KAMAN Rotor Tips

Pgs 8-9

KAMAN AIRCRAFT CORPORATION
PIONEERS IN TURBINE POWERED HELICOPTERS

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1963/1964

KAMAN Rotor Tips

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In This Issue

THE COVER

Christmas! An especially joyful time for the many whose loved ones were saved through the efforts of the helicopter rescue crews.

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MATS MAPS SOUTHWEST PACIFIC

HUSKIES Part of Survey Team

Since March of last year, the Military Air Transport Service (MATS) of the U. S. Air Force has had six aircraft, including two Kaman HH-43B HUSKIES, and approximately 160 men engaged in measuring and mapping the area between northern Australia and Eniwetok Island. The men and equipment have been drawn from the 1370th Photo-Mapping Wing, an organization of MATS' Air Photographic and Charting Service. In their present composition they are known as Aerial Survey Team 7; their base of operations for the last six months has been Jackson's Airdrome, Port Moresby.

Their project is extensive. It includes more than 88,000 square miles of aerial mapping photography and more than 72,000 linear miles of measurements. In combination, the results of these efforts could have great economic significance for this area. New navigational charts are possible. Communications and transportation networks, power production and distribution systems—the public works projects required for growth—may be planned more knowledgeably.

And for the world in general there is additional significance. For the measurements made will contribute to man's exploration of space. Added to calibrations already made on other parts of the globe, this data will assist scientists in guiding space vehicles to rendezvous high above the earth's atmospheric envelope and eventually to successful manned trips to the moon and back.

Of the six aircraft in use, three are RB-50s. Each of these carries more than a million dollars worth of electronic and camera gear. These four-engined planes —similar to World War II B-29s—carry a crew of eight for photographic missions and ten for electronic surveying.

The remainder of the aircraft are used for supply. One is a C-54—a four-engined transport plane; and the other two are the HH-43B's. These helicopters were selected on the basis of high-altitude performance. During a 27-day period, one HUSKIE flew 122 passengers and more than 40 tons of cargo while supporting six mountain top stations.

Assisting the Air Force team are two ships of the U. S. Military Sea Transport Service, the Harris County and Curtis Shoup. These two small transports are equipped with landing platforms for the helicopters and are a vital link in the chain of supply to the island ground stations.

The overall project is scheduled to be completed in 1965.

IT HELPS US HELP YOU

by Herman Zubkoff
Service Engineer
Customer Service Department

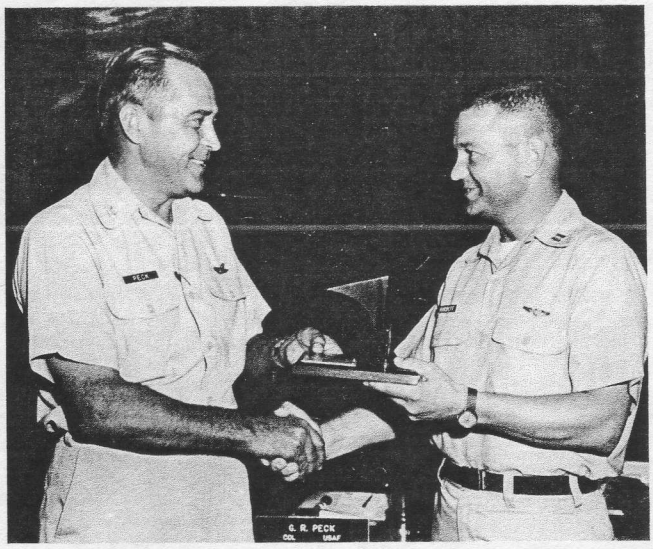
Numerous policy and procedural directives concerning the AFM 66-1 Maintenance Management System have been published and implemented by the Air Force. Intensive training programs relative to this system have also been established and directed at the various levels of maintenance, supervision and command. This article should not be construed as additional procedural amplifications of existing directives; its purpose is to acquaint the reader with how Kaman Aircraft Corporation, as an Air Force contractor, makes use of the information produced from AFM 66-1.

Basically, the maintenance data collection system consists of procedures whereby narrative information is converted into specific codes and recorded on forms provided for this purpose. These codes are transcribed onto punched cards which, when processed by Statistical Services through machines, produce the various summary reports. These reports are made available to Air Force maintenance managers at all levels and are forwarded to KAC through the courtesy of Middletown Air Materiel Area (MAAMA). They supply comprehensive data for analysis of failure rates, malfunctions, excessive maintenance man-hour areas, aborts and reliability factors of the various systems and components. They serve as a basis for manning and equipment authorizations to fulfill demands of operational commitments. They provide information which, when integrated with Base Supply transaction accounting systems, results in realistic consumption data for determining and establishing spares requirements and adequate stock levels. They furnish KAC with statistics and facts required for an unbiased evaluation of the field performance of the HH-43B. It is taken for granted that the reader is sufficiently acquainted with 66-1 to concede all the above, but the human equation being what it is, still prompts the question what does it do for me specifically? What benefit do I get out of this system? How does it produce a better tach generator, a better speed switch, or a better product? How does it make my job easier? Just where does the contractor fit into this picture?

