KAMAN Rotor Tips

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PIONEERS IN TURBINE POWERED HELICOPTERS

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In This Issue

THE COVER

Artist symbolizes capability of UH-2 and HH-43B to serve in any part of the world in many different capacities and under a wide range of conditions. Military crews have been quick to utilize the versatility afforded by both helicopters.

ADDRESS ALL INQUIRIES TO:
Kaman Rotor Tips
Field Service Department
Kaman Aircraft Corp.
Old Windsor Rd.
Bloomfield, Connecticut

LINE LEVEL HELICOPTER MAINTENANCE

by Robert J. Myer
Customer Service Manager

The subject of aircraft maintenance is obviously older than the date of man's first flights, since those early machines had to be assembled and tinkered with long before successful flight was realized. This in itself makes for a wealth of information which has been further expanded by the ever-increasing size and complexity of aircraft to the point we know them today. Narrowing this field down to the division of aircraft known as helicopters does little to reduce the subject scope as practically every aspect of maintenance that applies to fixed-wing aircraft is equally applicable to helicopters. Also, due to the increased number of continuously turning and moving parts, the degree and importance of helicopter maintenance is significantly increased. It, therefore, should come as a surprise to no one that this article will not begin to cover all aspects of helicopter maintenance in general or many areas in detail. Rather, the objectives in presenting this article are to acquaint newcomers to the field and refresh the old-timers with the highlights of helicopter maintenance concerns at the Organizational or Line Level.

To put the subject of "Helicopter Maintenance" in the proper perspective and justify the many articles dedicated to it, we have only to scan the official accident statistics and mishap reports published in military and civilian aviation magazines and documents. Although not as high as other causes of aircraft accidents or incidents, poor maintenance practices are known to be responsible for the loss of many lives and millions of dollars worth of material every year. Accident causes are sometimes difficult to establish, particularly those brought about or influenced by poor maintenance practices. So long as such problem areas exist, which adversely affect safety, mission availability and cost, much attention is going to continue to be focused on them.

In order to effectively review a subject as broad as this, it is necessary to consider logical subdivisions or categories under which related aspects can be discussed. As you will note, the order of the categories selected here go from the intangible - to the general - to the specific phases of helicopter maintenance.

Categories to be considered are:

Maintenance Psychological Concerns
Maintenance Personnel and Paperwork Considerations
Good Organizational Maintenance Practices

HELICOPTER MAINTENANCE PSYCHOLOGICAL CONCERNS

This may seem like an odd approach to an aircraft maintenance discussion; however, it is well established that an individual's performance is appreciably influenced by his frame of mind and general intelligence. This is just as true with aircraft maintenance personnel as it is with pilots, surgeons, or circus aerialists. In order to perform their respective tasks well, these people must be mentally in accord with the work required of them. They must be able to apply their knowledge properly under various degrees of pressure and distractions. The terms that appear best suited to label such mental qualifications are attitude and judgment.

A right attitude as applied to aircraft maintenance personnel can be described as the realization of the importance of the work being performed; the desire to be sure, rather than assume; and insistence on doing the job to the best of their ability, in accordance with the best known practices. Every effort should be exercised from the C. O. of an organization down through the ranks to insure that the "attitude" of their personnel is "right." No amount of training or supervision will offset the damage a slovenly or negative attitude can create. A mechanic who is prone to short cut, is disgruntled or inattentive may be a potential killer. At the very least, he is a maintenance hazard.

Good judgment like most other desirable human traits, is applicable to all walks of life; however, the lack of it in the business of aircraft operation and maintenance can be, and many times is, unforgivable. There are numerous specific guides and procedures available to aid us in accomplishing many of our day-to-day tasks; unfortunately, without the judgment to know how, when

"Line Level Helicopter Maintenance," which deals with a wide variety of subjects ranging from trouble-shooting to paperwork and psychological concerns, will appear regularly in Rotor Tips. Portions of this comprehensive article originally appeared in Maintenance Review and Approach magazines.

and where to apply them they are worthless. Judgment on the part of aircraft maintenance personnel enables them to apply knowledge gained in such a way as to insure safe, efficient operation. It is the motivation for checking a little deeper into a suspected trouble area during routine inspections; using reference guides when in doubt, instead of guessing; using proper tools and equipment, rather than jeopardizing materials or risking injury to personnel; taking the extra few minutes to insure that the brakes are set and the chocks are in place on a parked aircraft, as well as installing covers and tiedowns, if suspected length of mooring time or weather dictates. These are just a few illustrations of areas where the application of judgment and perhaps a dab of conscientiousness pay off in keeping those valuable machines and, in many cases, lives in business.

MAINTENANCE PERSONNEL AND PAPERWORK CONSIDERATIONS

Anyone who has had any experience servicing or repairing a mechanical device readily appreciates the desirability of knowing what he is doing. Of course, if the device is simple, inexpensive or non-critical, even those that have only a slight mechanical aptitude may be able to successfully adjust or repair it with little trouble. Obviously, as the complexity, costliness and criticalness of such devices increase, it becomes increasingly important that one understands well the mechanics of the units and is properly qualified to work on them. Thus, when we consider a machine such as the helicopter, thorough, formal training is a must, especially for those directly in charge. Not only does the helicopter require increased understanding due to the more complex control, rotor and drive systems, but with the advent of electronic components this area is rapidly approaching the sophistication of high-performance fighters. The longer range and over-water helicopters employ most of the advanced communication and navigation systems, plus automatic stability systems, automatic blade tracking systems and doppler sonar devices. Maintenance of these systems obviously requires highly skilled technicians.

Unfortunately, these technicians are not always available due to personnel rotation or the collateral duties they are often called upon to perform. The problems caused by personnel rotation have been voiced many times over the years by engineering officers who have found their maintenance and training programs disrupted by transfers. In a small unit especially, the loss through transfer of a service or factory-schooled mechanic causes definite hardship. Upon these key men depends much of the success of a unit's "on the job" training program, as well as aircraft availability. Compounding the difficulties is the fact that often high-skilled technicians are required to perform other duties than those dealing with maintenance alone. Again, both the maintenance and training programs suffer as a result.

Naturally, those "top-side" in the military are aware of the situation and these problems are being actively and constructively reviewed. Radical changes in policy relative to the assignment and duties of well-trained aircraft maintenance personnel can't take place overnight, of course, but a start is being made. The situation is less critical at activities that are fortunate enough to have full-time manufacturer technical representation; however, supervisors must continue to monitor all inexperienced maintenance personnel as one or two technicians cannot be relied upon to provide blanket coverage.

Recognizing the generally critical nature of helicopter systems and the limited training and experience on the part of a great many of those involved in the maintenance of these machines, concentration on providing and using the best possible reference materials is required.

The number one helicopter maintenance reference guides are obviously the handbooks provided with all production aircraft. There are several complaints relative to handbooks, some of which are justified, such as completeness and accuracy at time of first deliveries. Fortunately at the time handbook weaknesses are most likely to be the greatest, Contractor field service representatives are usually available to offset any major difficulties. Another handbook problem is availability of latest revisions. Numerous copies are printed of each revision but they are sometimes late in getting into the hands of the operating activities.

One of the most important contributions any maintenance officer can make to enhance the quality of his activity's maintenance is to insure the availability of well kept, up-to-date handbooks and related reference

A GOOD MECHANIC - Is conscientious, no matter what the conditions!

publications. Supervisors, in turn, should make maintenance, structural repair, and inspection handbooks required reading for all crew members and promote frequent and continual reference to them, especially when any doubts exist.

The last point relative to handbooks is the joint user-contractor responsibility for required or desired revisions. Notes should be religiously kept on areas or items of concern which can then be submitted for revision consideration. Such submittals can be made at specially conducted publications conferences or via formal written requests to the cognizant support office. The Air Force uses AFTO Form 22 (Technical Order System Publication Deficiency Report) to make such a formal request. In the Navy, the reporting of discrepancies in aircraft technical manuals is to be made by means of the Failure and Unsatisfactory Report (FUR) Form, NAVAER 3069.

As a third choice, submittals can be made directly to the contractor's technical representatives. This last method should be utilized as an exception due to the lack of first-hand justification to the cognizant publication offices and the probable time delay that can result from contractor revision negotiation.

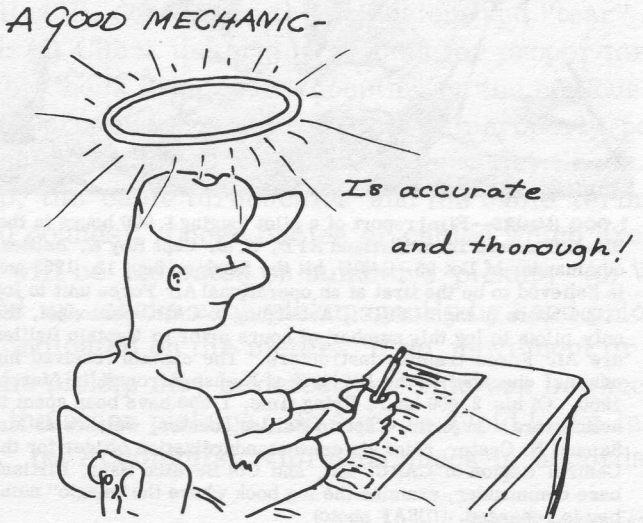
AIRCRAFT AND COMPONENT RECORD LOGS

The quality of these important historical records appears to be degenerating through the years. Continuing effort has been expended to provide improved forms which ironically may, in part, be responsible for the lack of detail where warranted. Not only is it desired to know when major components were changed and major types of maintenance and inspections performed, but it is also often highly desirable to know "why," if other than a routine, high-time requirement. This should be covered briefly in the aircraft records and more detailed, when possible, in the respective component records. Frequent changes of a given component or a repetitive type of maintenance can signify trouble of another kind or source. When the aircraft records are complete enough to permit such analysis, major maintenance or an accident may be averted. Similar reasoning is offered for more diligent recording of significant or repetitive minor maintenance or lesser component replacements. Such log entries may also be helpful in analyzing an aircraft accident and establishing the correct cause which would otherwise be difficult, if not impossible.

