned to Det 13. The helicopter is started and hovers over the pad while one of the firemen hooks a fire suppression kit to the underside of the helicopter.

The Pedro crew intercepts whatever aircraft is in trouble and follows it in. If the plane crashes, the helicopter goes down to the crash site. The firemen waste no time. If the plane is on fire the fire suppression kit is detached and used to keep the flames contained long enough for the firemen to get the crewmembers away from the plane. The base fire trucks then come in to extinguish the fire.

"Our second mission, aircrew recovery, is not limited to Air Force operations. We recover people from all services, Major Headberg said. "We have four medics assigned to us



Alert! Alert!–In top left photo, seconds after the alert horn sounded, crewmen from Det 13 race to their HH-43 Pedro helicopter. An alert crew may scramble several times a day for local base rescue, aircrew recovery missions, or to make medical evacuations. Top right, an HH-43 with a fire suppression kit attached flys out to intercept an aircraft in trouble. Bottom left, an HH-43 crew walks back to the operations building following a scramble. Bottom right, an important part of the rescue team, Det 13 mechanics perform maintenance on one of the detachment's HH-43's. Det 13 has been on 100 percent operational ready status since it came to Phu Cat two years ago. (USAF photos by SSgt Paul J. Harrington)

from the 37th U. S. Air Force Dispensary. They are not trained pararescue medics. We teach them things relating to rescue pick ups, like operating the hoist, but they are not qualified as jumpers. We give them a lot of credit though. It takes nerve to go down into enemy territory to check on survivors of a downed aircraft.

"In the two years of operation here, we have been very fortunate. We have lost only one member of our squadron through enemy action," continued Major Headberg. "During this time we have always remained on 100 percent operational ready status."

Det 13 also has medical evacuation capabilities. One Pedro can carry two people comfortably, and more if necessary, to the large hospital facility at Qui Nhon. There are two versions of the HH-43 Pedro which the squadron flies. The B model is also used by rescue squadrons in the United States. The F model, used in the Republic of Vietnam, has a larger engine and is armor plated.

"There's only one thing on my mind during a mission," said the major, "and that's getting the downed crewmen out of enemy territory and back to safety." Below is a short account of an "at-sea" medical evacuation made by Det 13. Scores of such missions have been flown by the detachment but most were over land.

HH-43 Medevacs Sailor

Two HH-43's from Det 13, 38th ARRSq, at Phu Cat AB responded when a call for a Medevac was received from the USS Haleakala after a petty officer began suffering severe abdominal pains. Captain David A. Cochenour landed on the ship's helipad to make the pickup.

LtCol Earnest A. Headberg, Jr., detachment commander and pilot of the back-up helicopter, said afterward, "The boys in the pick-up helicopter did a real professional job of setting down on the ship. With 12-foot waves causing the ship to pitch up and down, the matter of hitting the pad just right got a little complicated. The pilot did a great job of getting on and getting off safely."

Grateful–SF1 Melford A. King, center, expresses his gratitude to "Pedro" crew which evacuated him from a ship 20 miles offshore. Left to right are, Capt David A. Cochenour, pilot; Maj Joseph D. Price, copilot; Sgt Stephen L. Stover, crew chief; and SSgt Edward E. Scott, medical technician. Other crewmembers were SSgts Robert A. Twigg and A1c James J. Washbeck.
(USAF photo by Sgt Bill Stahl)

Det 11 Saves Pilot

TUY HOA AB, RVN (7AF)–Bailing out of his F-100 Supersabre at an altitude of 200 feet, Capt Larry D. Leppa is convinced he would not like to do it every day. Capt Leppa's aircraft flamed out during a landing approach two miles from the runway here and 200 feet above the South China Sea.

After he bailed out, USAF HH-43 Pedro helicopters were on hand to rescue him from the water. "I barely got wet," Captain Leppa said, "a rescue crew had me out of the water within eight minutes. After I ejected I never felt the seat leave me. All I remember is hitting the water. When I came back to the surface one of my fuel tanks was floating fins up nearby and the rescue chopper was hovering overhead."

The HH-43 aircraft commander, Capt Charles T. Wohlnick, commented, "Captain Leppa sounded real calm throughout the operation. When he flamed out he had about five seconds to make his decision to eject. We'd been told he was having troubles and we were airborne to meet him."

Assisting Captain Wohlnick in the rescue were Capt James H. Brittingham, copilot; Sgt Richard E. Evans, pararescueman; SSgt Osby Hunter, Jr., SSgt Gwenold G. Nelson, and Sgt James W. Nelson, rescue specialists. All from Det 11, 38th ARRSq at Tuy Hoa.

Det 1 Rescues Two From Sea

Two downed pilots were rescued and eight wounded Vietnamese soldiers were evacuated recently by HH-43 crews from Det 1, 38th ARRSq, Phan Rang AB.

An F-100 pilot who ejected over water 40 nautical miles from the base, was plucked from the sea without incident despite 10 to 15-foot swells. Major Ronald K. Dalrymple was pilot of the HH-43 and Capt Thomas E. Rodgers, copilot. Others members of the crew were SSgt James A. Taylor, flight engineer; MSgt Anthony R. Gargano, pararescueman; and Sgt David Hernandez, medical technician.

Another F-100 pilot was also rescued from the sea after ejecting from his crippled aircraft. Again the pickup was made without incident. Maj Raymond L. Foster was pilot of the HH-43 and Capt Harold N. Hansen, copilot. Crewmen were Sergeant Taylor, and Sergeant Hernandez.

Det 1 personnel who participated in one or more of the five medevac missions flown by detachment Pedros were: Major Dalrymple, Captain Hansen, Sergeant Taylor, Sergeant Hernandez, Capt Wayne R. Crowther, Capt Richard G. Humphreys, SSgt Henry L. Jones, II, Major Foster, Sgt Gary L. Hartley and Sgt Robert C. Edens.

1000 - Hour Pilots

Five more pilots qualified recently for the award presented by Kaman Aerospace to those logging 1,000 hours at the controls of helicopters produced by the company. Recipients of "1,000-hour plaques" are: **UH-2** - Lt G. Clifford Houser, HC-2, NAS Lakehurst, N. J. **HH-43** - Maj Herbert G. Gates, Det 6, 44th ARRSq, (MAC), Andrews AFB, Md; Capt Jack V. Butler, Det 26, 44th ARRSq (MAC), Columbus AFB, Miss; Capt M. Afsahi, Capt M. Azarkhsi and Capt P. Hoormand, Imperial Iranian Army.

Helicopters Fight Fires

Story by A1c John D. Mungan
Photos by Sgt David C. Daniel

"Helicopters Fight Fires" first appeared in the *Tiger Times*, base newspaper at Columbus AFB. It was judged best in the feature story category for the Air Training Command Quarterly Newspaper Awards contest –October-December, 1969, period.

During a practice rescue mission, the 5,000 pound HH-43 HUSKIE helicopter of Det 26 hovers overhead while firefighters prepare to combat the flames with compressed foam. The chopper's powerful intermeshing blades provide a stream of cool air to help the firemen as they battle blaze.

COLUMBUS AFB, MISS. –A bird seldom attracts attention, unless its a 5,000 pound mechanical one.

Even though a helicopter is nothing new in the skies, it does draw an intense amount of attraction from earthlings. These so called "birds" are becoming a common sight around the Columbus area, but few people are aware of their reason or purpose for being here.

The mission of Columbus AFB, as most know, is to train pilots. It takes a great diversification of support to carry out this mission, and part of that support comes from helicopters. The helicopters, Kaman HH-43B's, are from Military Airlift Command's (MAC) Detachment 26 of the 44th Aerospace Rescue and Recovery Squadron (formerly Eastern Aerospace Rescue and Recovery Center). Detachment 26's mission is to afford fire protection to pilot trainer aircraft or personnel in need of rescue or recovery.

Certainly the aircraft and equipment of Detachment 26 are impressive, but one cannot overlook the men who fly, operate and maintain this equipment. Fire protection, like many other areas, is dependent on both men and machines for effectiveness. It's difficult, and perhaps unfair, to view one without citing the other.