The trouble-free aircraft, the aircraft which presents no problems, has yet to be designed and manufactured. However, problems can be resolved and in so doing, contribute to reducing the maintenance work load and to increasing aircraft availability with a corresponding increase in operational effectiveness. The prime requisite for problem solving is: "Isolate the problem." In this respect 66-1 is presently the most important medium of communication towards defining the problem. Once established, corrective actions can be determined and ultimately a better product, a more trouble-free product, a product easier to maintain, is developed. Unfortunately, the wheels of progress do turn slowly. Improvements do require time. Accrual of substantial facts relative to all aspects of the problem must occur. Data must be screened and analyzed. The unsatisfactory trends must be categorized and the failure patterns defined and isolated. Changes and modifications must be developed and accomplished. Eventually the problem is resolved and the improved product appears. This, "in a nut shell," is what AFM 66-1 accomplishes for aircraft maintenance personnel. It makes their job easier!

To a certain degree, determined in each case by the Air Force, the contractor is permitted to participate directly in this program. The summary reports are received monthly by the contractor's Service Department.

1000-Hour Pilot Award



Kaman Aircraft has established a new award—a desk set—to honor pilots logging 1,000 hours in helicopters produced by the company. Shown receiving the first set to be awarded is Capt Theodore C. Vurbeff, commander of ARS Det 36, CARC, Laredo AFB, Texas. Making the presentation is Col Gaillard R. Peck, wing commander, 3640th Pilot Training Wing. Among those who have qualified for the new award are: Capt Harold L. Hering, Det 29, CARC, Vance AFB, Okla.; Capt Roy K. Baliles, Det 35, CARC, Kirtland AFB, N. M.; Capt Walter J. Zimmerman, Det 42, EARC, Dow AFB, Maine; Capt R. E. Usher, USMC, VMO-2, Okinawa; Capt Bert Cowden, Capt David W. Thomas, Capt James Lamoreau, Capt William L. Henderson, all of the 3638th Flying Training Squadron, Stead AFB, Okla. (USAF photo)

The various work unit codes are screened and checked for high failure rate items, excessive premature component replacements, high maintenance man-hour areas and abort contributing factors. Unsatisfactory trend data is compiled according to work unit code by the Service Engineering Records Section. Distribution is then made to the service engineers responsible for the various areas such as the power plant system, fuel system, oil system, transmission, rotors, instruments, airframe and electronics for further analysis and investigation. If the respective service engineer determines that a problem does exist or appears to be developing, a Serviceability Project will be initiated. A Serviceability Project fills a dual function. It becomes a case history file on specific problems and includes a summary of the problem, events leading up to establishing the projects and a chronological brief of all actions taken until ultimate resolution. It also serves as the "in-house" instrument whereby other KAC departments, such as the Contractor's Project and Reliability Engineering groups, are informed of the existence and current status of the problem. Complete investigation and the resulting corrective action may involve many other KAC resources. Reference Figure 1 — "Flow Chart — Discrepancy Processing Procedure." The degree and scope of participation of the various KAC activities is normally established jointly by the service engineer and the corresponding project engineer and varies commensurate with the nature and extent of the problem, the depth of the investigation and the type of corrective action ultimately decided upon. After appropriate investigation, thorough evaluation, analysis, testing and judgment of all pertinent factors, conclusions are summarized and a solution, consistent with the principles of practicality and economy, is recommended. The solution may be relatively simple, such as a procedural change to existing Tech Orders. This is normally accomplished by the service engineer and the Service Department Publications Section. The recommended revision is then forwarded to the Prime Air Materiel Area (AMA) and is eventually published as a revision or a supplement