Another facet of lesser component replacement that should be properly entered in the aircraft record is special inspections or replacements. Although adequate provisions are available for recording of pertinent data, relative to all aspects of aircraft maintenance (Ref. AF T.O. 00-20A-1, BuAer NAVAER 00.70A and TM 38-750), entries are frequently omitted, insufficiently detailed or inaccurate. This is sometimes the result of the remoteness of line personnel from the maintenance office where the records are kept, or the manner by which information is transmitted. One recommendation is to supply line personnel with expendable counterparts of the aircraft log form. These can be readily completed on the spot by line personnel and turned over to the maintenance office for formal entry into the appropriate record sheets. This procedure may already be employed at some activities or may be suitably accomplished as a by-product of existing work order systems. Affected personnel should be advised that column headings and segregated areas are provided on these forms to insure that required basic information is recorded legibly. When more detail is required than can comfortably fit on one line or in one space to adequately explain the action taken and the reason for the action or findings, it is usually permissible and desirable to expand into an adjoining line or space.

Another point that should be well appreciated by those involved in helicopter maintenance and record keeping is that component life limitations are not to be taken lightly. They are based on the best available test data and calculations, and although a specified factor or margin is included, one would be quite foolhardy to knowingly violate them. Yet, perhaps unknowingly, such limitations are occasionally violated due to the lack of appropriate entries in aircraft log or component record cards.

Care and treatment that should be given to aircraft and component records cannot be stressed too strongly. This is a matter of economics as well as safety. In one branch of the military services, high-value, life-limited



components are arbitrarily scrapped prematurely when record cards are lost. In another, a new card is prepared acknowledging the substitution but allowing time to be accrued from zero, or an educated estimate of the previous operating time. This is one of the first and last items that should be checked on receipt and prior to shipment of a component. In summary, aircraft and component records should be kept accurate, complete, and safe. When in doubt, go that extra inch — record it!

UNSATISFACTORY REPORTS

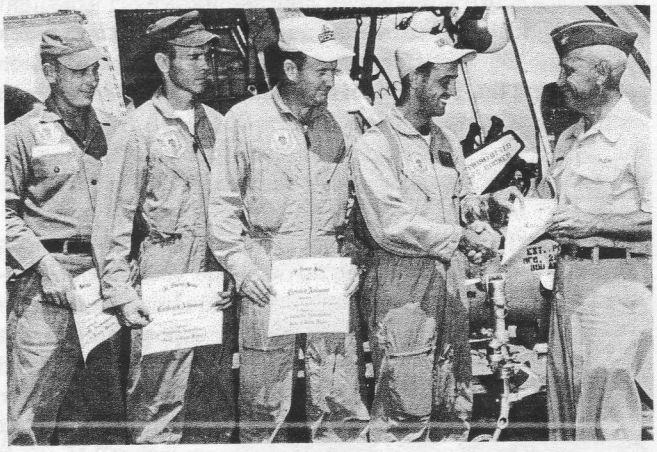
Another aspect of aircraft maintenance paperwork that has caused mixed emotions both in industry and the military services, is the preparation and processing of unsatisfactory or discrepancy reports. Time was when manufacturers dreaded having URs submitted against their products as they were considered primarily as reports of deficiency or criticism. Likewise, the military services only submitted URs on concerns they considered of major significance or safety of flight. After many years of playing cat and mouse with each other regarding URs, manufacturers and the military services finally came to the realization that much could be gained on both sides by more comprehensive problem and discrepancy reporting.

The military has been continually striving to get better utilization and availability from their equipment to enable the performance of their mission, while manufacturers want the same thing to enhance the possibility of selling more of their products. This common understanding has been promoted by the various military-industry associations and implementation has been achieved by means of BuWeps Instruction 4700.2 for the Navy and AFM 66-1 for the Air Force. While these systems serve several purposes, failure reporting is considered to be one of the most important. An excellent article on the Navy FUR system, entitled "Information Please," was published in the November '59 issue of Approach. An equally fine article on the Air Force AFM 66-1 Data System, entitled "Is This Trip Necessary," was published in the November '61 issue of Aerospace Accident and Maintenance Review. Both of these articles provide capsular descriptions of how the respective systems work and what they are capable of accomplishing. As specifically expressed in the Approach article, the principal problem with such systems is the submittal of incomplete, inaccurate or insufficient reports. The electronic machines can do a phenomenal job of "massaging data" as Colonel Stone, one of the prime sponsors of AFM 66-1, says, but they can only do as good as the data fed into them. Good failure and maintenance reporting can:

a. Be fed back to manufacturers for current design corrective action;
b. Serve as guidance for improved future design reliability;
c. Make potential chronic problem areas known before operations are unduly jeopardized;
d. Provide usage data on which more realistic provisioning can be based;
e. Provide basis for changes in maintenance criteria such as inspection requirements and component operating intervals.

Again quoting in part from the above-mentioned Approach article — "Maximum results can be obtained only when the users are conscientious about reporting all deficiencies. If you want more reliable machines to fly, service, maintain and overhaul, both today and tomorrow, step up the reliability of your Material Reliability Program (and general maintenance) reporting."

1,000 HOURS—First report of a pilot logging 1,000 hours in the HH-43B comes from Kirtland AFB, N.M. Capt Roy K. Baliles, commander of Det 35, CARC, hit the mark on Sept 12, 1963 and is believed to be the first at an operational Air Force unit to log 1,000 hours in the HUSKIE. According to CARC personnel, the only pilots to log this number of hours prior to Captain Baliles are Air Force training instructors. The captain received his original checkout in the HH-43B at Kaman Aircraft in March, 1960. Of his 2,400 hours flying time, 1,500 have been spent in helicopters. In photo, Captain Baliles, center, watches as Maj Samuel N. Castor, chief air crew standardization officer for the Central Region of CARC, left, and Col Bernice Barr, Kirtland base commander, examine the log book where the "magic" number is recorded. (USAF photo)



ACHIEVEMENT—Air Rescue Service Certificates of Achievement were presented recently to the crew of an HH-43B from Det 58, EARC, Brookley AFB, Ala., for the suppression of a fire which broke out in an F-100 landing at the base. Given "in recognition of the expeditious and unusually competent accomplishment of a mission," the certificates were presented by Col Grover J. Dunkleberg, Eastern Air Rescue Center commander, Robins AFB, Ga. Recipients, l to r, are SSgts Billie C. Kiser and George M. Justus, airborne fire rescuemen; TSgt William J. Thompson, rescue and survival technician, 2850th ABW; and 1stLt Fernand M. Espiau, Det 58, rescue crew commander. Also receiving a certificate for his participation in the mission was A1c Robert P. Logan, helicopter mechanic, from the detachment. (USAF photo)

Timely Tips

Simple Checks First (HH-43B)

Problem—No components affecting engine operation were changed and no fuel or power control adjustments were made, yet on this particular HH-43B the turbine engine wouldn't start. Everything had been operating satisfactorily at the end of the last flight. Solution—In a case like this, the trouble-shooting mechanic has four elementary causes to consider before embarking on an exhaustive check: cranking speed, ignition, air and fuel. (1) Is the starter working and the engine motoring over? (2) Are the plugs out of the air inlet? (3) Actuate the ignitor test switch and listen. Is an electrical "crackling noise" coming from the ignitors? (4) Break the fuel line from the start fuel solenoid valve to the starting fuel manifold. With the engine motoring over and the throttle open, check for fuel. Is any coming through? If not, replace the starting fuel solenoid valve.

H. Zubkoff, Service Engineer

Oil Leak Locator (UH-2, HH-43B, OH-43D, UH-43C)

There are two easy ways to pinpoint elusive oil leaks. First, clean the suspected area thoroughly, then dust with talcum powder or spray with non-flammable, white Zyglo developer (ZP9) from a 12-ounce pressure can onto the probable leak area. The developer forms a powder when it drys but is not as likely to be blown off as talcum. Start the engine and during the runup the oil leak will show up on the white background, indicating the source.

J. D. Elliott, Field Service Representative

Pilots Take Notice (UH-2)

During rotor shutdown on the UH-2A/B, the tip plane path of the rotor tips must be maintained at a relatively level attitude by the pilot. If this is not done, the droop stop bumpers may be crushed or otherwise damaged. This damage can vary from mild distortion to complete shear-through in the area around the relief hole in the bumper block. The relief hole acts as a safety device and will prevent damage to the adjacent critical components if shutdown is improperly performed. However, unnecessary work for maintenance personnel and downtime for the aircraft will still result.

D. W. MacDonald, Service Engineer

Easy Does It (HH-43B)

When engine vibration is suspected in the HH-43B, don't jump to conclusions and "tear" into the power plant. Follow these steps instead: (a) Check the engine mounts for proper torque values, evidence of looseness and wear. (b) Check the V-band coupling on the combustion section of the engine for proper position and proper torque. A loose or improperly positioned coupling will transmit vibratory impulses to No. 3 vibration pickup. (c) Check the tail boom support cables, block and clamp, the cable turnbuckles and the cable terminal fittings for security and proper torque (400 pounds). Loose cables or cables which are too tight will induce excessive vibration which will be indicated on number 3 pickup. (d) With the CED 1-117 meter connected and warmed up, shake each pickup gently by hand prior to installation. A slight movement should be indicated on the meter. If no movement or excessive fluctuation of the indicator occurs, the pickup may be defective. This can be checked by comparing the amount of movement with the other pickups. Be sure to avoid kinks in the lines and insure security of all connectors. (e) Accomplish vibration check in accordance with established procedure.