The quality of this unit is exemplified in each individual. They are a team, dedicated to the purpose of giving of themselves to do a job with speed and efficiency. Most are Southeast Asia returnees with many hours experience under extreme conditions. As officer in charge of the detachment, Maj Fred W. Forbey has the responsibility of insuring his men's readiness for all possible emergency situations. Helicopter pilots, Capts Jack V. Butler and Thomas J. Smith, are not newcomers to the rescue business, as both have compiled impressive service records in Vietnam action. With 48 years flying experience among them, the three officers have a total of more than 13,000 flying hours.

Strong leadership is crucial in a firefighting and rescue operation and the detachment's five firemen and three medics contribute to the effectiveness of their leaders.

Lifting the 1,000 pound steel sphere of compressed foam, used with the HUSKIE helicopter, its rescue crew is off on another mission. In second photo, another mission completed, the HH-43 is set down on signal from the flight engineer. The chopper pilot is now ready to stop the intermeshing blades by means of a braking system, as the crew prepare to leave the bird.

Supporting the rescue crews are: SMSgt Clarence Mullinax, maintenance supervisor, TSgt David E. Smith, quality control, three flight engineers, seven helicopter mechanics and an administrative specialist.

Every 12 hours a fresh crew goes on alert status at the Det 26 building. A word from the commander sends the crew scrambling to its helicopter, the two firefighters, donning their heat-resistant bunker suits, climb aboard as the pilot and medic strap themselves in, preparing for flight. A flight engineer immediately starts the ground power unit—supplying the chopper electrical power for a quick dependable start—and then removes the restraining parking blocks.

Having given the pilot the "all clear", the engineer runs to the fire suppression kit (FSK), awaiting the hook up with the hovering chopper. Employing both visual control and radio communication with one of the firemen, the pilot positions the helicopter above the 1,000 pound kit for attachment by the ground crewman. Within a minute the rescue crew can be on its way.

Today's alert was practice, but with constant training and professional response, if there's any hint of aircraft trouble the HUSKIE is up and waiting, ready and able to be on the scene almost immediately.

In responding to an actual emergency, the call for help comes over the emergency communications network—the crash phone. A pilot experiencing in-flight trouble, declares an emergency to the control tower, which in turn activates the crash net. Once the responding helicopter crew is airborne, constant communication is maintained with the control tower. Orbiting at a predetermined point, the HUSKIE will intercept the distressed plane, following it down the runway as it lands.

Should a fire exist, the crew quickly lowers its FSK and firefighters. While asbestos-protected firemen lay down a path of foam, the large bird hovers overhead, its powerful blades literally blowing the flames away. A stream of cool air descends from the chopper, making rescue of a trapped pilot possible.

Rescue helicopters undergo constant maintenance attention, keeping them in top mechanical condition. A1c Craig A. Schumacher, helicopter mechanic with Det 26, Columbus AFB, checks out the HUSKIE's gas turbine engine.

Attributed with the altitude record of 32,840 feet for rotary wing aircraft, the HH-43 can lift 4,000 pounds beyond its own weight. Its Lycoming gas turbine engine turns the intermeshing blades, pushing the bird to a top speed of 105 knots with a 150 nautical mile range. No other aircraft around can get off the ground nearly as fast as the HUSKIE. Its crew can get it airborne within 30 seconds, as the chopper requires no engine warm up time.

Among the many organizations in the Armed Forces there are numerous slogans and mottos. ARRS's motto characterizes the dedication and service of the men of Detachment 26..."that others may live".

DET 10 SAVES INJURED ROK SOLDIER

A Republic of Korea (ROK) soldier, seriously injured in a mountain fall at night, was evacuated by an HH-43B crew from Det 10, 41st ARRWg, Kwang Ju AB, Korea. To reach the pickup site, at 4,600 feet, Capt William R. Patterson and his crew flew into a canyon surrounded on three sides by towering mountains and swept by 30-knot winds. A landing and takeoff was made by the light of flares dropped from a ROKAF C-46, and ground fires. Enroute to the base, 35 miles away, the patient was treated by Capt James G. Burgess (MC), a flight surgeon, and TSgt Michael P. Burke, pararescueman. Other members of the crew were Capt Arthur F. Machado, the copilot, and SSgt Larry R. Collins, flight engineer. Captain Machado, a veteran of many Southeast Asia missions, was TDY from Det 7, 40th ARRWg, Torrejon, Spain.

Hazardous Medevac—HH-43 crew which evacuated ROK soldier. Front row, left to right, TSgt Michael P. Budke, pararescueman, and SSgt Larry R. Collins, flight engineer. Rear row, Capt William R. Patterson, pilot; Capt James G. Burgess (MC), flight surgeon; and Capt Arthur F. Machado, copilot. (USAF photo)

Huskie Happenings

....A soldier with a severe head injury was evacuated at night from a remote site in the mountains by an HH-43 crew from Det 9, 41st ARRWg, Osan AB, Korea. The 50-mile flight over rugged terrain was made in total darkness with the aid of GCI radar. Map reading was virtually impossible. At the site, obscured by haze and ground fog, Capt Joseph B. Marsh landed the HUSKIE in a confined area illuminated by truck lights. With the patient aboard, the HH-43 headed for the hospital. Others manning the helicopter were Maj John R. Moulton, copilot; SSgt Trelawny J. Bruce, pararescueman; and A1c William L. Wilcox, flight engineer.

... Flying through snow showers and beneath a 500-foot ceiling, an HH-43B crew from Det 3, 40th ARRWg, Lakenheath AB, England, evacuated an auto accident victim to a neurological hospital in Cambridge. Captain Frazier (MC), who made the flight with his patient, said the injured airman had suffered such severe head injuries that he would not have survived a trip by ambulance. Pilot on the mercy mission was Capt Peter J. Connelly. Maj Harold A. Solberg was copilot and SSgt Gary A. Low, medical technician.

...A helicopter pilot who landed on the side of a steep mountain covered by 75-foot trees, was picked up by an HH-43 crew from the 31st ARRSq, Clark AB, R. P. The pilot,who suffered minor injuries, autorotated to the site after an engine flameout. The downed chopper was spotted by the rescue crew soon afterward and SSgt Dean A. Braybrooke, medical technician,was lowered from the hovering HUSKIE to aid the rescuee. Both men were then hoisted aboard. Other members of the HH-43 crew were Maj Charles P. Nadler, pilot, and Sgt Terrell H. Elliott and Sgt Delton G. Lowry, firefighters.

...Minutes after ejecting from an F-5 that had a double flame-out, the slightly injured pilot had been picked up by an HH-43 crew and was on his way to the hospital at Edwards AFB, Calif. Pilot of the HUSKIE was Capt Thomas D. Precious and Maj Dale L. Potter was copilot. Crewmen were TSgt Ezekiel Dove, SSgt Jimmy J. Reynolds, Sgt Fletcher D. Jackson, and A1c George Harvey, III. All the rescuemen were from Det 5, 42nd ARRSq (MAC), at Edwards....

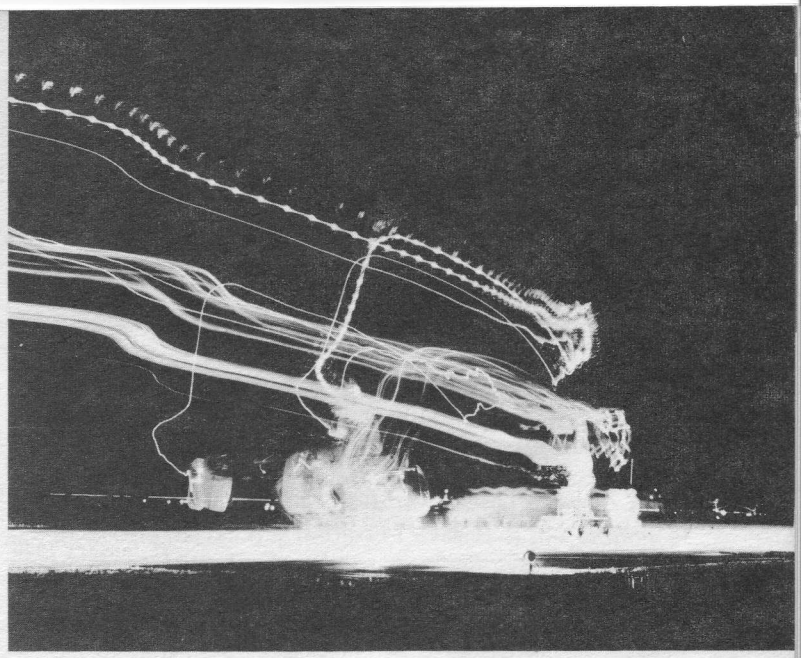
...Flying over mountainous territory in fog, haze and snow, an HH-43B crew from Det 5, 40th ARRWg, Hahn AB, Germany, evacuated an automobile accident victim from the base to Wiesbaden USAF hospital. The patient, suffering from a massive skull fracture, was accompanied on the 40 mile flight by his doctor, Maj Robert S. Amonic (MC). Maj Ralph H. Bush was the HUSKIE pilot; TSgt Nolan P. Pearson, flight engineer; and Sgt Ronald D. Bryant, medical technician.