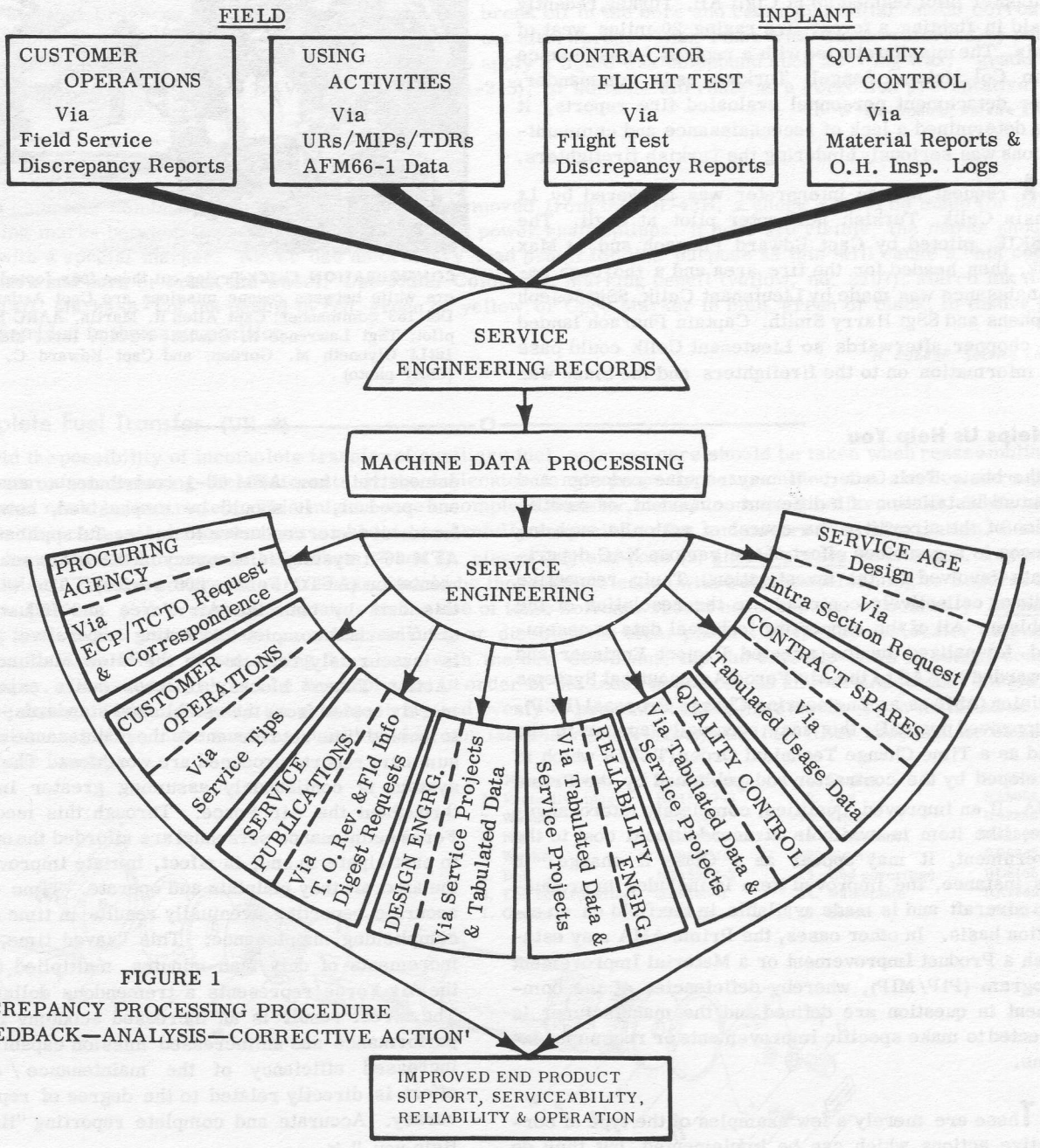
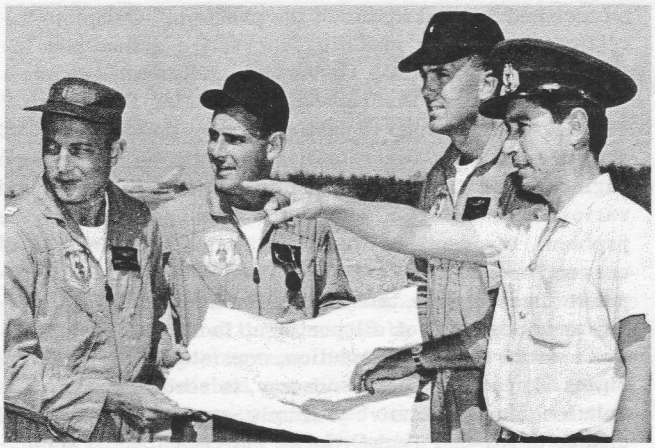


FIGURE 1
DISCREPANCY PROCESSING PROCEDURE
'FEEDBACK—ANALYSIS—CORRECTIVE ACTION'



U. S.—TURKISH CONFAB- Lieutenant Tahsin Celik briefs HH-43B crew at Cigli AB, Turkey, just before takeoff. With Lieutenant Celik are Capt Edward Pharaoh, SSgt Harry Smith and Lt Max Falk. (USAF photo)

An HH-43B crew from Det 153, AARC, and a Turkish helicopter pilot teamed up at Cigli AB, Turkey, recently to aid in fighting a forest fire raging 20 miles west of Izmir. The mission started with a request for assistance from Col Mehmet Sengel, Turkish base commander. After detachment personnel evaluated fire reports, it was determined a lack of reconnaissance and communications was seriously hindering the Turkish firefighters.

A request for an interpreter was answered by Lt Tahsin Celik, Turkish helicopter pilot at Cigli. The HUSKIE, piloted by Capt Edward Pharaoh and Lt Max Falk, then headed for the fire area and a thorough reconnaissance was made by Lieutenant Celik, SSgt Joseph Stephens and SSgt Harry Smith. Captain Pharaoh landed the chopper afterwards so Lieutenant Celik could pass the information on to the firefighters and the blaze was soon extinguished. As a follow-up, in response to a request from Colonel Sengel, Capt Arthur Farrell and Lieutenant Falk returned to the fire area in an HH-43B so photographs could be taken by A1c Dennis Downey from the base photo lab.

On another mission, a HUSKIE from Det 153 was dispatched to Seferihisar to aid an Air Force sergeant injured in an accident involving 500 volts of electricity. Captain Farrell and Lt Glynn Gordon, HH-43B pilots, were accompained by Dr. Robert Fallat, base flight surgeon. The sergeant was receiving medical treatment at Cigli within 45 minutes after the call was received. Time required by vehicle would have been approximately 90 minutes over rough roads.

CONFIGURATION CHECK- Trying out these four-footed hay burners while between rescue missions are Capt Arthur Farrell, Det 153 commander; Capt Allen R. Martin, AARC Standboard pilot; TSgt Lawrence N. Cowles, NCOIC; 1stLt Max C. Falk; 1stLt Glynneth M. Gordon; and Capt Edward C. Pharaoh. (USAF photo)

It Helps Us Help You

to the basic Tech Order. It may require redesign and eventual installation of a different component, or modification of the aircraft. The course of action in such instances is a combined effort of the various KAC departments involved in the investigation. Their respective findings collectively contribute to the resolution of the problem. All of the supporting technical data is assembled, formalized by the affected Project Engineer and forwarded by KAC to the Air Force Aeronautical Systems Division (ASD) as an Engineering Change Proposal (ECP). If approved by ASD, this may eventually appear in the field as a Time Change Technical Order (TCTO) which is developed by the contractor and published by the Prime AMA. If an improved, qualified, completely interchangeable, like item is available at no additional cost to the government, it may appear as a Class II change. In this instance, the improved item is included in production aircraft and is made available in the field on an attrition basis. In other cases, the Prime AMA may establish a Product Improvement or a Material Improvement Program (PIP/MIP), whereby deficiencies of the component in question are defined and the manufacturer is directed to make specific improvements or recommendations.