H. Zubkoff, Service Engineer

Scroll of Honor

KAMAN SCROLLS OF HONOR ARE AWARDED TO PILOTS AND CREWMEN WHO HAVE, IN HELICOPTERS PRODUCED BY KAMAN AIRCRAFT, FLOWN ONE OR MORE MISSIONS OF MERCY DESPITE ADVERSE WEATHER, RUGGED TERRAIN OR SIMILAR UNUSUAL AND HAZARDOUS CIRCUMSTANCES. RECENT RECIPIENTS ARE:

Cdr William C. Casey, UH-2A pilot; Lt(jg) Larry W. Beguin, copilot; David G. Miller, AE3, and Donald D. Weston, AE2, crewmen; from Helicopter Utility Squadron One, Ream Field, Calif. Night rescue of downed pilot, at sea.

Capt Floyd R. Lockhart, HH-43B pilot; TSgt William J. Thompson, rescue and survival technician; TSgt Eugene L. Hughes, and A1c Norman B. Tenney, fire rescue technicians; from ARS detachment 58, EARC, Brookley AFB, Ala. Rescue of Navy pilot from crashed plane, deep ravine, tall trees.

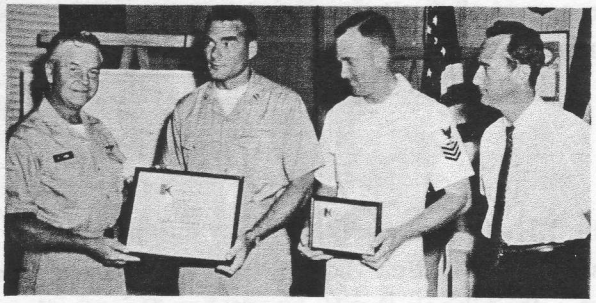
Lt Edwin M. Furey, UH-43C pilot; David G. Davis, ADR1, crewman; from N. S. Mayport, Fla. Rescue of four survivors from patrol plane crash, at sea.

1stLt Karl G. King, HH-43B pilot; Capt Robert D. McDougal, copilot; SSgt Benny A. Degaetano, crew chief; and A2c Roger Vipperman, medic; from ARS Detachment 4, WARC, Paine Field, Wash. Rescue of injured mountain climber, tall trees, rugged terrain, 5,200 feet. Lieutenant King, HH-43B pilot; Capt Ronald L. Bachman, copilot; Sergeant Degaetano and Airman Vipperman. Rescue of another injured mountain climber, steep slope, high trees, fog.

Capt William T. Hayes Jr., HH-43B pilot; Capt Franklin A. Lamb, copilot; TSgt Derald D. Parks, medical technician; A1c Manley Olson, crew chief; "mixed" crew from WARC and 41st Air Rescue Squadron, Hamilton AFB, Calif. Rescue of three civilians from crashed plane, bottom of canyon, tall trees, light rain, turbulence.

Lt Richard L. Whitesides, HH-43B pilot; Capt Hoyt B. Hurt, copilot; and TSgt Thomas E. Cox, paramedic, from 41st Air Rescue Squadron, Hamilton AFB, Calif. Dusk rescue of two civilians from sandbar in rain-swollen river, trees, high tension wires, 30-knot wind.

Capt Ted L. Smith, HH-43B pilot; Lt Floyd A. Durham, copilot; A3c Richard Severino, crew chief; and A1c Peter J. Lee, medical technician; from ARS Detachment 26, CARC, Selfridge AFB, Mich. Night rescue of eight fishermen, boat caught in ice floes, zero temperatures, 35-knot wind.



PRESENTATION—Capt R. L. Kibbe, commanding officer of NS Mayport, Fla., presents scrolls to Lt E. M. Furey and D. G. Davis, ADR1, as W. Magnan, KAC field service representative, watches. (USN photo)

MISSION'S END—Scroll recipients from Det 26, Selfridge AFB, Mich., shown at end of mission are, l to r, Capt T. L. Smith, Lt F. A. Durham, A3c R. Severino and A1c P. J. Lee. (USAF photo)

REPORT FROM KOREA

Personnel of Det 4, 36th Air Rescue Squadron can be justly proud of the record established since they received the HH-43B a short time ago. In a month and a half the detachment, commanded by Capt Maxie L. Trainer and operating from Osan AB, Korea:

● Carried out 21 orbit intercept missions and escorted the aircraft involved to safe landings.

● Searched a mountainous area during a series of violent thunderstorms for a missing ROKAF plane. Aboard the HH-43B were Capt Herbert M. Berthold, rescue crew commander; Captain Trainer, pilot; A1c Donald L. Poulin, medical technician; and A2c James A. Bowen, helicopter mechanic.

● Made two emergency food delivery flights over 80 miles of water to an island in the Yellow Sea near communist territory. The weather was poor, visibility bad, low ceilings were encountered and dead reckoning navigation necessary. Landings were made on almost inaccessible spot on a fog-shrouded beach. The HH-43B crews were, first flight — Capt Franklin L. Chase, rescue crew commander; Captain Berthold, pilot; and A2c Thomas A. Roberts, helicopter mechanic. Second flight — Captain Chase, RCC; Captain Trainer, pilot; and Airman Roberts.

● Picked up an ROKAF pilot who parachuted from his plane 30 miles from the base and landed safely, although his chute tangled in high tension wires. Pickup was made 20 minutes after bailout. The HH-43B crew consisted of Captain Trainer, RCC; Captain Berthold, pilot; A1c Lloyd S. Siats, helicopter mechanic; and A2c Landrum C. Shaeffer, medical technician.

● Searched for SARAH beacon transmission, located area and determined type of signal. HH-43B crew were Captain Chase, RCC; 1stLt Jack C. Moore, pilot; and Airman Roberts.

● Air evacuated a seriously injured six-year-old Korean boy to hospital near Seoul. HH-43B crew were Captain Chase, RCC; Captain Trainer, pilot; A2c Charles E. Fettinger, helicopter mechanic; Airman Poulin; and Dr. William Braun.

● Evacuated badly burned lieutenant colonel from Korean fighter base to hospital. HH-43B crew consisted of Captain Chase, RCC; 1stLt Walter E. Hogan, pilot; Airmen Bowen and Poulin.

● Evacuated airman's wife, urgently in need of medical attention, to hospital. Flight made at night through mountain passes. HH-43B crew consisted of Capt Stanley O. Schaetzle, RCC; Captain Trainer, pilot; Airmen Bowen and Poulin; and Dr. Samuel L. Marney, flight surgeon.

● Picked up ROKAF pilot from a rice paddy where he landed after bailout and flew him to the hospital. Time between bailout and delivery to hospital was 15 minutes. The HH-43B crew, on a training flight at the time, were Captain Schaetzle, RCC; 1stLt Walter A. Malkiewicz, pilot; A1c Albert W. Thompson and A2c Lonnie Bunting, fire rescue technicians.

● Flew bomb disposal personnel on an emergency flight to Korean village after a live bomb was discovered. The HH-43B crew consisted of Captain Trainer, RCC; Lieutenant Malkiewicz, pilot; and Airman Roberts.

HAPPY ENDING—Shown after rescuing bomber crew are, l to r, A1c A. W. Thompson, A2c J. A. Bowen, 1stLt W. E. Hogan and Capt F. L. Chase. (USAF photo)

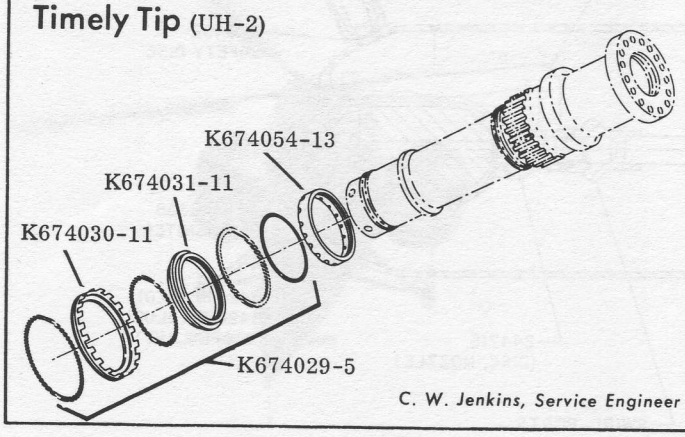
● Rescued survivors of a bomber crash 15 miles at sea. The survivors were spotted near a burning oil slick. The pilot was in a raft but the navigator was entangled in his canopy and shroud lines. Lieutenant Hogan, pilot, and Airman Thompson, fire rescue technician, were lowered from HH-43B into the water to assist the navigator. While he was being freed, the pilot was picked up and then the others were hoisted aboard. HH-43B crew consisted of Captain Chase, RCC; Lieutenant Hogan, Airmen Thompson and Bowen.

● Airlifted a five-year-old Korean boy, seriously injured by a truck, to hospital. Quick action of detachment credited with saving his life. Medical aid given during flight by Dr. Norman Peterson and Dr. Leon Meinkopf from the 6045th USAF hospital at Osan. HH-43B crew consisted of Captain Trainer, RCC; Lieutenant Hogan, pilot; and Airmen Bowen and Thompson.

● Aided in evacuation of diabetic airman from Kunsan AB. Airman flown from Kunsan by SAR C-47 and rest of way by HUSKIE. HH-43B crew were Captain Chase, RCC; Captain Trainer, pilot; Airmen Bowen and Shaeffer.

During this period of high activity the work of Det 4 maintenance personnel—the men behind the mission—was described as "outstanding." K

Timely Tip (UH-2)



C. W. Jenkins, Service Engineer

Special care should be taken when installing the lower rotor shaft rev-o-seal, P/N K674029-5, to prevent the inner rotating housing from contacting and damaging the outer housing which is stationary. Experience has shown that after the seal has apparently been seated during installation, a further check is needed to insure that the inner housing, P/N K674031-11, has been moved far enough down the K674054-13 nut to provide clearance with the inner lip of the outer housing, P/N K674030-11. This is accomplished by pushing firmly and independently on the inner housing so as to bottom it fully against the felt friction ring. If this action is not taken, the friction of the O-ring between the nut and inner housing may prevent the housing from reaching its correct position.