'MOON MAN' FLIES IN HUSKIE

On a recent visit to Guam, Astronaut Neil Armstrong made the flight from Andersen AFB to the NASA tracking station in an HH-43B from Det 12, 41st ARRWg (MAC). Armstrong, who was accompanied by Gen Earl L. Johnson, flew in the copilot's seat during the flight. Piloting the helicopter was Maj John R. Cassarini. Crewmen were Sgt David Cobb, a pararescueman, and SSgt Lester J. Berry, helicopter technician. Astronaut Armstrong stopped at Andersen, where Det 12 is based, while traveling with the Bob Hope Christmas Show to military bases overseas. The rescue unit is commanded by LtCol Byron H. Lawrence.

In another mission, a Det 12 crew rescued a swimmer being swept out to sea.

Saved Swimmer — Three swimmers on a raft found themselves in trouble on New Year's Day when the tide began carrying them toward the open sea outside Osan Reef near the Naval Air Station on Guam. A Navy helicopter rescued two of the men and the third was hoisted to safety by an HH-43 crew from Det 12, 41st ARRWg, Andersen AFB. Members of the rescue team are, left to right, Sgt Alexander Davidson III, fireman; SSgt Charles Morgan, flight engineer; Sgt David M. Cobb, pararescueman; Sgt Anthony Ficarro, fireman; and Maj Reno Cassarini, pilot. (USAF photo by SSgt Harry Holstine)



Night Or Day, 40th Is Always Ready–In left photo, landing lights of HH-43B HUSKIE bring to life the figures of three rescuemen dressed in their fire-fighting gear. In right photo, cameraman's time exposure captures the landing pattern of an HH-43B as it comes in slowly, hovers and sets down the fire suppression kit, then backs off and lands. In addition to furnishing day-time protection, HUSKIES in the 40th ARRWg often fly night-time missions at USAFE bases supporting fighter units. (USAF photos)

Okinawa "Angels"–A paratrooper with a broken leg....a child who had been bitten by a poisonous snake....a civilian critically injured in a truck accident.... a man with a heart attack....through the efforts of Det 6, 41st ARRWg, these and many others on Okinawa and the islands in the vicinity have received the medical attention so urgently needed. Typical activities of the unit, which is based at Kadena AB, are shown in the three photographs. An HH-43 piloted by Capt Robert M. Garlow approaches landing pad with a Ryukyuan civilian urgently in need of medical assistance after being struck by a truck. Others aboard the rescue helicopter are Maj Bert E. Cowden, copilot; TSgt Frank Crummit, flight engineer; Sgt Charles G. Block, medical technician; and Capt William E. Marks (MC), flight surgeon. In second photo, the patient has been taken from the helicopter and a waiting medical team is continuing the treatment received during the flight. In another mission, an HH-43 crew delivered a seriously injured U. S. sailor to the hospital. The sailor's foot was severly lacerated in an accident aboard ship. He was taken in a Navy plane and then transferred to the HUSKIE. Pilot of the helicopter was Major Cowden. Others aboard were SSgt Joseph M. Carter, flight engineer; SSgt Wallace E. Wolfert, medical technician; and Capt David A. Russell (MC), flight surgeon. After the sailor was delivered to the hospital, the HH-43 crew took off again to medevac two Ryukyuan boys who had been struck by a bus. In the third photo, one of the lads is shown being taken from the HUSKIE by solicitious crewmen. (USAF photos)

CURRENT CHANGES

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

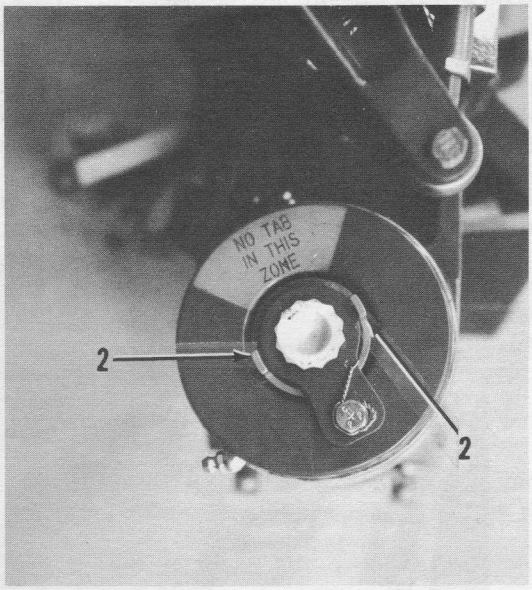
	Issue Date
H-2 Airframe Change 43 - Amend 3, Electrical System, INSTALLATION OF ROTOR OVERSPEED RECORDER	3 February 1970
H-2 Airframe Change 141 - Power Plant System, REPLACEMENT OF EMERGENCY FUEL CONTROL ACTUATOR	23 January 1970
H-2 Airframe Change 166 - Instruments, RELOCATION OF LANDING GEAR INDICATORS	21 January 1970
H-2 Airframe Change 170 - UH-2C Helicopter, GROWTH CHANGES	27 February 1970
H-2 Airframe Change 173 - Transmission System ADDITION OF VIBRATION ISOLATION GASKET TO UH-2C, HH-2C, AND HH-2C RESOLVER (AND TACHOMETER GENERATOR DRIVE) GEARBOX	23 January 1970
NAVAIR 01-260HCA-2-1 - Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C/ HH-2C Helicopters, GENERAL INFORMATION	15 December 1969
NAVAIR 01-260HCA-2-2 - Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C/ HH-2C Helicopters, AIRFRAME	1 October 1967 changed 15 December 1969
NAVAIR 01-260HCA-2-2.1 - Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C/ HH-2C Helicopters, FLIGHT CONTROLS	15 June 1969 changed 15 December 1969
NAVAIR 01-260HCA-2-3 - Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C/ HH-2C Helicopters, EQUIPMENT (FURNISHINGS, HYDRAULICS, UTILITIES, ARMAMENT)	15 December 1969
NAVAIR 01-260HCA-2-4.1 - Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C/ HH-2C Helicopters, TRANSMISSION SYSTEM	15 December 1969
NAVAIR 01-260HCA-2-5 - Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C/ HH-2C Helicopters, AUTOMATIC STABILIZATION EQUIPMENT	1 October 1967 changed 15 December 1969
NAVAIR 01-260HCA-2-6 - Manual, Maintenance Instructions, Navy Models UH-2A/UH-2B/UH-2C/ HH-2C Helicopters, ELECTRICAL SYSTEM	1 October 1967 changed 15 December 1969
NAVAIR 01-260HCA-2-8.1 - Manual, Maintenance Instructions, Navy Models UH-2C/HH-2C Helicopters, WIRING DATA	1 October 1967 15 December 1969
NAVAIR 01-260HCA-4-1 - Illustrated Parts Breakdown, Navy Models UH-2A/UH-2B Helicopters, ROTORS AND CONTROLS	1 December 1965 changed 15 December 1969
NAVAIR 01-260HCA-4-2 - Illustrated Parts Breakdown, Navy Models UH-2A/UH-2B Helicopters, DRIVE SYSTEMS	15 January 1967 changed 15 December 1969
NAVAIR 01-260HCA-4-3 - Illustrated Parts Breakdown, Navy Models UH-2A/UH-2B Helicopters, UTILITIES	1 April 1964 changed 15 December 1969
NAVAIR 01-260HCA-4-4 - Illustrated Parts Breakdown, Navy Models UH-2A/UH-2B Helicopters, RADIO AND ELECTRICAL	15 January 1967 changed 15 December 1969
NAVAIR 01-260HCA-4-5 - Illustrated Parts Breakdown, Navy Models UH-2A/UH-2B Helicopters, FURNISHINGS	15 January 1967 changed 15 December 1969
NAVAIR 01-260HCA-4-6 - Illustrated Parts Breakdown, Navy Models UH-2A/UH-2B Helicopters, AIRFRAME	15 October 1962 changed 15 December 1969
NAVAIR 01-260HCB-6 - PERIODIC MAINTENANCE REQUIREMENTS MANUAL, Navy Models UH-2C/ HH-2C/HH-2D Helicopters	1 June 1969 changed 15 December 1969
NAVAIR 01-260HCB-4-7 - Illustrated Parts Breakdown, Navy Models UH-2C/HH-2C Helicopters, ROTORS	1 June 1967 changed 15 November 1969
NAVAIR 01-260HCB-4-8 - Illustrated Parts Breakdown, Navy Models UH-2C/HH-2C Helicopters, RADIO AND ELECTRICAL	1 June 1967 changed 15 November 1969
NAVAIR 01-260HCB-4-9 - Illustrated Parts Breakdown, Navy Models UH-2C/HH-2C Helicopters, SPECIAL SUPPORT EQUIPMENT	1 June 1967 changed 15 November 1969
NAVAIR 01-260HCB-6-1 - PREFLIGHT MAINTENANCE REQUIREMENTS CARDS, Models UH-2C/HH-2C/ HH-2D Aircraft	1 June 1969 changed 15 December 1969
NAVAIR 01-260HCB-6-2 - POST FLIGHT/SERVICING/ CONDITIONAL MAINTENANCE REQUIREMENTS CARDS, Models UH-2C/HH-2C/HH-2D Aircraft	1 June 1969 changed 15 December 1969
NAVAIR 01-260HCB-6-3 - DAILY/SPECIAL MAINTENANCE REQUIREMENTS CARDS, Models UH-2C/HH-2C/HH-2D Aircraft	1 June 1969 changed 15 December 1969
NAVAIR 01-260HCB-6-4 - CALENDAR MAINTENANCE REQUIREMENTS CARDS, Models UH-2C/HH-2C/ HH-2D Aircraft	1 June 1969 changed 15 December 1969
NAVAIR 01-260HCB-6-6 - FUNCTIONAL TEST FLIGHT CHECKLIST, Navy Models UH-2C/ HH-2C/HH-2D Helicopters	15 December 1969
NAVAIR 01-260HCC-1B - NATOPS PILOT'S POCKET CHECKLIST, HH-2C/HH-2D Helicopters	1 February 1970