These are merely a few examples of the type of corrective actions which can be implemented, but they do demonstrate how AFM 66-1 contributes to an improved end product. It should be emphasized, however, the foremost factor conducive to successful application of the AFM 66-1 system is accuracy of the basic source documentation (AFTO Forms 200 series). The wide use of this data by both the Air Force and Industry makes accurate and complete reporting imperative. If coding is inaccurately reflected in the "How Malfunction" and "Action Taken" blocks, if labor hours expended are merely copied from the established standards, or padded to include time not relevant to the maintenance action, the summary reports produced are worthless. The AFM 66-1 system is continuously assuming greater importance throughout the Air Force. Through this medium, Air Force maintenance personnel are afforded the opportunity to participate in and, in effect, initiate improvements in the aircraft they maintain and operate. Time devoted to accurate reporting eventually results in time saved accomplishing maintenance. This "saved time," even in increments of only man-minutes, multiplied throughout the Air Force represents a tremendous dollar-savings. The direct result is an increased economy in mission performance and an increased mission capability. This increased efficiency of the maintenance / operations effort is directly related to the degree of reporting accuracy. Accurate and complete reporting "Helps us to Help you." K

Timely Tips

Emergency Exit (HH-43B)

The August-September 1963 issue of "Kaman Rotor Tips " included a Timely Tip on the use of the kickout windows for emergency exit from the HH-43B. This information was based on a proposed revision to the 1H-43(H)B-1 Flight Manual. However, the revision has been altered as a result of a recent Flight Manual Command Review Conference. The procedure to be included in the next manual revision will be: (1) Sliding doors must be fully open or fully closed when flying over water. (2) Sliding doors must be fully open prior to and during any emergency landing.

R. W. Spear, Service Engineer

Flap Bore Cleaner (UH-2)

A rod from a rifle cleaning kit makes a handy tool for cleaning the rotor flap bore through which the flap support rod runs. Such a kit also has other helpful items, such as the patches and soft synthetic bristled brushes. For cleaning, a patch soaked in a mild solution of soap and warm water should be passed through the bore in both directions. For hard-to-remove materials, scrubbing with a nylon bristle brush may be required. (Warning do not attempt to use bronze or steel brush as bits of the wire bristle may break off in the bore and cause dissimilar metal corrosion.) If scrubbing is required, the bore should be swabbed out afterwards. Then rinse with warm water. Dry patches should then be used to dry out the bore. Use a patch to apply a liquid wax compound such as Wing Wax, grade F.R. (AER) MIL-W-18723 (reference NAVWEPS 01-260HCA-2-5), or suitable alternate as a corrosion preventative.

D. W. MacDonald, Service Engineer

Mating Marks (HH-43B)

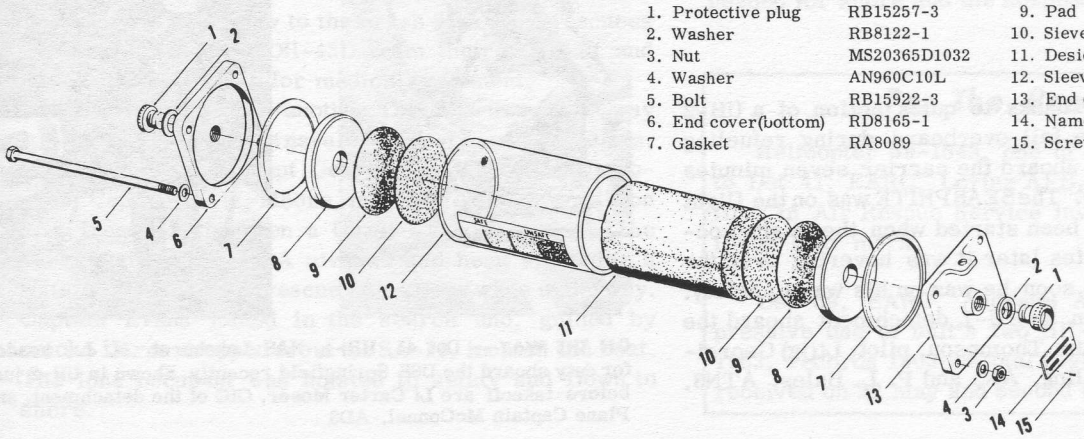
When a complete combustion chamber assembly is removed from the HH-43B, a check should be made for balance or mating marks between the second stage turbine and power shaft splines. If none are visible, the marks should be made with a special marker. Never use an ordinary lead pencil for this purpose as this will cause a "hot spot" at each mark and burn or crack the wheel. Use either Colorbrite marking pencil (yellow, no. 2107); Marco ink (black, no. S1147); Marks-A-Lot ink pencil in red, green or yellow; or Opco Marker in blue, green or black, to insure parts are assembled in the same position.