UH-2/HH-43B

Flotation Gear

by William J. Rudershausen
Service Engineer
Field Service Department

The flotation gear for the UH-2 SEASPRITE and HH-43B HUSKIE was designed to provide buoyancy and lateral stability for a period of time sufficient to allow crew egress in the event that an emergency water landing is made. On the SEASPRITE, this requirement is met through the use of two 55-cubic-foot bags, or sponsons, made of rubber impregnated nylon material similar to that utilized in rescue raft construction. Each bag is 45 inches in diameter and 30 inches long. On the HUSKIE, a third bag, the same size, is located in the aft end between the tail booms to furnish additional buoyancy.

Since these flotation bags have considerable volume, they must be blown up rapidly to ensure adequate support. This requirement calls for a source capable of furnishing large amounts of gas under pressure in a matter of seconds. Kaman Aircraft Corporation, after exhaustive testing and evaluation, concluded that the cool gas generator (see figure 1) produces the most rapid means of inflation. This method calls for igniting and burning a solid fuel propellant, collecting the gas produced and then mixing the gas with proportional amounts of CO^2 and 200-proof denatured alcohol to promote cooling and prevent the bags from burning.

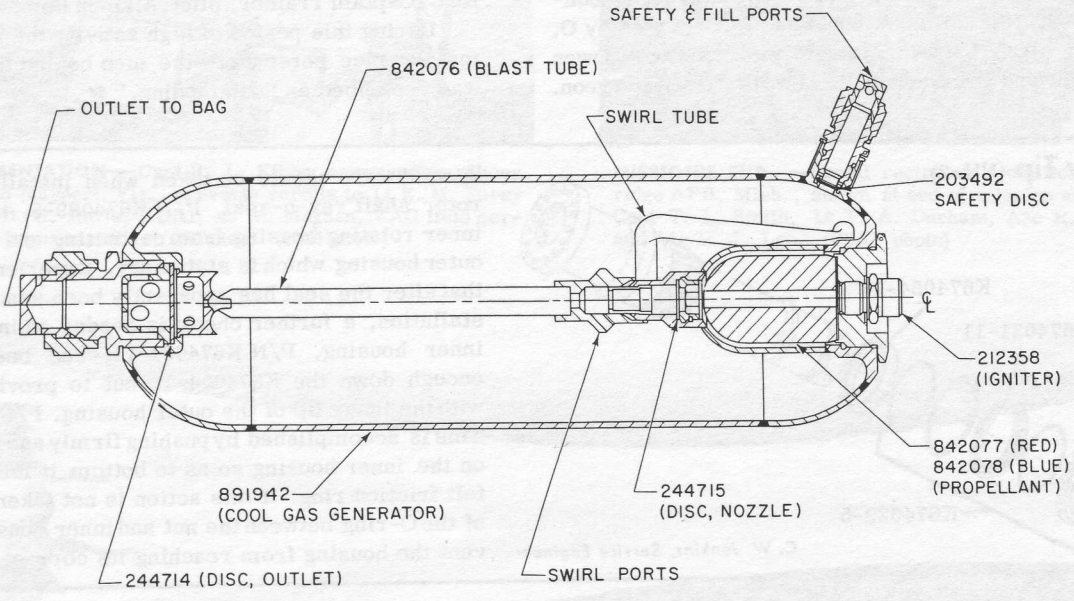
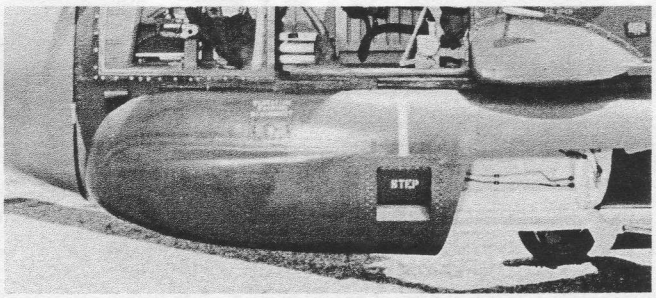


FIGURE 1

If it becomes necessary to activate the flotation gear, the following precautions should be taken. In order to prevent air buffeting, the bags on the UH-2 should not be inflated at an air speed greater than 80 knots, or 70 knots on the HH-43B; and they should not be inflated when above 4,000 feet to prevent them from rupturing due to the lower atmospheric pressure. It is also recommended that the bags be fully inflated before water touchdown. If this precaution is not observed and the bags sink to a depth exceeding six feet, the possibility exists that the water pressure could prevent them from fully expanding. For complete ditching procedures using the above system, reference should be made to NAVWEPS 01-260HCA-1 and T.O. 1H-43(H)B-1.

SEASPRITE

The flotation system for the UH-2 consists of the two inflatable rubber bags, two cool-gas generators with solid propellant and igniter, and two electrically operated, cartridge-type fairing bolt cutters. An emergency release handle, microswitch, and the necessary hardware and electrical wiring are installed in conjunction with the bags and generators (reference NAVWEPS 01-260HCA-2-2 and -9). The generators are approximately 18 inches long and six inches in diameter. They and the deflated bags are housed in fiberglass fairings mounted on each side on the forward section of the helicopter (see photograph). Hinges on the bottom



of the fairings attach them to the fuselage. At inflation, the special aluminum bolts which hold the fairings closed at the top are sheared, freeing the inflating sponsons. (CAUTION NOTE—Use only the aluminum shear bolt specified in the -4-6 manual. If a substitution is made, it may cause malfunctioning of the flotation gear.)

HUSKIE

The flotation system in the HH-43B consists of the three inflatable rubber bags, two pod-type fiberglass containers for side mounting and other equipment similar to that listed for the UH-2. Unlike the SEASPRITE, the pods are not an integral part of the helicopter, but provisions have been made so that they are readily mounted. The third flotation bag is located in a sheet metal container mounted laterally between the tail booms and just aft of the clamshell doors. The container is approximately 59 inches long, 29 inches wide and 5-1/2 inches deep and contains two spring-loaded doors for bag release. It should be noted here that this system varies from the SEASPRITE's in that it has its own electrical system complete with a nickel-cadmium battery. (Ref T.O. 1H-43B-2F)

Here is how the flotation system operates in both the UH-2 and HH-43B: When the pilot's emergency flotation gear handle (see figure 2) is pulled, it activates a switch

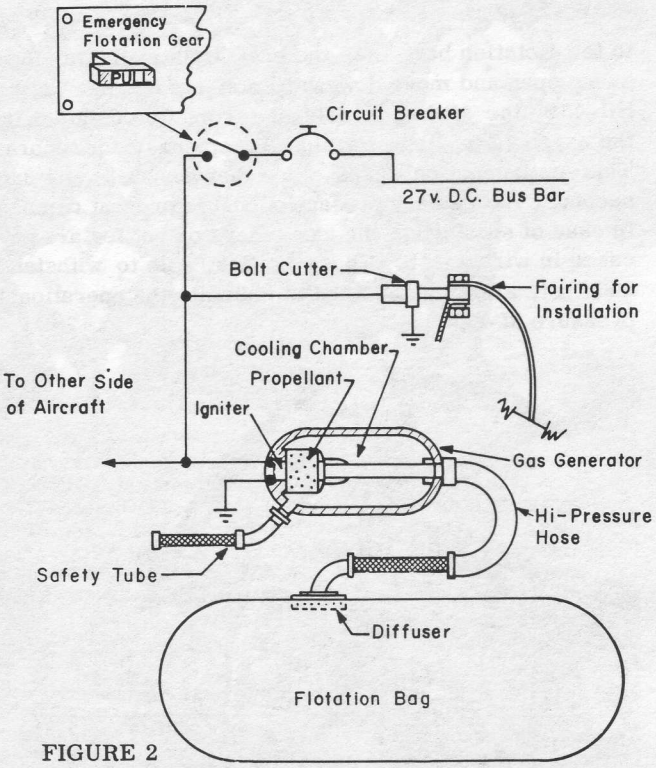
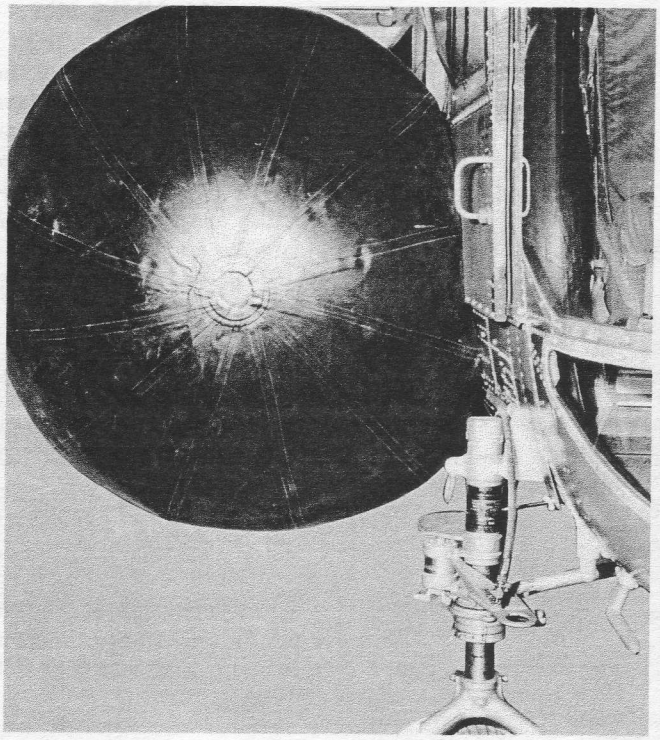


FIGURE 2

which directs power from the battery to the two bolt cutter cartridges and gas generators. The resulting gases force the cutter against the aluminum hardware securing the fiberglass fairing, and the bolts, or screws, are sheared. Simultaneously, the gas generators are fired and the following action takes place. The igniter starts the propellant burning inside its container and a hot gas is built up. At a pressure of approximately 2100 psi the nozzle disc is ruptured allowing the gas to flow into the fluid chamber which already contains CO^2 and alcohol. The gas is then introduced throughout the chamber via distribution tube, swirl ports and blast tube to insure a thorough mixing regardless of the generator's position. The gas buildup continues until a pressure of approximately 3800 psi is reached. At this point the outlet disc ruptures, allowing the gas to travel



to the flotation bags. As the bags inflate, the fairings swing open and move downward on their hinges. On the HH-43B, the aft bag is released from its container by the expansion of its bag against the spring-loaded doors. This entire action takes place between 2.5 and 3.0 seconds. As a safety precaution and to prevent damage in case of shattering, the gas generator bottles are encased in wire mesh. These bottles, able to withstand 8000 psi, are only required to maintain the operational pressure of 4000 psi.