R. H. Chapdelaine, Supervisor, Service Publications

Timely Tips

MAIN ROTOR BLADE RETENTION PLI WASHERS (UH-2; HH-2)

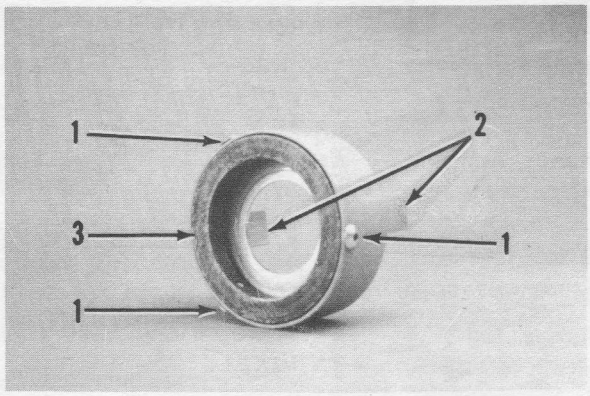
AFC 100 introduced new bolts and PLI washers to retain the main rotor blade retention assembly spindles. Movement of the PLI washer tabs (item 2, Photo A), can indicate one of the following: Loss of torque on the spindle attaching bolt, P/N 65694-18H; or a looseness of the screws which attach the tabs to the lockwasher. Photo B shows the PLI washer assembly. The three screws (item 1, Photo B), secure the tab ring to the PLI washer. If one or more of the screws become loose, the tabs will move even though the washer is securely held in place by the bolt head. If the screws loosen while the PLI washer assembly is installed, tab movement will be slight. If a loss of torque were to occur, considerable rotational movement of the tabs will be evident when checked. This information will be incorporated into applicable handbooks by a future change.



A

1. Screws
2. Tab ring
3. PLI washer

B



W. J. Wagemaker, Service Engineer

TAIL ROTOR BLADE ANGLES (UH-2; HH-2)

The accompanying table reflects information which will be included in MIM NAVAIR 01-260HCA-2-2.1, by a future change. The screened areas reflect the differences between the existing table printed in the -2-2.1 and the one presented here. It should be noted that the HH-2C and HH-2D designations have just recently been assigned.

	A *Rigging Pin Neutral Blade Angle*	*B* *Full Left Pedal Blade Angle*	*C* *Full Right Pedal Blade Angle*	*D* *Even Pedal Blade Angle*
UH-2A/2B without H-2 AFC 93	Plus 5.5 degs ± ½ deg	Minimum plus 17.5 degs	Minimum minus 6.5 degs	Plus 4.5 degs ± ½ deg
UH-2A/2B with H-2 AFC 93	Plus 8.5 degs ± ½ deg	Minimum plus 22.5 degs	Minimum minus 6.0 degs	Plus 6.6 degs ± ½ deg
UH-2C	Plus 7.0 degs ± ½ deg	Minimum plus 21.5 degs	Minimum minus 7.0 degs	Plus 3.5 degs ± ½ deg
HH-2C/HH-2D	Plus 9.25 deg + ½ deg	Minimum plus 26 degs	Minimum minus 7.5 degs	Plus 4 degs ± ½ deg

W. J. Wagemaker, Service Engineer

Q's AND A's

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

Q. (Applies UH-2) WHAT IS THE LATEST MAIN ROTOR BLADE RETENTION BEARING REPLACEMENT INFORMATION?

A. The following information will be helpful in determining main rotor blade retention bearing replacement:

Nomenclature	*P/N*	*Service Life*
Bearing, ball	*K659458-11 AN201KP4A*	*Notes 2 and 3*
Bearing, ball	*K659458-15 AN201KP6A*	*Notes 1 and 3*
Bearing, ball	*K659458-17 AN201KP8A*	*Notes 1 and 3*
Bearing, ball	*K659459-11 AN200KP4*	*Note 3*
Bearing, ball	*K659587-11 AN207DPP4*	*Note 3*

Notes:
1. 100 hours when used in the K659143 feedback idler.
2. 200 hours when used in the K659141 lever.
3. 400 hours when used in the K659163, K659187, K659586, and K659598 cranks and levers.

W. J. Wagemaker, Service Engineer

Q. (Applies UH-2) HOW OFTEN SHOULD THE IN-FLIGHT REFUEL FILTER ELEMENT (AFC 138) BE REPLACED?

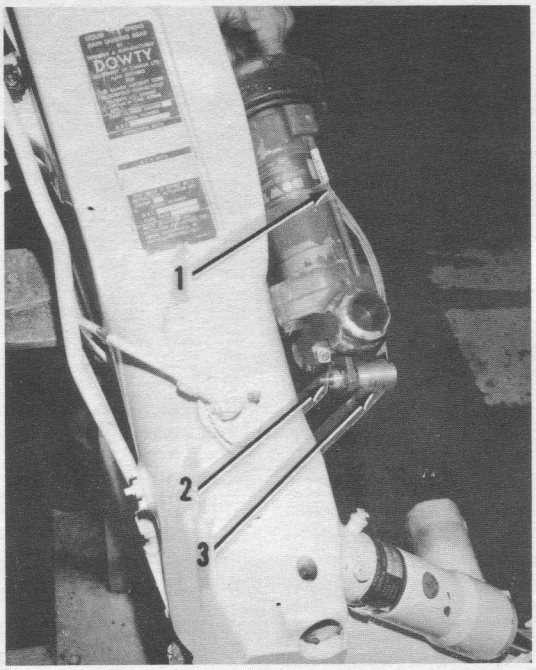
A. The in-flight refuel filter element, P/N 041210, requires replacement after 5 in-flight refuelings or after 10,000 pounds of fuel has passed through the filter, whichever occurs first. Concurrent with each element change, replace O-rings, P/N MS29513-248 (FSN 9Z5330-291-3268) and MS29513-116 (FSN 9Z4330-766-8131). This information was disseminated by message, AD MINO COMNAVAIRPAC R042309Z, Nov 69, and will appear in the applicable handbooks.