H. Zubkoff, Service Engineer

Incomplete Fuel Transfer (UH-2)

To avoid the possibility of incomplete transfer of auxiliary fuel, extreme care should be taken when reassembling the desiccator after replacing the desiccant. If the desiccator is not properly reassembled, the air flow through the desiccator could be restricted. This might cause incomplete transfer of fuel from the auxiliary tanks. When changing the desiccant, all desiccator parts should be carefully inspected. The end covers (see illustration, 6 and 13) should be replaced if damaged; the gaskets (7 and 8), sieves (10) and pads (9) should always be changed, regardless of condition. The end covers, if serviceable, should be thoroughly cleaned with solvent conforming to Federal Specification PS-661. (All precautions relative to the use of toxic solvents should be observed, of course.) Do not use solvent to clean the sleeve (12) as chemicals will fog or discolor the clear plastic. Wipe the desiccator sleeve with a clean, lint-free cloth. When filling the sleeve with the new desiccant, tap the crystals down to obtain complete immobility. Disassembly should be accomplished in order of the index numbers, as shown. Assembly should be in reverse order. Tighten the nuts (3) progressively and evenly to prevent cocking the sleeve. Upon installation of the desiccator assembly, make sure the humidity indicator table is visible through the fuel filter access plate on the left side of the fuselage.

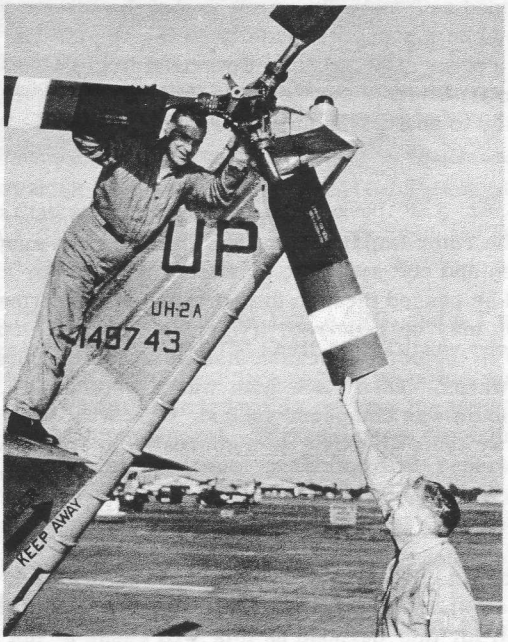
Nomenclature	Part Number	Nomenclature	Part Number
1. Protective plug	RB15257-3	8. Gasket	RA8090
2. Washer	RB8122-1	9. Pad	RA8084
3. Nut	MS20365D1032	10. Sieve	RA8056
4. Washer	AN960C10L	11. Desiccant	RA15989
5. Bolt	RB15922-3	12. Sleeve	RB8083
6. End cover(bottom)	RD8165-1	13. End cover(top)	RD8165
7. Gasket	RA8089	14. Nameplate	RA10491
		15. Screw	AN535-00-2



H. Zubkoff, Service Engineer

Squadrons Report On

SEASPRITE ACTIVITIES



SEASPRITE IN JAPAN— LCdr Grover C. Andrews, left, OIC of Det 1, HU-1, NAS Atsugi, Japan, and Cmdr Robert C. Olive, commanding officer of HU-1, NAAS Ream Field, Calif., look over one of detachment's new UH-2's. The squadron C. O. visited Det 1 to help check out pilots on the turbine-powered helicopter and to get acquainted with men and procedures in the detachment. (USN photo)

USS INDEPENDENCE... Two sailors were rescued by UH-2 crews in separate "man overboard" incidents. One occurred during refueling exercises at sea when a sailor was hoisted to safety by a SEASPRITE piloted by Lt R. M. Helm. Lt J. E. Roth was copilot on the mission and K. A. Sicinski, ADJ3, and C. R. Valentine, ATN3, were crewmen. The other rescue was carried out in Palermo Harbor, Sicily, by a UH-2 piloted by Lt H. A. Backstrom. Lt(jg) P. M. Hoffman was copilot and P. J. Zollo, ADJ3, crewman. The helicopters were both from an HU-2 detachment aboard the Independence.

USS HORNET... Thanks to quick action of a UH-2 crew, a seaman who fell overboard during refueling operations was back aboard the carrier seven minutes after he hit the water. The SEASPRITE was on the flight deck but had not yet been started when the mishap occurred. Three minutes later it was hovering over the swimming sailor and soon he was on his way to safety. The UH-2 crew, from an HU-1 detachment aboard the Hornet, were Lt(jg) Jim Thompson, pilot; Lt(jg) Georgianna, copilot; H. Gatling, AN, and P. L. Bales, ATN3, crewmen.

USS INDEPENDENCE... The crew of a UH-2 recently carried out what is reported to be the Atlantic Fleet's first night helicopter transfer of personnel from a destroyer. The helicopter, from a HU-2 detachment aboard the Independence, was called upon after an urgent call was received from a destroyer. An injured man was in need for medical assistance. The SEASPRITE, which was on normal plane guard duty, quickly made the 47-mile night flight to the ship. Charles R. Beasley, AMH1, directed the pilot, Lt R. M. Helm, into position over the pitching fantail for a hoist pickup. The injured man was in a litter and receiving plasma. For eight minutes the UH-2 hovered while Beasley and Daniel J. McAlee, AN, the other UH-2 crewman, carefully hoisted him aboard, plasma bottles and all. At the same time they continued to give directions to the pilot and Lt J. E. Roth, the copilot. Once the injured man was in the helicopter, Beasley held the plasma bottles during the 10-minute flight back to the carrier while McAlee attempted to keep the bleeding from the man's injured foot to a minimum.

NAAS REAM FIELD... A fisherman who leaped into the water after his boat caught fire was rescued 15 minutes afterward by a SEASPRITE from HU-1 at Ream. The UH-2 on its way to the USS Bennington to begin a one-week cruise when the rescuee was spotted and hoisted to safety. LCdr A. C. Dinnel was pilot of the helicopter. Standing by during the rescue operation was another UH-2 piloted by Lt(jg) Terry Hill.