In order to prevent corrosion after firing, the cool gas generators should be removed from the helicopter for cleaning as soon as practicable. Remove the safety and fill port, and flush out generator with warm water and thoroughly dry by flushing again with a solvent (acetone). The gas generators should then be readied for another mission. (Ref. NAVWEPS 01-260HCA-2 and 1H43B-2F). A complete set of support equipment and tooling is available to accomplish this. In brief, the following detail replacements are required for generator recharging:

WINTER

Winter Charge (-10°F to +80°F)
Propellant, P/N 842078 (blue)
CO^2 7.29 to 7.39 lbs
Alcohol (200 proof denatured) .464 to .474 lbs

SUMMER

Summer Charge (+20°F to +125°F)
Propellant, P/N 842077 (red)
CO^2 6.79 to 6.89 lbs
Alcohol (200 proof denatured) .636 to .641 lbs

SUMMER/WINTER

Propellant Igniter, P/N 212358
Cartridge (explosive), P/N 97155
Aluminum Bolts, P/N AN3DD16A (UH-2)
Aluminum Screws, P/N AN525D10R30 (HH-43B)
Nozzle Disc, P/N 244715
Outlet Disc, P/N 244714

For complete maintenance and inspection information regarding the flotation gear, please reference the applicable manuals: T.O. 1H-43(H)B-2F and -6S and NAVWEPS 01-260HCA-2-2 and NAVWEPS 01-260HCA-7.

Operation Swift Strike

Orlando AFB, Fla.... Units of the global Air Rescue Service stood alert for any emergency during the recent joint military maneuver, "Swift Strike II." ARS deployed HH-43B helicopters to provide crash and rescue coverage for the aircraft participating in the operation. The choppers were from Det 50, Shaw AFB, S. C.; Det 49, Seymour-Johnson AFB, N. C.; Det 51, Myrtle Beach AFB, S. C.; Det 31, Reese AFB, Texas; and Det 32, Webb AFB, Texas.

The initial phase of this largest air mass movement began 21 July and continued through 2 August. The Military Air Transport Service airlifted 8,000 tons of equipment of the 5th Infantry Division from Fort Carson, Colo., to Donaldson AFB, S. C. This was the largest air movement undertaken by MATS in its 15-year history. With the completion of the airlift, phase one of the maneuvers ended. Phase two began with all units in place. Two joint Army and Air Force task forces manuevered against each other to test their initiative and knowledge of tactics. During this phase, Air Rescue choppers stood by to handle all crash and rescue operations. The redeployment phase covered the period 17-28 August during which time ARS HH-43B's were positioned at Peterson Field, Colo.

Can Anyone Top This?

1stLt Street Hull of VMO-1, MCAF New River, N. C., made the 40,000 helicopter landing on the USS Boxer recently in an OH-43D. This same helicopter, in the same hop, also made 66 orbits of the ship and landed each time. Flight time was 1.3 hours.

GRADUATION

HH-43B TRAINING
SHEPPARD AIR FORCE BASE

3750TH TECHNICAL SCHOOL, USAF (ATC)

JULY 2, 1963—Front row, l to r, TSgt M. Ahmed, Pakistan; TSgt A. Y. Zaidi, Pakistan; SSgt M. A. Malik, Pakistan; R. H. Maxwell (Instr.) Sheppard AFB. Rear row, TSgt W. H. Lillico (Instr.) Sheppard AFB; A1c D. R. Maloy (Instr.) Sheppard AFB; F. Morrison (Instr.) Sheppard AFB; TSgt M. A. R. Siddiqui, Pakistan; SSgt M. A. Hye, Pakistan; SSgt G. Ghous, Pakistan; CMSgt W. C. Lane (Instr. Supv.) Sheppard AFB. (USAF photo)

JUNE 25, 1963—Front row, l to r, TSgt W. H. Lillico (Instr.) Sheppard AFB; SSgt G. J. Mazur, 1370 FMS Turner AFB, Ga.; SSgt H. W. Branum, 36th ARS, APO 323, San Francisco, Calif.; J. B. Kerr, 4900 CAMS Sq., Kirtland AFB, N. M.; SSgt F. J. Ramalho, 57th ARS, APO 406, N. Y.; SSgt M. Mewkalo, Det 3, 36th ARS, APO 929, San Francisco, Calif. Middle row, SSgt J. Danhof, Jr., (Instr.) Sheppard AFB; SSgt R. C. Bailey, Jr., 36th ARS, APO 970, San Francisco, Calif.; A1c A. O'Bryant, 1370th FMS, Turner AFB, Ga.; TSgt R. G. Barrier, Det 3, 36th ARS, APO 929, San Francisco, Calif.; SMSgt E. E. Creach, Det 17, WARC, Davis-Monthan AFB, Ariz.; SSgt T. O. Stack, Hdqt. ARS, Orlando AFB, Fla.; A2c R. J. Daneault, Det 20, CARC, Minot AFB, N. D.; A2c R. K. Wells, Det 12, WARC, George AFB, Calif. Rear row, SSgt J. Wilcox, 380th FMS, Plattsburgh AFB, N. Y.; A3c J. M. Cone, Det 54, EARC, Moody AFB, Ga.; SSgt R. W. Bellville, Jr., Det 1, 33rd ARS, APO 74, San Francisco, Calif.; SSgt F. P. Culina, Det 1, 36th ARS, APO 919, San Francisco, Calif.; W/O Emadian, Iran; A2c T. Bilbro, 1370 PMW, Turner AFB; A3c J. W. Campbell, 1370 PMW, Turner AFB; A3c C. R. Massey, 1370 PMW, Turner AFB; A2c K. R. Kogge, 1370 PMW, Turner AFB; A2c N. R. Steele, Det 50, EARC, Shaw AFB, S. C.; A2c W. W. Steele, 1370 PMW, Turner AFB; R. H. Maxwell (Instr.) Sheppard AFB. (USAF photo)

AUGUST 27, 1963—Left to right, TSgt E. N. Davis, Det 1, 54th ARS, APO 23, N. Y.; 1st Lt N. Lahooni, Iran; TSgt J. K. Langston, Det 4, 36th ARS, APO 970, San Francisco, Calif.; TSgt W. H. Lillico (Instr.) Sheppard AFB. (USAF photo)

SEPTEMBER 10, 1963—Left to right, F. Morrison (Instr.) Sheppard AFB; W. A. Craig, 1001st CAMRON, Andrews AFB, Wash., D. C.; J. S. Prout, 1001st CAMRON, Andrews AFB, Wash., D. C.; D. R. Maloy (Instr.) Sheppard AFB. (USAF photo)

Q's AND A's

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

Q. (Applies HH-43B) WHAT HAS BEEN DONE TO IMPROVE MULTI-SPEED SWITCH RELIABILITY?

A. The AE47-2 switch has been replaced by the AE47-3. It is basically the same but can be recognized by a larger lock screw on the RPM adjusting screw. To insure positive locking, the vendor has applied "Loctite" to the lock screw. If RPM adjustment is required, the use of grade B(7-2) "Loctite" is recommended on the lock screw after the adjustment has been accomplished.

H. Zubkoff, Service Engineer

Q. (Applies UH-2A, UH-2B) WHAT DOES THE LETTER DESIGNATION THAT FOLLOWS THE MAIN ROTOR BLADE PART NUMBER SIGNIFY?

A. This letter designates the blade manufacturing blueprint revision existent at time of manufacture. This information is useful only to overhaul and contractor facilities.

D. W. MacDonald, Service Engineer

Q. (Applies HH-43B) CAN ANY DIAMETER MUSIC WIRE BE USED IN THE CARGO HOOK MANUAL RELEASE?

A. No other wire except 0.040 diameter, 1095 music wire should be used for this purpose. See specification QQ-W-470 and reference T.O. 1H-43B-4. It is permissible to manufacture this release wire locally, but the finished product must conform in all ways with the drawing specifications. Using a lighter gage wire than the 0.040 specified can result in kinking and subsequent malfunctioning of the manual release.

W. J. Rudershausen, Service Engineer

Q. (Applies UH-43C, OH-43D) WHEN REPLACING A TRANSMISSION SUPPORT, K374200-11, WHAT WRENCHING TORQUE SHOULD BE APPLIED TO THE TRANSMISSION SUPPORT CAP, K374199-11?

A. The torque applied to the cap is not critical—all that is required is that it be "wrench tight." Use spanner wrench, K304204-1, and apply an estimated 10 to 50 pound-feet of torque.

F. E. Starses, Service Engineer

Q. (Applies UH-2A, UH-2B) AFTER COMPLETION OF MAIN ROTOR BLADE ASSEMBLY INSTALLATION, WHAT SIMPLE VISUAL CHECK SHOULD ALWAYS BE MADE TO ASSURE THAT THE FOLDING PIN CONE LOADING BUSHING, K610016-17, IS IN PLACE? WHY IS THIS IMPORTANT?

A. After installation the bushing can't be seen; therefore, mechanics should make certain a clearance exists between the K611012 blade folding arm. If no clearance is found, the bushing has inadvertently been left out and the tremendous centrifugal forces created by the whirling blades will be thrown entirely on the upper spar attachment arm. This will, in turn, create a serious overloading condition leading to component failure. A future revision of the maintenance manual will emphasize the importance of proper bushing installation.