H. Zubkoff, Service Engineer

Q. (Applies UH-2; HH-2) ARE DOWTY MAIN LANDING GEAR ACTUATORS INTERCHANGEABLE BETWEEN THE LH AND RH SIDES OF AN AIRCRAFT?

A. As received from supply, RFI (ready for installation) actuators P/N 3283400-5 (LH) and -6 (RH), are not interchangeable; however, they can be converted (a -5 to a -6 and vice versa) by rotating the actuator micro switch so that the plunger end of the switch faces the opposite direction. Viewing the actuator as it should be installed in the main landing gear member (see Photo A), the external tube (1) on the cylinder must face up, and the plunger end (2) of the micro switch (3) must point aft. To convert an actuator, (Illustration 1), remove the two screws (4) which retain bracket (5). Rotate the bracket (5) so the hinge end points in the opposite direction. (It is not necessary to remove the micro switch if it is attached to the bracket (5). Reinstall screws (4) and stake in position. Prior to installing the actuator into the landing gear member, check to insure that the external tube (1, in Photo A) is up and the plunger end of the micro switch points aft.

PHOTO A



1. *External tube*
2. *Plunger*
3. *Micro switch*
4. *Screw*
5. *Bracket*
6. *Cotterpin*
7. *Washer*
8. *Bracket*
9. *Pin*
10. *Actuator*

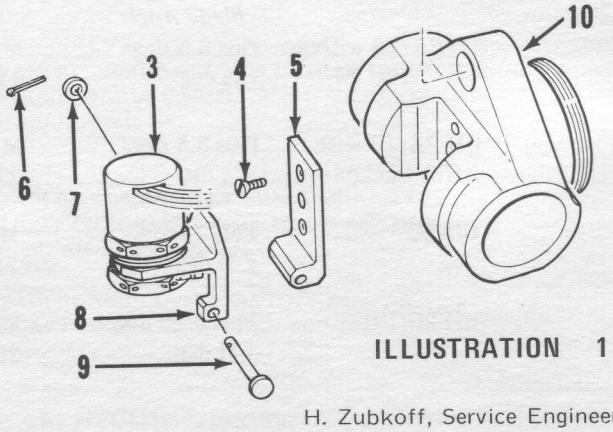


ILLUSTRATION 1

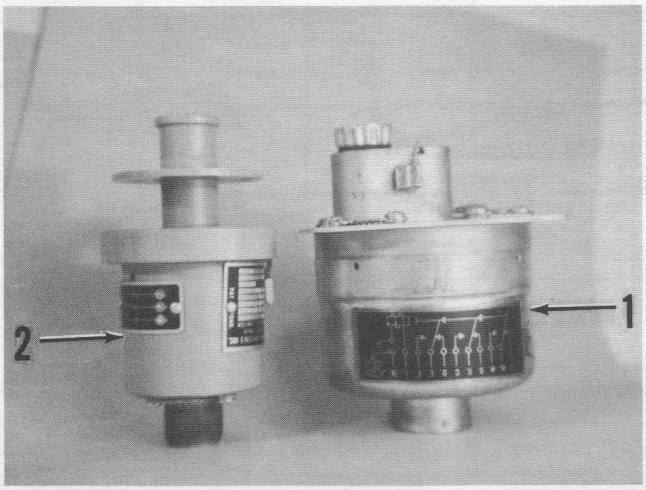
H. Zubkoff, Service Engineer

Q. (Applies UH-2) PRESSURE SWITCHES P/N 42G38 AND 1G122 ARE BOTH REFERRED TO AS "FUEL TRANSFER PRESSURE SWITCH" BY THE MIM. WHAT IS THE DIFFERENCE?

A. The difference between the two switches can best be illustrated by describing the function each performs when installed in the fuel system. For example: Switch P/N 42G38 (item 2 in accompanying Photo) could be identified as "sump tank, high level fuel transfer shutoff pressure switch." Switch, P/N 1G122 (item 1), could be identified as the "fuel transfer caution light pressure switch." The 42G38 switch reacts to pressure within the fuel cell gravity filler neck. It is mounted inside the aft cabin on the right-hand side of the fuselage just above the forward fuel cell gravity filler neck. The switch is a safety feature and will function in the event the forward tank fuel/defuel valve fails to close when the sump tank is filled during normal fuel transfer. In the event pressure should buildup within the filler neck, the switch will de-energize the aft tank transfer pumps and the aux tank compressor in order to prevent overfilling and rupturing the sump tank. The switch will automatically activate the fuel transfer system again when the sump tank fuel level drops approximately 2-3 inches below the filler neck level.

The 1G122 switch is installed on a bracket in the forward right-hand sump of the aft fuel cell (it is accessible by removing the sump external access panel on the bottom of the fuselage). This switch will activate the fuel transfer caution light on the overhead fuse and circuit breaker panel. It will function in the event the transfer fuel pressure from either the aux or sump tanks decreases to the point where fuel transfer is inadequate. The MIM will be changed to identify the switches as follows:

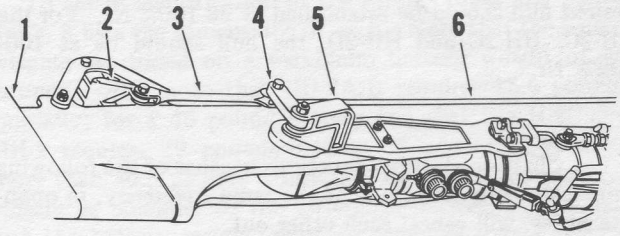
1. 1G122—Fuel Transfer Caution Light Pressure Switch.
2. 42G38—Fuel Transfer Shutoff Pressure Switch.



H. Zubkoff, Service Engineer

Q. (Applies UH-2) WHAT ARE THE MAXIMUM ALLOWABLE DAMAGE LIMITS FOR THE MAIN ROTOR CONTROL SHOESTRING ROD?

A. The inspection criteria for the main rotor control rod (item 6 in the illustration) is as follows:
Maximum bend over entire length not to exceed 0.50-inch. No sharp bends or kinks permitted; no mechanical straightening permitted. Dents up to 0.005-inch deep may be blended out; damage beyond limits specified necessitates rod replacement. This information will be incorporated into applicable handbooks by a future change.



1. Main rotor blade assembly
2. A-frame control crank
3. Main rotor control link
4. Idler arm
5. Blade folding pin bracket assembly
6. Main rotor control rod

W. J. Wagemaker, Service Engineer

Q. (Applies UH-2) SHOULD A FEDERAL STOCK NUMBER BE USED TO ORDER INHIBISOL?

A. Yes. Inhibisol, which is used on KAcarb bearings (UH-2 rotor blade flap bearings), has recently been assigned a 6810 code and can be ordered as shown in the accompanying list. The reference to "Type" indicates:

Type 1–bulk container
Type 2–bulk container with applicator (brush, etc.)
Type 3–Aerosol spray can

FSN6810-730-6311	Type 3	12 ounces
FSN6810-292-9625	Type 2	1 quart
FSN6810-664-0387	Type 1	1 gallon
FSN6810-664-0388	Type 1	5 gallon
FSN6810-551-1487	Type 1	55 gallon

W. J. Wagemaker, Service Engineer

Q. (Applies UH-2) ACCORDING TO UH-2A/B/C NATOPS FLIGHT MANUALS AND NAVAIR 01-260HCA-2-4, MAX TOPPING Ng SPEED IS 100%. ACCORDING TO NAVAIR 02-105AHB-2, MAX Ng SPEED IS 101.7%. WHICH IS CORRECT?