ON THE WAY— Det 41, HU-4, NAS Lakehurst, N. J., headed for duty aboard the USS Springfield recently. Shown in UH-2 just before takeoff are Lt Carter Moser, OIC of the detachment, and Plane Captain McConnel, AD3.

Det 4's Mountain Missions

Trees, mountains, cliffs and snow—all make for scenic beauty but HH-43B crews from Det 4, WARC, Paine Field, Washington, have been much too close to really enjoy the view. For example, in order to rescue a seriously injured mountain climber, 1stLt Karl G. King recently flew a HUSKIE into the narrow confines of a deep ravine. Then, guided by SMSgt Thomas J. Sternad Jr., a medic who had been lowered to the ground, the pilot maneuvered the helicopter as close to the survivor as possible. The rest of the helicopter crew kept tabs on the cliffs, five feet from the rotors, and on a large tree limb 15 feet overhead as the survivor was hoisted aboard. Lieutenant King then maneuvered the helicopter out of the tight spot and headed for the hospital. Sergeant Sternad gave the climber first aid on the way. Sharing in the hazardous rescue were Capt Ronald L. Bachman, copilot, and TSgt James E. Johnson, hoist operator.

A large tree also figured prominently in another mission involving the rescue of an injured fisherman. This time the HH-43B pilot, Capt Robert D. McDougal, was forced to lower the helicopter almost into the top of the tree so as to bring the cable within reach of the ground. The area was surrounded by other tall trees, some 200 feet high, which the rotor blades were clearing by less than 10 feet. The fisherman was hoisted aboard and the helicopter headed for the hospital. With Captain McDougal were Lieutenant King, copilot; A3c E. H. Doucett, hoist operator; and A1c K. P. Persons, medical technician.

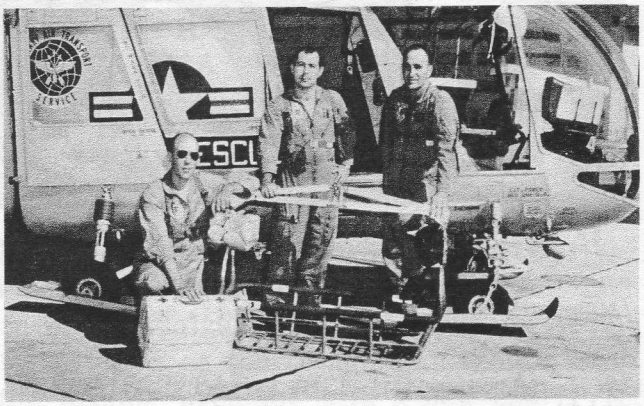
During a third mission the HUSKIE was landed on snow-covered Magic Mountain by Lieutenant King and an injured climber was rescued from the 7,100-foot level. At one time the HH-43B began slipping down the mountainside but a power recovery was made. With Lieutenant King were Captain McDougal, copilot; Sergeant Johnson, crew chief; and A2c David E. Thayer, medical technician.

VMO-1 Rescues Three

While on detached duty, OH-43D crews from VMO-1, MAG-26, MCAF, New River, N. C., rescued two marines and a civilian from shark-infested waters. Saved were the pilot and crewman of a light observation plane which crashed near the USS Okinawa while coming in for a landing. An OH-43D, piloted by 1stLt D. P. Reichert, was loaded with cargo slings at the time. The helicopter landed on the ship, dropped the slings, took aboard Sgt C. W. Revier and Cpl B. Hilmandolar as crewmen, then flew to the crash site. The rescuees were hoisted to the OH-43D from their life raft and taken aboard the ship for medical treatment.

Several days later another OH-43D was on its way from St. Thomas to the naval station at Roosevelt Roads, Puerto Rico, when Capt George G. Evans and his copilot, Capt Jacob W. Moore, intercepted a radio call on SAR frequency between a Coast Guard SA-16 and the naval station tower. A civilian had been sighted in a water-filled boat and rescue operations were underway. Captain Evans joined in the search and, guided by smoke flares dropped from the SA-16, located the boat. The lone occupant was hoisted to safety and flown to shore.

48TH ARSQ In Action



JOB WELL DONE— Shown after mercy mission are, left to right, A1c Jack N. Beckett, A1c Harvey A. Meltzer, and Capt Lonnie C. Luttrell. (USAF photo)

All primary crash equipment was standing by. Overhead an HH-43B from the 48th ARSQ also waited. An unmanned drone, unable to land at its primary base due to bad weather, had been diverted to Eglin AFB and was touching down. Suddenly, the craft veered off the runway and crashed on a nearby highway. Two passing automobiles were crushed, two civilians were killed and another injured. The 4,000 gallons of jet fuel caught fire. Capt Lonnie C. Luttrell, pilot of the HUSKIE, immediately deployed the FSK and TSgt Lewis L. Lemmons and A1c Joseph A. Smith, firemen, grabbed the hose and began fighting the fire. Soon afterward Captain Luttrell was directed to land by one of the ground rescuers at the scene. A woman, driver of one of the cars, had been thrown clear but was injured and in shock. Accompanied by Capt Robert M. Snider, flight surgeon, and TSgt Donald W. Munday, medic, she was placed aboard the helicopter and flown to the hospital. Excellent pilot technique and crew coordination during the first few minutes after the crash were credited with preventing the woman from suffering more serious injuries.