D. W. MacDonald, Service Engineer

Q. (Applies UH-43C, OH-43D) WHAT IS THE MOST PROBABLE CAUSE FOR BROKEN ELEVATOR DAMPER FITTINGS, P/N K322022-11?

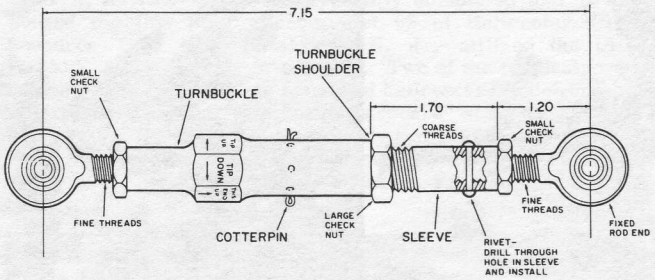
A. Attempting to set the damper friction by erroneously tightening the bolts through the clevis connections on the damper fitting is usually the cause. Tightening these bolts does not produce the friction sought but it does crack the clevis ears and results in eventual breakage of the fittings. Proper elevator damper adjusting procedures are contained in the maintainance handbook.

W. J. Wagemaker, Service Engineer

Q. (Applies HH-43B) UNDER NORMAL STARTING CONDITIONS, WHAT SHOULD THE FUEL PRESSURE READING BE IN THE STARTING FUEL SYSTEM?

A. The fuel pressure should build up to between 90 and 100 psi. The high-pressure pump will develop up to approximately 650 psi at full power but if the multi-speed switch is operating properly, the starting fuel system is cut off at approximately 28 to 30 percent. At this RPM, the fuel pressure will be between the 90 and 100 psi previously mentioned. When a fuel pressure gage is connected at some point in the starting line or manifold, readings may run from 0 to approximately 100 psi, depending on gas producer RPM. At this point, bear in mind the high-pressure fuel pump output pressure is being checked, not the boost-pump pressure which is only 7 to 11 psi.

H. Zubkoff, Service Engineer



Q. (Applies UH-2A/B) WHAT PROCEDURE SHOULD BE USED WHEN INSTALLING NEW RODENDS ON THE TRACKING TURNBUCKLE, P/N K659270?

A. The various parts or details should be assembled before installation on the helicopter. During assembly, thread the fixed rodend (see drawing) so that the rodend center will be 1.20 inches from the end of the sleeve. Secure the checknut; then, using the hole in the sleeve as a guide, drill a corresponding hole in the rodend shank. Secure with a MS20435M3-11 rivet. Thread the opposite rodend, with the small checknut installed, into the other end of the turnbuckle and turn until it bottoms out. Next, with the large checknut bottomed on the sleeve, thread the sleeve into the turnbuckle. With all the parts thus assembled, hold both rodends and adjust the turnbuckle 6-1/2 full turns in the direction indicated as "tip down" on the turnbuckle wrenching flats. The rod assembly will then be rigged to a neutral setting of 7.15 inches (approximate) between rodend centers. Secure all checknuts then cotter pin as shown, using a AN381-2-16 cotter pin. An alternate method would be to count the exposed threads of the adjustable end, 6-1/2 fine, and sleeve 5-1/2 coarse. Note: When installing the assembly on the helicopter be sure that the fixed rodend is "up." See the directions on the turnbuckle wrenching flats. After installation, check for rod roll to make certain that clearances exist in all attitudes.

D. W. MacDonald, Service Engineer

Q. (Applies HH-43B, UH-2A/B, UH-43C, OH-43D) WHICH ADHESIVE SHOWS THE GREATEST RESISTANCE TO MIL-L-7808 OIL?

A. Any adhesive conforming to MIL-A-5092, Type III, is the most resistant to this oil and should be used in non-structural areas. For structural areas, any epoxy or phenolic-based adhesive material should be used. Some products meeting the above MIL specification are: EC826 or EC2126 manufactured by the Minnesota Mining and Manufacturing Co. or A-851-B, manufactured by the B. F. Goodrich Co.

C. W. Jenkins, Service Engineer

Q. (Applies UH-2A) WHAT CAN BE ONE CAUSE FOR AN EXCESSIVELY NOISY DOPPLER SYSTEM?

A. Improper peaking of the klystron transmitter. Correct peaking is accomplished by measuring power monitor crystal current and audio amplifier noise while adjusting the power supply high voltage. At some point during adjustment, maximum crystal current and minimum amplifier noise will be obtained.

J. E. Kucka, Service Engineer

KAMAN SERVICE ENGINEERING SECTION—*E. J. Polaski, Supervisor, Service Engineering, G. M. Legault, G. S. Garte, Asst. Supervisors; N. E. Warner, A. Savard, W. J. Rudershausen, W. A. Saxby, Group Leaders.*

Squadrons Report On

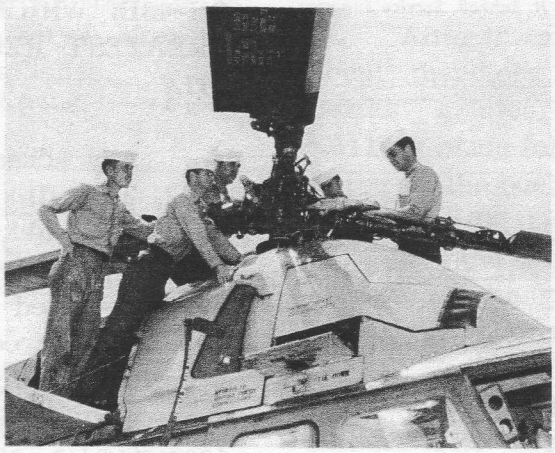
SEASPRITE ACTIVITIES

NAAS Ream Field, Calif....A new aircraft has joined the Pacific Fleet for regular operations. On August 1st the new UH-2A SEASPRITE, a powerful turbojet, all-weather helicopter joined the USS Oriskany for operations in the Western Pacific. After six months familiarization in Helicopter Utility Squadron One at Ream, the first SEASPRITE is ready to assume its role as a "Pac Fleet Angel."

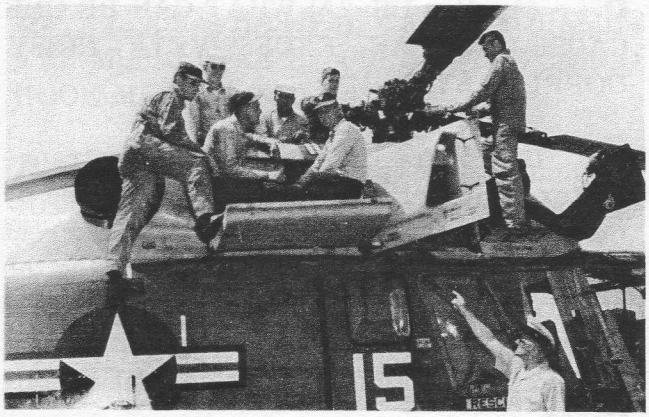
Commanded by LCdr D. E. "Del" Crow, detachment "GOLF" will be the first operational Navy unit capable of day or night rescue in any weather. The UH-2A will be standing by near the carrier as the jets land and take off. In the event of a mishap the powerful helo can speed to the rescue of downed aircrewmen. This is the first time in the Pacific a Navy carrier pilot will have the added assurance of a helicopter airborne at night on a routine basis. The highly sophisticated electronic navigational equipment and instrumentation of the SEASPRITE will enable it to hover 10 to 50 feet over the water in pitch black conditions and retrieve a downed pilot.

The SEASPRITE, although primarily a rescue helicopter, is expected to do yeomen work supporting ships of the First and Seventh Fleets hauling mail, personnel and supplies from ship to ship.

Since its birth in 1948, Helicopter Utility Squadron One has logged over 900 rescues. The coming of the SEASPRITE is a major evolution in rescue helicopter capability. It has already saved five airmen who were down at sea. The famed "Angels" will continue to be on guard, around the clock, to assist whenever and wherever they're needed.

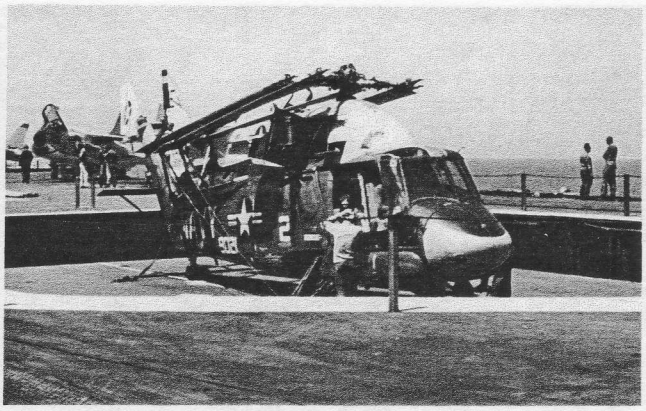


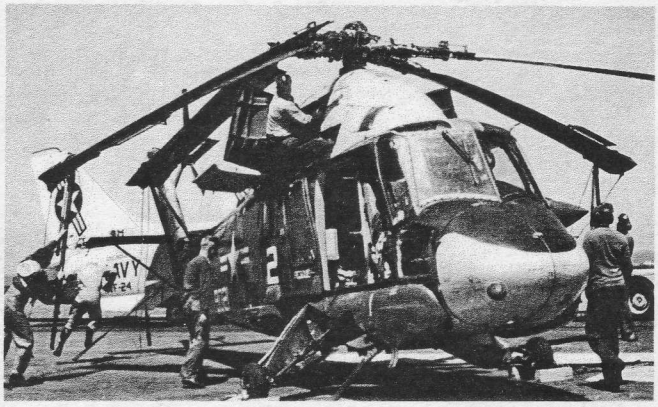
READY TO GO—Left photo, LCdr D. E. Crow gives final predeployment word to H. A. Smith, ADRC, his leading chief. Middle photo, SEASPRITE airframes crew gather atop UP-15, first operational UH-2A to head for WESTPAC. L to r are T. L. Hicks, C. R. Henderson, B. B. Burress, I. W. Gasdik and J. M. Stevens. Right photo, electronics crew give helicopter final check. L to r are J. R. Meehan, C. A. Redding and J. L. Winebold.