A. The correct max Ng speed is now 101.7%. This information was included in NAVAIR 02B-105AHB-2 (GE Topping Chart, Figure 10-20A), by a Change dated 1 Feb, 1969. NATOPS flight manuals, NAVAIR 01-260HCA-1, NAVAIR 01-260HCB-1, and the MIM NAVAIR 01-260 HCA-2-4, will be changed to reflect this new information. Pending revision of the latter manuals, NAVAIR 02-105 AHB-2, should be used to perform the topping checks.

H. Zubkoff, Service Engineer

KAMAN SERVICE ENGINEERING SECTION – R. L. Bassett, Supervisor; G. M. Legault, Asst. Supervisor

The H-2
Vibration Absorber Assembly

by Herman Zubkoff,
Service Engineer

The vibration absorber assembly consists of a specific mass (battery and ballast weights) which is suspended between two sets of calibrated and adjusted compression springs. The springs are secured to the fuselage. The absorber assembly is designed to dampen out (null) rotor-induced 4-per-rev vibrations at a specific RPM; it is not designed to compensate automatically for vibrations incurred at all rotor speeds. For the UH-2A and UH-2B, the desired null should be established at 98-100% Nr. For the UH-2C, HH-2C and HH-2D, the null should be at 100-102% Nr.

The vibration absorber functions because of the following principal: two vibrations of the same frequency, in opposite phase, will cancel each other out.

Illustration 1 shows how, as rotor-induced vertical forces affect the aircraft, the suspended mass of the vibration absorber reacts and induces a counter force in the opposite direction; the result is a damping of the rotor forces. The frequency of the rotor-induced vibration will vary with changes in rotor RPM; the frequency of the vibration absorber-induced vibrations can be regulated by changing the total weight of the assembly and/or varying the spring rate.

It is thus possible to completely counteract rotor-induced vibrations, at any rotor speed desired, by "tuning" the vibration absorber assembly. Furthermore, once the total absorber weight for a particular aircraft has been determined, the required weight will not change unless the null level/rotor RPM speed relationship requires a change.

The major part of the vibration absorber's specific mass is the battery. Consequently, it becomes obvious that batteries of varying weights will change the total weight of the absorber installation. If this weight change is not compensated for, the null point will change in proportion to the change in weight. An increase in the total absorber weight will establish the null at a lower rotor speed; decreased absorber weight will set the null at a higher rotor speed. It therefore follows that in order to maintain the same total weight of the absorber installation, battery weights must be known by maintenance personnel (especially when replacement is required). To accomplish this, batteries should be weighed and the weight marked on the battery data decal BEFORE issue from the battery shop. Photo A shows a typical battery data decal. If the weight between a removed and replacement battery varies 0.5-pound or more, a corresponding change (as close as possible) should be made in ballast weights.

Photo A

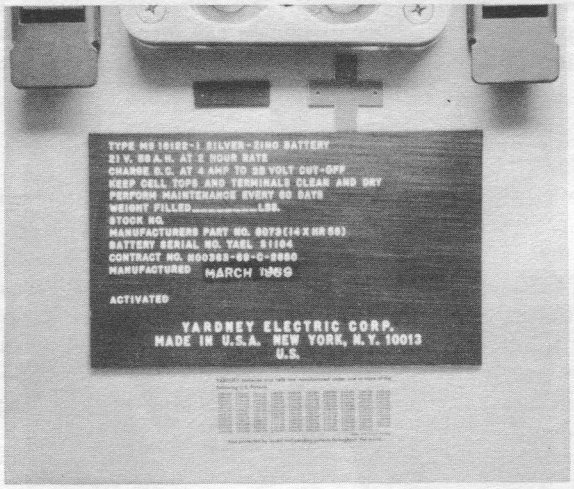
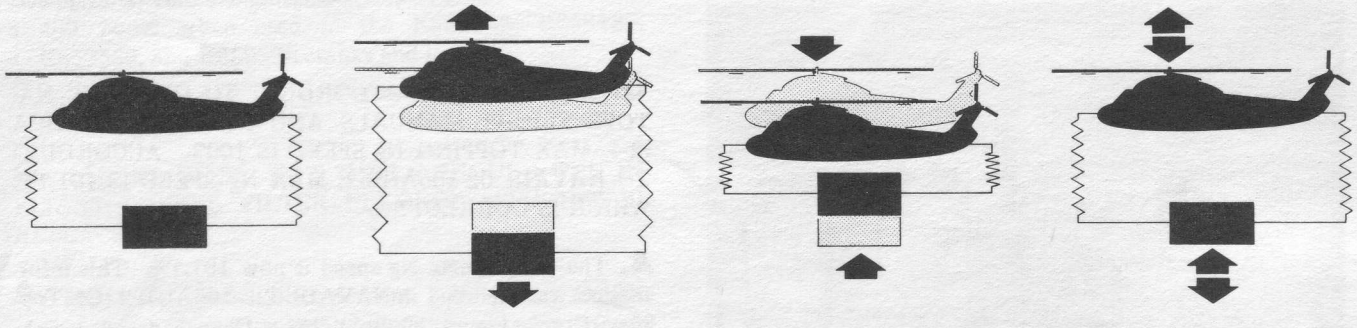


ILLUSTRATION 1



View A of illustration 1 shows the rotor, fuselage, springs and vibration absorber assembly at rest. In View B, the VA assembly has started to react to the vertical force induced by the rotors. (The shaded areas indicate at-rest positions.) View C is opposite to View B; notice the springs are at the fully compressed position. Assuming the vibration absorber assembly is properly tuned to the expected rotor RPM, the result would be as depicted in View D. The vertical forces are still prevalent at the rotors and the absorber assembly, but now the fuselage is in the same position as that shown in View A. Moral? Keep that vibration absorber tuned properly!

TABLE 1. UH2A and UH-2B BALLAST

Battery Weight (Pounds)	TUBE *K631243-1 7 lbs each	PLATE *K631242-11 0.8-lb each	PLATE *K631242-13 0.4-lb each
35.3 to 36.3	2 tubes (1 each side)	4 plates (2 each side)	2 plates (1 each side)
36.4 to 37.8	2 tubes (1 each side)	4 plates (2 each side)	2 plates (1 each side)
37.9 to 38.6	2 tubes (1 each side)	2 plates (1 each side)	4 plates (2 each side)
38.7 to 39.4	2 tubes (1 each side)	2 plates (1 each side)	2 plates (1 each side)
39.5 to 40.0	2 tubes (1 each side)	None	4 plates (2 each side)

**In event the part numbers are not stamped into the ballast weights, refer to Table 3 for a dimensional method of identifying the ballast tubes and ballast plates.*

Vibration absorber assemblies may be built-up in accordance with Table 1 or Table 2. This will place the null level at, or very close to, the desired rotor speed. A test flight must then follow to determine the Nr setting at which the rotor-induced 4-per-rev actually appears to null out; ballast adjustments are then made as required—add ballast to bring the null level down; remove ballast to bring null level up. When selecting ballast weights, be sure to allow for changes which may be required after the test flight. For example: In Table 1, a battery of 35.5 pounds requires 18 pounds of ballast. Two 9-pound ballast tubes could have been selected, but to permit ballast adjustment after the test flight, the ballast units, as listed, are recommended. This selection of ballast will also provide for future weight adjustment, in the event of subsequent installation of a heavier battery. If the test flight indicates that a change of 1% Nr higher is required, removal of two K631242-11 (0.8-pound each) ballast plates will bring about the change. (A 1.6-pound change will move the null point approximately 1% Nr.) If the null level is below the desired Nr, remove ballast; if the null level is above the desired Nr, add ballast.