An HH-43B crew from the 48th was also called on recently after a pleasure boat 15 miles at sea radioed that a passenger had become seriously ill and required immediate medical attention. Captain Luttrell again was pilot on the mission. With him was a doctor, Capt Jimmy C. Sheppard; a flight mechanic, A1c Harvey A. Meltzer; and a medic, A1c Jack N. Beckett.

The boat was soon located and Captain Sheppard lowered from the hovering HUSKIE. After examining the patient to make sure he could be moved, the doctor had him hoisted aboard the chopper. The HH-43B then headed for shore and the hospital.

For The Record

Helicopter 59-1543, one of two HH-43B's attached to Det 41, EARC, Loring AFB, Maine, reported to be first in Air Rescue Service inventory to reach 1,000 flying-hour mark.

Det 59, EARC, Andrews AFB, Md., shows impressive use of unit's two HH-43B's. On 31 August, 1963, records 1003:25 total flight time. First aircraft received on 22 May and second on 12 August, 1962.

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 IS THE PURPOSE OF THE SEALER WHICH IS APPLIED IN BEADS OR FILLETS TO THE PARTING METAL SURFACES IN THE VICINITY OF THE ROTOR SHAFT TOWER BEARING?

A. Main purpose is to keep out moisture and protect the metal parts from the moisture's corrosive action. Grease used to lubricate the tower bearings is contained in the bearing area by two lip seals.

F. E. Starses, Service Engineer

Q. (Applies HH-43B, OH-43D, UH-43C) IS IT NECESSARY TO MAINTAIN FRICTION ON THE TAIL ISOLATOR FRICTION DEVICES?

A. Yes. Proper friction must be maintained on the friction assemblies. Too much friction will not allow the isolator to function properly. Too little will allow vibration to build up and cause undue wear of the isolator fitting parts.

W. J. Wagemaker, Service Engineer

Q. (Applies HH-43B) WHAT IS THE CORRECT TORQUE VALUE AND INSTALLATION PROCEDURE FOR THE V-BAND COUPLING BOLTS ON THE COMBUSTION SECTION OF THE ENGINE?

A. The torque value has recently been revised and is now included in T.O. 2J-T53-6 dated 15 May, 63; Section VII, Table of Limits. The approved procedure is to tighten nuts to 200 pound-inches torque. Seat the clamp by tapping the V-band and then release the torque to "ZERO" pound-inches. Tighten to 145-155 pound-inches torque. A forthcoming change to T.O. 1H-43(H)B-2 will also include this information.

H. Zubkoff, Service Engineer

Q. (Applies UH-2) WHAT IS THE PROPER PROCEDURE FOR TESTING THE DAMPER RATE ON DIRECTIONAL CONTROL DAMPERS, P/N 1072-550?

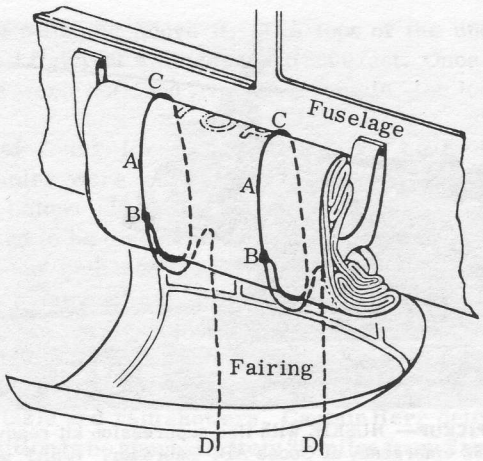
A. (1) Disconnect the K653060-213 rod assembly from the K653071-1 corner crank (station 48). (2) Secure rod K653060-205 so that it will not interfere in any way with the movement of the directional system from the rudder pedals to the 1072-550 damper. (3) Position pedals in the full left extreme. Allow pedal to remain in this position for at least 10 seconds. (4) Attach a 50-pound spring scale to the copilot's left rudder pedal. (5) While holding the pedals in the full left extreme, establish a 10-pound pull with the spring scale. (6) Maintaining a 10-pound pull on the spring scale, remove holding force on the rudder pedals and move through full travel. (7) Repeat steps 3 through 6 three times and determine the average elapsed time for full travel. (8) Elapsed time from full left to full right extremes must be from 3 to 9 seconds. (9) Repeat steps 3 through 7 using a 40-pound force. The average elapsed time from full left to full right extreme is 2.5 to 4.5 seconds. Any deviation from the above elapsed times will be cause for damper replacement. This procedure will appear in the next manual revision.

P. M. Cummings, Service Engineer

Q. (Applies HH-43B, UH-43C, OH-43D, UH-2) WHAT IS THE BEST KIND OF WAX TO USE ON THE ROTOR BLADES FOR WEATHER PROTECTION? WHAT STOCK NUMBER SHOULD BE USED IN ORDERING THIS WAX?

A. Kaman Aircraft Corporation uses a liquid wax called "Wing Wax" which may be ordered in one gallon cans under Air Force stock number 7930-132-5583. Suitable paste wax (MIL-W-18723) may be ordered in one gallon cans under Air Force Stock number 7930-267-5588 and Navy Stock number R7930-267-5588-G600. Actually, any good paste or liquid wax is acceptable provided no cleaner compound or chemical has been added. If wax is used which contains a cleaner it could cause the finish to erode or deteriorate.

N. E. Warner, Service Engineer



Pull A tight... Tie at B... Cut at C... Pull cord at D.