PASSING THE WORD— Leading Chief H. A. Smith strikes a pose familiar to the Det Golf mechs. On the SEASPRITE are H. E. Shuler, R. Schweitzer, W. H. Colbart, A. R. Honrada and H. B. Stevens. Lts J. O. Williams and G. W. Mowery are checking out the rotor head.

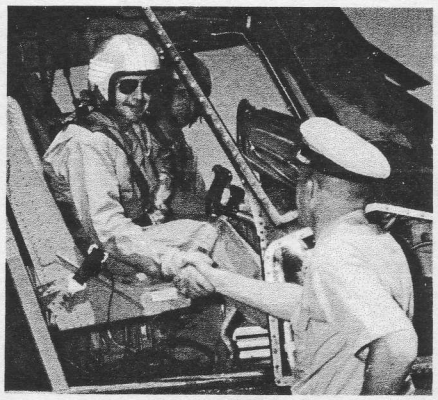
DET GOLF PILOTS—UH-2A pilots gather in front of detachment's first all-weather "Angels." Shown l to r are LCdr D. E. Crow, Lt G. W. Mowery, Lt J. O. Williams, Lt(jg) H. E. Logan, Lt(jg) G. A. Koelling, Ens B. C. Brandow. (Official USN photos)





HU-1 SHIPBOARD OPERATION—Personnel from Det A, Helicopter Utility Squadron One, NAAS Ream Field, Calif., are shown during a recent tour of duty aboard the USS Midway. In left photo, the UH-2A is brought up to the flight deck in preparation for flight quarters. The SEASPRITE being preflighted prior to launch is shown in right photo. (Official USN photos)

HU-2 IN ACTION——During a recently completed tour of duty aboard the USS Independence, Det 62 of Helicopter Utility Squadron Two, NAS Lakehurst, N. J., utilized the UH-2 SEASPRITE to rescue six persons. Two of the incidents were concerned with aircraft—a plane and helicopter—which crashed at sea; the third involved a "man overboard" situation. Piloting one rescue UH-2 were Lt J. M. Bandy and LCdr L. R. Maxwell. K. W. Fray and E. J. Muse were crewmen. While the survivors of the plane crash were being picked up, Fray jumped into the water from the hovering helicopter and assisted an injured rescuee in freeing his encumbering chute. In the second incident the man overboard was picked up within four minutes after hitting the water by a SEASPRITE piloted by Lt(jg) G. E. Benoit and LCdr W. L. Richards. Crewmen were E. B. Hess and A. E. Hagan. Lieutenant Benoit and Commander Richards were also pilots aboard a UH-2 which rescued the three occupants of a ditched helicopter in the Caribbean a few weeks before. The U. S. Navy photos above were taken by T. Lechleitner, PH3.



NAS Norfolk, Va....Helicopter Utility Squadron Two, Det One is the only permanent detachment of HU-2, Naval Air Station Lakehurst, N.J., and is located at NAS Norfolk, Va. The officer in charge is LCdr Richard E. Picton who reported aboard in June.

In mid-June, Det One received delivery of its first UH-2A SEASPRITE. Since this time additional UH-2A's have been assigned to the detachment. The SEASPRITE has been utilized for personnel and cargo transfers at sea, drone chase, photographic flights, VIP transfers and crew training. Crew training has been supervised by Commander Picton and Lt Rodney Whalen who were both trained by the parent squadron at Lakehurst. Much of the ground training was supervised by William Morris, Kaman technical representative.

Pilots transitioning to the SEASPRITE are having no problems since most have prior single-rotor flying experience. The UH-2A is replacing another type helicopter which has been in service many years and the doppler radar system on the SEASPRITE will be invaluable at Det One because of the numerous search and rescue missions. In top photo, left, LCdr Donald O. Modeen, past officer-in-charge of Detachment One, congratulates LCdr Richard E. Picton on taking over command. Looking on is Lt Rodney Whalen. Middle and right photos show first personnel transfer as sailor is lifted from deck of the USS Hugh Purvis to SEASPRITE flown by Lieutenant Whalen. Gary R. Hanson, PH3, took these official U. S. Navy photos.

Huskie Happenings

...Two young couples rescued by HH-43B from Det 12, WARC, George AFB, Calif., after attempting to shoot rapids in flood-swollen Kern River. Detachment called on for assistance when one couple marooned on slippery, water-swept rocks and others trapped on small island. Rescue accomplished by hovering between mountains over tree-studded river bank. A1c Paul Ekoniak, medic from 831st Tactical Hospital, goes down in sling first to give instructions. Couples lifted to safety. Capt David E. Longnecker, HH-43B pilot; 1stLt James M. Crabbe, copilot; and SSgt Daniel B. Ball, crewchief.

...HH-43B crew from Det 25, CARC, Wurtsmith AFB, Mich., rescues marooned Air Force staff sergeant and wife from isolated Charity Island in Lake Huron. Flight made during adverse weather beneath 100-foot cloud ceiling. Landing made in near darkness on confined and sloping beach. Capt William T. Calva, pilot on hazardous flight; Capt William F. Cunningham, Jr., copilot; MSgt Clarence V. Rubeor, medical technician; and A1c Robert J. Adams, crew chief.

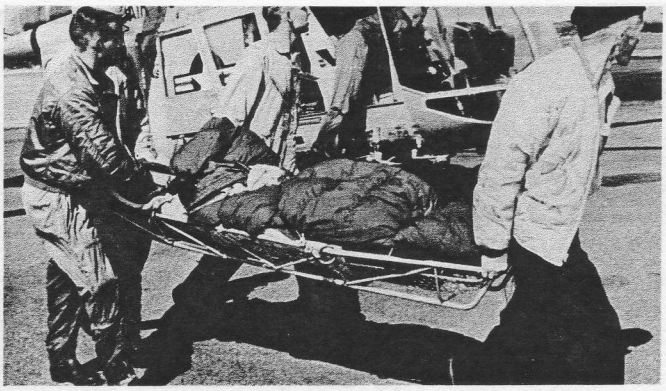
...Alert crew from Det 42, EARC, Dow AFB, Maine, engages in early morning search, locates crippled fisherman whose boat drifted down Penobscot River all night after motor quit. SSgt Carl Peters, medical technician, lowered into boat and Capt Donald E. Stranahan, pilot, uses HUSKIE's rotorwash to maneuver boat half-mile downstream to dock. Also aboard HH-43B are 1stLt Mitchell E. James, copilot; and SSgt Weldon E. Cobb, crew chief....HUSKIE crew from Det 32, Webb AFB, Texas, locates 67-year-old woman lost for five days in snake-infested area near Kermit. Woman, unconscious and suffering from exposure, spotted from air after rotor downwash parts dense salt cedars hiding her from observation.

...MSgt Harlan W. Pullen, maintenance superintendent of Det 28, CARC, Randolph AFB, Texas, retiring after more than 20 years active duty....HUSKIE crew from ARSQ 58, Wheelus AB, Libya, on training flight spots black smoke. Investigation shows small boat, tied up to barge, on fire five miles off shore in Mediterranean. HH-43B pilot uses rotor downwash to help Libyan seaman free boat from barge and control fire. Helicopter then picks up badly burned seaman in rescue basket and flies him to hospital at Wheelus. First aid given by medic on way. Members of HH-43B crew are 1stLt John A. Simmons, RCC; A1c John B. Henley, medic; A1c B. Gardner and A2c Alton R. Henderson, rescue technicians.

...HH-43B crew from Stead AFB, Nev., aids in rescue of 19-year-old mountain climber trapped on ledge at 7,000-foot level in Lake Tahoe region. HUSKIE piloted by Maj. Harold P. Wheeler, with Capt William L. Henderson as copilot, lands within 200 feet of youth despite rugged terrain. Mountain rescue personnel disembark and rescue follows soon afterward. TSgt L. H. Habbershaw crewman on mission. Cover during operation flown by UH-19B from Stead and piloted by LtCol Merle A. Clapsaddle and Capt Lorimer W. Hay-Chapman. Other crewman, SSgt Jesus Canales.

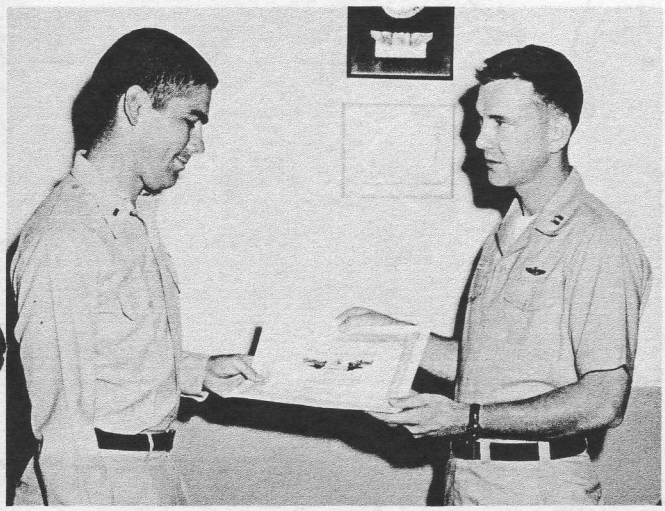
...Two mountain climbers, injured in fall near top of 5,200-foot Mt. Kathadin, flown to hospital in HH-43B from Det 42, EARC, Dow AFB, Maine. Crew aboard HUSKIE consists of Capts Glenn M. Marks and Donald E. Stranahan, pilots; Capt Fred Holler, flight surgeon; and A1c Gerald O. Chase, crew chief.