To aid in identification of the various tubes and plates, Table 3 lists the dimensions of each. Note that the ballast weights are based on a maximum battery weight of 40 pounds. Also note that UH-2A/B requires 15.6 pounds (initially) for a 40 pound battery and that the H-2C and HH-2 requires 29 pounds ballast. If a battery, weighing more than 40.5 pounds is installed, ballast weight equal (as closely as possible) to the difference between 40 pounds and the battery weight, must be removed. As a helpful hint, it is suggested that once the optimum weight (battery plus ballast) for a particular aircraft has been determined, that the exact weight be applied with paint to the structure in the vicinity of the absorber installation. This will facilitate future absorber assembly installation.

TABLE 3. BALLAST DIMENSIONS

Part Number	Nomenclature	Weight	Dimensions (inches)
K631242-13	Ballast Plate	0.4 lb	3/32 x 2 x 6-7/8
K631242-11	Ballast Plate	0.8 lb	3/16 x 2 x 8
K631243-1	Ballast Tube	7.0 lbs	1 x 2 x 9-3/4
K631246-1	Ballast Tube	9.0 lbs	1-1/4 x 2 x 9-3/4
K631758-11	Ballast Plate, lead-UH-2C/D HH-2 only	9.4 lbs	5/16 x 8 x 10

TABLE 2. UH-2C, HH-2C, and HH-2D BALLAST

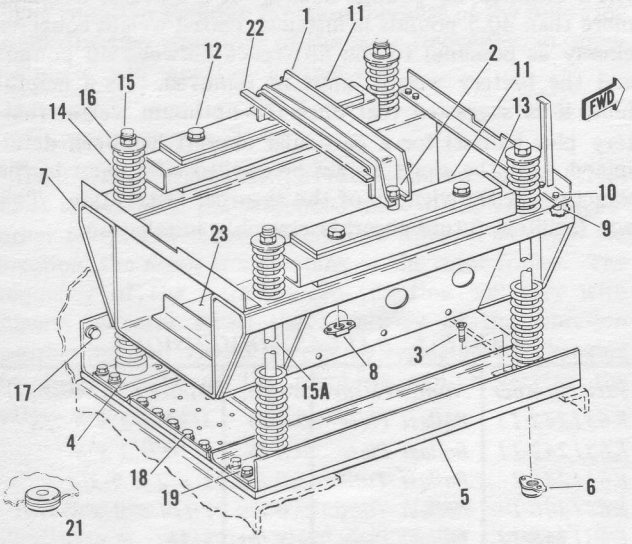
Battery Weight (Pounds)	TUBE *K631243-1 7 lbs each	TUBE *K631246-1 9 lbs each	PLATE *K631242-11 0.8-lb each	PLATE *K631242-13 0.4-lb each	LEAD PLATE *K631758-11 9.4-lbs each
35.3 to 36.3	None	2 tubes (1 each side)	8 plates (4 each side)	2 plates (1 each side)	1 plate (under battery)
36.4 to 37.8	None	2 tubes (1 each side)	6 plates (3 each side)	2 plates (1 each side)	1 plate (under battery)
37.9 to 38.6	None	2 tubes (1 each side)	4 plates (2 each side)	4 plates (2 each side)	1 plate (under battery)
38.7 to 39.4	None	2 tubes (1 each side)	4 plates (2 each side)	2 plates (1 each side)	1 plate (under battery)
39.5 to 40.0	2 tubes (1 each side)	None	6 plates (3 each side)	2 plates (1 each side)	1 plate (under battery)

**In the event the part numbers are not stamped into the ballast weights, refer to Table 3 for a dimensional method of identifying the ballast tubes and ballast plates.*

The absorber assembly ballast which can be added, removed, or changed, consists of rectangular steel plates and rectangular lead-filled steel tubes. Ballast must always be added or removed in like pairs, one on each side of the battery. Never remove or add only one tube or one plate since an unbalanced condition will result. In addition to the ballast tubes and plates, which are installed on top of the absorber assembly, the UH-2C, HH-2C and HH-2D helicopters require one 9.4 pound lead plate UNDER THE BATTERY. Whenever disassembly and removal of the complete vibration absorber and battery installation is required, it is advisable to clearly mark (or otherwise note) the items removed to insure that the same weight is maintained at the time of re-installation. If such data is not available:

1. Check battery weight and determine required ballast in accordance with table 1 or 2. (Table 1 applies to UH-2A and UH-2B helicopters. Table 2 applies to UH-2C, HH-2C and HH-2D helicopters.)
2. Install support assembly (5).
3. Install support weldment (7).
4. Install springs (upper and lower; 14) and bolts (15).
5. Install ballast.
6. Torque the bolts (15) to obtain the following upper spring heights: A/B - 2-3/16 inches
C/D - 4-1/8 inches
7. Install battery.
8. Install battery hold-down bracket (1) and spacer (22). Torque bolts (2) to 85-100 pound-inches.

VIBRATION ABSORBER INSTALLATION



1. Bracket	*13. Tube*
2. Bolt	*14. Spring*
3. Screw	*15. Bolt*
4. Spring guide	*15 A. Bolt*
5. Plate	*16. Spring guide*
6. Nut	*17. Bolt*
7. Support	*18. Bolt*
8. Nut	*19. Bolt*
9. Nut	*20. Grommet*
10. Bolt	*21. Grommet*
11. Ballast plate	*22. Spacer*
12. Bolt	*23. Ballast*

RESCUE HOIST HOOK RESTRAINER (UH-2; HH-2)

In the November/December 1968 issue of KRT, a rescue hoist hook restrainer was presented. Among the components called out were: a 29-inch piece of 1/2-inch bungee cord and two 1/2-inch cable thimbles; this was in error. The cord and thimbles should be no greater than 3/8-inch in diameter. Although the restrainer can be fabricated using 1/2-inch cord, it will be difficult to stretch it into position.

H. Zubkoff, Service Engineer

ADJUSTING FLAP CONTROL ROD CLEVIS (HH-43)

A ½-turn adjustment of the flap control rod clevis on both blades of one set results in approximately a 2-inch pedal displacement. If all four blades are adjusted equally in the same direction, autorotation RPM will change approximately 2%, but no pedal displacement change will occur. Lengthening the clevis rod will raise the rotor blade angle of attack, decreasing autorotation RPM. Conversely, shortening the rod will lower the blade angle of attack increasing autorotation RPM. After making an adjustment to the flap clevis rod, insure that the rod threads are visible in the clevis safety hole.

W. J. Wagemaker, Service Engineer

NAVAIR 01-260HCB-4-2 AIRFRAME (UH-2C; HH-2)

Certain items listed on pages 15, 24A/24B, 27, and 28, are keyed to notes which appear on the bottom of the pages. (The notes refer to aircraft modification numbers.) Kaman has been notified that maintenance personnel will not have access to helicopter Mod numbers and consequently, the referenced pages will be changed as follows:

1. Notes referring to Mod numbers will be deleted.
2. The affected components will be listed as follows:

K636840-1	Panel Assy (superseded by K636840-103)
K636840-103	Panel Assy (supersedes K636840-1)
K636840-3	Panel Assy (superseded by K636840-105)
K636840-105	Panel Assy (supersedes K636840-3)
K636840-5	Panel (use with K636840-1)
K636840-9	Panel (use with K636840-103)
K636840-7	Panel (use with K636840-3)
K636840-101	Panel (use with K636840-105)
K636717-3	Support (superseded by K636717-9)
K636717-9	Support (supersedes K636717-3)
K636717-5	Support (superseded by K636717-101)
K636717-101	Support (supersedes K636717-5)
K636751-1	Fitting Assy (use with K636717-3)
K636752-1	Fitting Assy (use with K636717-5)
MS90354-0504	Fastener (use with K636717-3 and -5)

C. P. Omichinski, Publications

DARFO

The January-February issue of Kaman Rotor Tips introduced DARFO! DARFO is the positive action of preventing aircraft and/or personnel accidents. DARFO literally spells out Detect and Remove Foreign Objects! As DARFO is practiced FOD will be drastically reduced because without foreign objects, there can be no Foreign Object Damage. DARFO can be practiced by anyone and everyone--

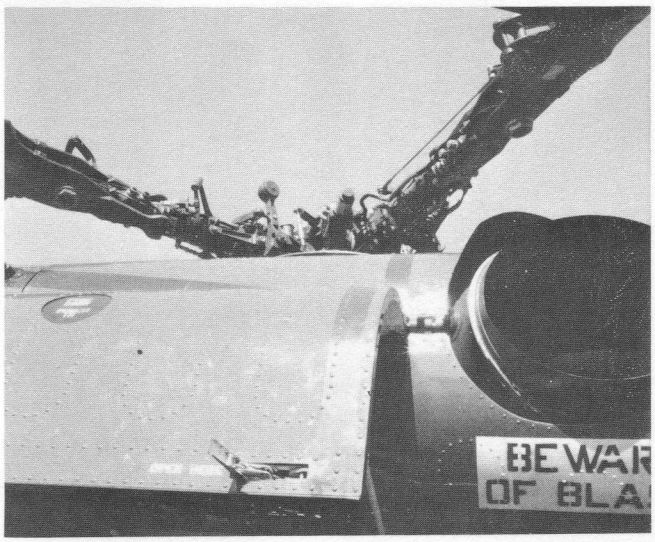


PHOTO A

Photo A shows a UH-2 main rotor head. As a mechanic started to close one of the engine access doors, an object caught his eye–DARFO! Can you Detect that object?

Well–the object can easily be seen in the close-up Photo B. Obviously, the roll of lockwire was not intended as a permanent part of the rotor head. This alert mechanic probably prevented mechanical damage from occurring to the aircraft. He may have even saved a life! HAVE YOU PRACTICED DARFO TODAY?

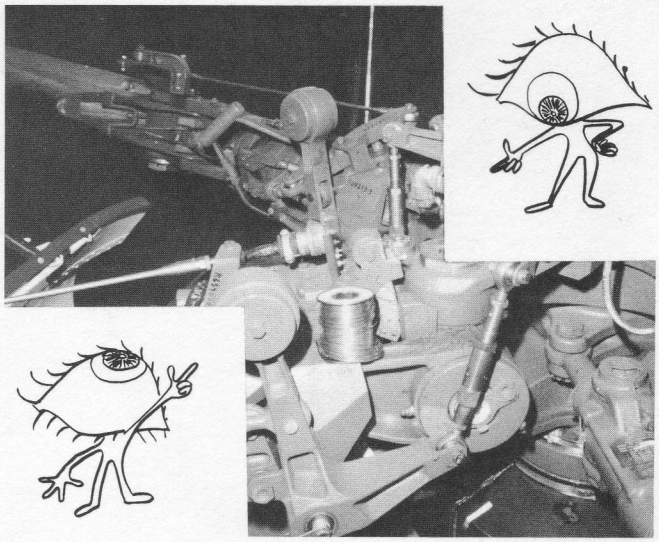


PHOTO B

Before closing or sealing a component, whether it be a fuse box or gear box, practice DARFO! Detect And Remove Foreign Objects. Before leaving your shift or aircraft, inform your superiors or your relief of open areas and loose materials. If we all do our part and practice DARFO, everyone will benefit.

Rotor Tips is looking for examples of DARFO in action. When you detect a foreign object, try and get a photo of it to send to us. (Don't forget to remove that foreign object after taking the photo.) 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.

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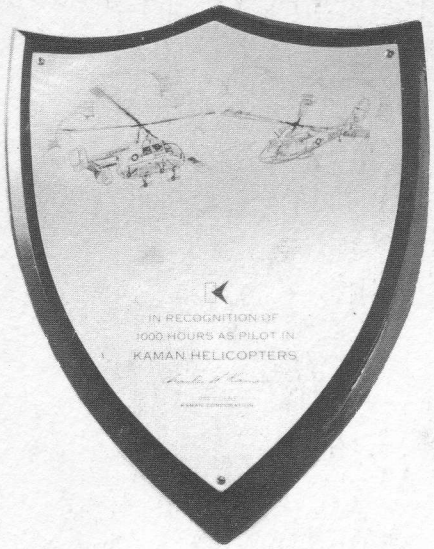

1963

Baliles, Roy K., Captain, USAF
Cowden, Bert, Captain, USAF
Henderson, William L., Captain, USAF
Herring, Harold L., Captain, USAF
Kuczynski, S. J., Captain, USMC
Lamoureau, James, Captain, USAF
Parker, Pasco, Captain, USAF
Thomas, David W., Captain, USAF
Usher, R. E., Captain, USMC
Vurbeff, Theodore C., Captain, USAF
Zimmerman, Walter J., Captain, USAF

1964

Beguin, Larry W., Lt(jg), USN
Black, James H., Jr., Captain, USAF
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Burke, Lawrence, E., Captain, USAF
Crupper, James W., Captain, USAF
Damonte, Carlton R., Captain, USAF
Davis, Warren K., Captain, USAF
Dunn, Charles R., Captain, USAF
Foster, Raymond L., Captain, USAF
Hayes, William T., Captain, USAF
Henderson, Robert S., Captain, USAF
Hooper, Albert E., Jr., Captain, USAF
Jones, Harry A., Captain, USAF
Kelly, Joseph W., Captain, USAF
Kerber, Grant D., Captain, USAF
Langston, James W., Captain, USAF
Lee, Herbert A., Captain, USAF
Long, Henry Q., Captain, USAF
Marks, Glenn M., Captain, USAF
Martin, Allen R., Captain, USAF
Norton, Robert L., Warrant Officer, USMC
Okonek, James, Captain, USAF
Patterson, John F., Captain, USAF
Pfadenhauer, Richard C., Captain, USAF
Pinaud, Joseph H., Captain, USAF
Randall, David M., Captain, USAF
Seebo, Thomas C., Captain, USAF
Thomsen, Daniel M., Captain, USAF
Warden, Beryl E., Captain, USAF
Wege, David J., Captain, USAF

1965

Alden, Gary L., Captain, USAF
Beck, Woodrow W., Lt(jg), USN
Berryhill, James, Captain, USAF
Brumfield, Tom W., Jr., Captain, USAF
Campbell, Clarence C., Captain, USAF
Carpenter, Charles R., Major, USAF
Chase, Dennis M., Captain, USAF
Chase, Franklin L., Captain, USAF
Cook, Darvan E., Captain, USAF
Dawson, Richard B., LCdr, USN
Denham, John H., Captain, USAF
Donk, Donald F., Captain, USAF
Durham, Louis D., Captain, USAF
Farrell, Arthur, Captain, USAF
Fiola, Armand J., Captain, USAF
Glick, David D., Captain, USAF
Glover, William F., Jr., Captain, USAF
Gordon, Glynneth M., Captain, USAF
Haglund, Ronald L., Captain, USAF
Heeter, Owen A., Captain, USAF
Heer, Joseph T., Captain, USAF
Kiseljack, Charles, Lt., USN
Lapenski, Alex P., Captain, USAF
Lee, Robert E., Captain, USAF
Lemke, Clyde W., Captain, USAF
Mackie, Grant F., Captain, USAF
Madden, Thomas F., Captain, USAF
Malkiewicz, Walter A., Captain, USAF
McCants, Arthur W., Captain, USAF
Miears, James R., Captain, USAF
Morrill, Charles A., Captain, USAF
Neville, Ernest L., Captain, USAF
Palmer, Marvin L., Captain, USAF
Perry, Alfred G., Lt., USN
Pittard, David H., Captain, USAF
Purvine, Bruce M., Captain, USAF
Ricks, Keith H., Captain, USAF
Robertson, Gary E., Captain, USAF
Salem, Harold D., Captain, USAF
Solberg, Harold A., Captain, USAF
Smith, Richard A., Captain, USAF
Spencer, Keith A., Captain, USAF
Stranahan, Donald E., Captain, USAF
Summerhill, Price S., Captain, USAF
Wille, John S., Captain, USAF
Wolf, Wayne J., Captain, USAF

SHOWN IS THE PLAQUE AWARDED TO PILOTS WHO HAVE LOGGED 1000 OR MORE HOURS IN HELICOPTERS PRODUCED BY KAMAN AEROSPACE CORPORATION. A PARTIAL LISTING, IN ALPHABETICAL ORDER, OF THE MORE THAN 350 RECIPIENTS IS ALSO PRESENTED.