OPERATION MIRED MARE—Horse or human, ARS never hesitates when a life is at stake! This time it was "Donna," a 1,000-pound saddle horse which had wandered into a swamp and bogged down. Her frantic owner, faced with the possibility of having to shoot the valuable animal, made a frantic call for help to Det 44, EARC, Westover AFB, Mass. Using the old motto, "We'll try anything once," the detachment commander, Capt Jerome R. Luttinger, got permission from the base commander, Col John Carroll, and alerted a 'copter crew. 1stLt Otto J. Stupka took off in an HH-43B with A1c James B. Kermon, crew chief, and SSgt Dennis M. Jacks, rescue survival technician. Unfortunately, because of the dense foliage, the rescue could not be made from the air (even though a "horse collar" was aboard) so the Air Force team combined ingenuity with a plywood sheet, rope, a jury-rigged skid, muscle power and a few well-chosen words. In a short time, "Donna" was back on solid ground. Shown above are Lieutenant Stupka and Captain Luttinger plotting a course to the site of the hapless horse's mishap. (USAF photo)



SAVE DIABETIC— A 35-year-old diabetic is rushed from HUSKIE to waiting ambulance after being rescued from mountain wilderness by HH-43B crew from Det 5, WARC, McChord AFB, Wash. The unconscious survivor, suffering from an accidental overdose of insulin, was located in the deep woods about a quarter of a mile from the spot where he and others had been camping. Left to right are A1c Karl F. Aldridge, 325th Dispensary, who administered first aid; A2c Richard Landry; 1stLt Thomas D. Precious, copilot; 1stLt William A. Luther, pilot; and Mr. Ome Daiber, head of the Seattle Mountain Rescue Council. (USAF photo)

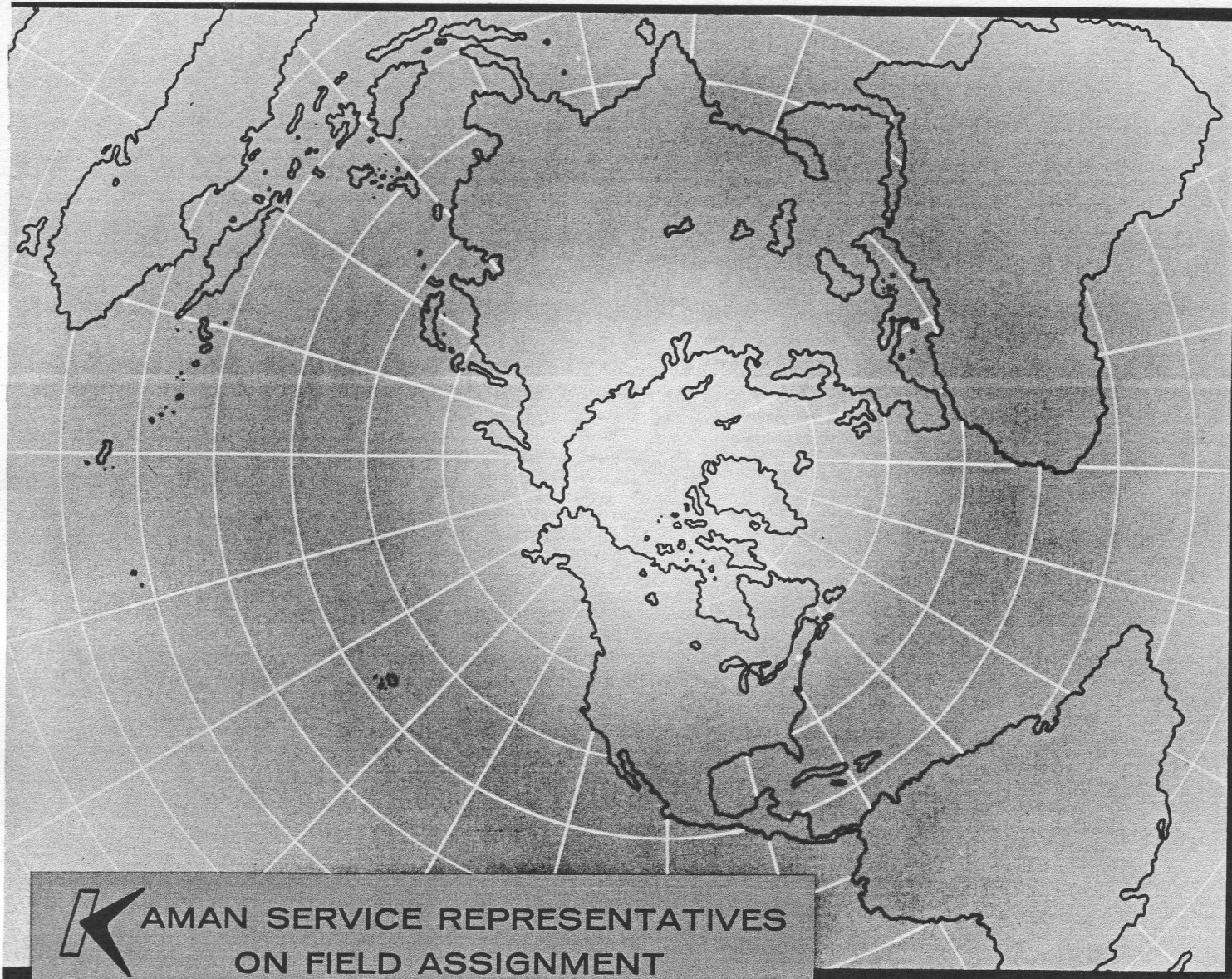
SUMMER VISITOR—Last winter personnel attached to Det 42, EARC, Dow AFB, Maine, were "visited" by 168 inches of snow and a blizzard (after which they rescued 16 persons). This summer, a much more welcome visitor showed up in the form of Miss Patricia Barry, star of stage, screen and television, who was appearing in a nearby theatre. She was unanimously elected to receive the title of "The girl we would most like to rescue," by detachment personnel. However, after some reflection, this was changed to "The girl we would most like to be lost with." Talking with Miss Barry are, l to r, Capt Glen M. Marks, detachment commander; and 1stLt Walter J. Zimmerman. (USAF photo)



MOUNTAIN RESCUE-1stLt James L. Cantey, left, of Det 5, WARC, McChord AFB, Wash., receives ARS Certificate of Achievement and WARC Certificate of Award from Capt Edwin A. Henningson. The awards were presented to Lieutenant Cantey recently for the rescue of a civilian seriously injured in a mountain fall in 1962. In commenting on the rescue, an official from the Seattle Unit of the Mountain Rescue Council said, "Lieutenant Cantey handled the aircraft with exceptional skill under difficult and dangerous circumstances and he and his crew are to be highly commended...I feel their skill resulted in the saving of the life of this victim." (USAF photo)

NATO DAY AT AVIANO-Small Italian visitors "get-the-feel" of a USAF HH-43B from Det 10, AARC, at Aviano Air Base, Italy, during recent observance of NATO day. Detachment personnel also put on aerial and fire rescue demonstrations before the record crowd of 112,000. (USAF photo)

SPECIAL DELIVERY—HH-43B crewmen from Det 46, EARC, Suffolk County AFB, N.Y., scrambled after receiving word that a disabled fishing boat was in need of assistance 10 miles off shore. Coastguardsmen had the craft in tow but 15-foot swells driven by 40-knot winds prevented them from making headway. Shown are HUSKIE crew members and helpers from a nearby marina loading battery and starter for the vessel. The aerial delivery was carried out a short time later and the boat reached shore under its own power. Capt Arthur D. Kwitkowski was HH-43B pilot, 1stLt Walter J. Zimmerman, copilot; and A1c James Burns, hoist operator. (USAF photo)



KAMAN SERVICE REPRESENTATIVES ON FIELD ASSIGNMENT

DONALD P. ALEXANDER
WAYNE ZARLING
STANLEY M. BALCEZAK
ROLF SCHWARZ
HOMER HELM
NAAS Ream Field, Calif.

JOHN D. ELLIOTT
Tachikawa AB, Japan
Osan AB, Korea
Clark AFB, P.I.
Naha AB, Okinawa
Misawa AB, Japan

RICHARD FAIN
NATC, Patuxent River, Md.

HORACE F. FIELD
Burma

JACK L. KING
FRANCIS HEFFERNAN
FRANK McINNIS
NAS Atsugi, Japan

JOHN R. LACOUTURE
O&R, NAS North Island, Calif.
Midway Island
NAS Barbers Pt., Hawaii
VMO-6 Camp Pendleton, Calif.

ROBERT LAMBERT
Torrejon AB, Spain
Moron AB, Spain
Zaragoza AB, Spain

DONALD LOCKRIDGE
O&R, NAS North Island, Calif.

BILL MAGNAN
NS, Mayport, Fla.
NAS Cecil Field, Fla.
O&R, NAS Jacksonville, Fla.

WILLIAM C. MORRIS
NAS, Norfolk, Va.

RICHARD A. REYNOLDS
Ramstein AB, Germany
Toul AB, France
Spangdahlem AB, Germany
Chaumont AB, France
Laon AB, France

DAVID M. RUSH
PAUL WHITTEN
GORDON FICKES
MARTIN WHITMORE
THOMAS C. LEONARD
NAS Lakehurst, N. J.

RAY G. RUSSELL
VMO-1 MCAF Jacksonville, N. C.

JACK E. SMITH
New Guinea

DONALD TANCREDI
Okinawa

HENRY J. TANZER
NAS Atsugi, Japan
NAS Agana, Guam
NAS Cubi Point P.I.
NAS Sangley Pt. P.I.
Shin Meiwa Ind. Co., Ltd.
Toyonaka City, Japan

TERRELL C. TURNER
Thailand

EDWARD F. NOE
Colombia

ROBERT I. WILSON
Wheelus AB, Libya
Aviano AB, Italy
Cigli AB, Turkey
Incirlik AB, Turkey

CUSTOMER OPERATIONS SECTION

G. D. EVELAND, Supervisor; W. G. WELLS. Asst. Supervisor, Field Service Representatives.