Q. (Applies UH-2) WHAT PROCEDURE MAY BE USED TO EXPEDITE THE STOWAGE OF THE EMERGENCY DITCHING BAGS?

A. The task of bag packing and stowage can be simplified by following this procedure: (a) After installation of the upper and lower girt, girt anchor straps and prior to torquing the bolts, pass two pieces of pre-waxed electrician's harness cord (approximately 10 feet in length) down between the fuselage skin, upper and lower girts and flotation fairing seal. The two cords, one at each end of the girt strap, are now between the fuselage and ditching bag. (b) Leave approximately four feet of slack cord at each end. (c) Torque the girt anchor strap bolts (35-40 pound -inches). (d) Fold the bag in accordance with NAVWEPS 01-260HCA-2-2. (e) Pull some slack in cords below the lower girt anchor straps. (f) Tie upper slack end of cord to slack hanging below bag. This will hold the bag tightly folded until ready to secure the fairing. (g) As the fairing is closed and prior to securing, cut both cords with a pair of diagonal cutters, using caution not to damage bags. (h) After the fairing is secured, pull the loose ends of the cords hanging below the fairing and the entire cords will come out. CAUTION - Use only electrician's pre-waxed harness cord, or cords of the same softness. This will prevent any possibility of damaging the bags when the cord is withdrawn. Wire should never be used.

R. W. Spear, Service Engineer

Q. (Applies HH-43B) WHEN TROUBLED WITH AN OIL LEAK FROM THE TRANSMISSION BREATHER, WHAT OTHER CORRECTIVE ACTION CAN BE TAKEN IF REPLACEMENT OF THE 906-17107 O-RING SEAL FAILS TO STOP THE LEAK?

A. If replacement of the 906-17107 O-ring seal fails to stop the leak, chances are that an older configuration breather (P/N A800) is installed on the transmission. Replace the leaking breather with a new one (P/N A800B). The latter has a long stem which enters the transmission housing and extends beyond its inside surface. Oil which is splashed up against the inside surface of the housing will run down the breather stem and then drip off and down into the lower part of the housing. The older breather has no stem and it is possible for oil to find its way out.

F. E. Starses, Service Engineer

Q. (Applies UH-2) IS A SPECIFIC TORQUE REQUIRED WHEN INSTALLING A IN253 STUD MOUNTED DIODE?

A. Yes, a torque of 15 pound-inches is required. Good contact between the semiconductor and the heat sink requires adequate pressure between these two surfaces for efficient heat transfer.

J. E. Kucka, Service Engineer

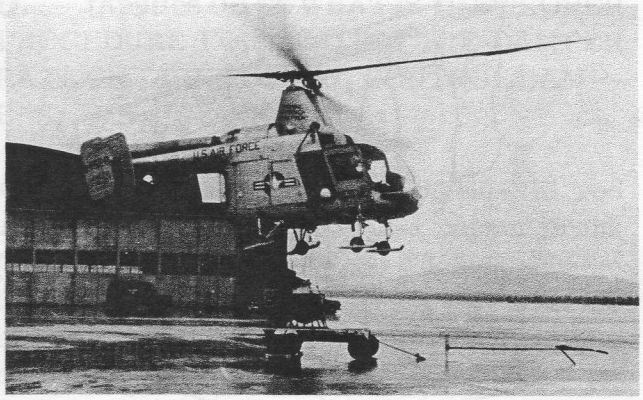
Q. (Applies HH-43B) WHAT CONSTITUTES "EXCESSIVE OIL CONSUMPTION" IN THE T53-L-1B ENGINE?

A. If the engine consumes more than one quart of oil an hour, this is considered excessive consumption and the engine should be changed. If the engine consumes less than one quart of oil per hour it is not necessary to change the engine PROVIDED (a) there is no evidence of oil seepage at the compressor housing split lines or (b) there is no smoke or oil mist in the cabin heat system. If one or both of these conditions exist, the maximum allowable oil consumption is .14 gals (approximately 1-1/8 pints) per hour. If consumption is over this amount, the engine should be changed.

H. Zubkoff, 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.*

SCRAMBLE— Pararescuemen of the 54th Air Rescue Squadron (MATS), Goose AB, Labrador, rush to HH-43B HUSKIE.



FSK PICKUP— HUSKIE with fire suppression kit ready to cover TF-102 emergency at Goose AB, Labrador. (USAF **photos)**

HH-43B MISSIONS IN THE FAR NORTH

Goose Air Base

"Radar and radio contact with an F-102 has been lost 17 miles north of Goose." The rescue center controller of the 54th Air Rescue Squadron jotted down the message and notified Maj Maynard R. Rhoades, operations officer. A quick check with the GCI site serving Goose AB confirmed that the deuce had disappeared from the radar scope. His last reported altitude was 5,000 feet. Major Rhoades punched the scramble horn to alert the HC-54 crew. The HH-43B HUSKIE was also alerted for action. A quick check of the weather revealed an indefinite ceiling with limited visibility in rain. A plot of the crash position showed the F-102 had disappeared in the mountainous terrain north of Goose. The HUSKIE was then scrambled and proceeded to the crash site under radar control.

At this time, the crash phone in the control center rang again. A TF-102 had declared an emergency (shades of a canned mission). The pilot reported that his windscreen had broken. The aircraft was still 100 miles from Goose. At 20,000 feet, the freezing rain entering the cockpit felt like BB pellets. The helicopter was directed to return to Goose to cover this emergency while the HC-54 continued the search for the lost aircraft. The helicopter returned to pick up the fire suppression kit and establish an orbit at the airfield to await the arrival of the emergency. Meanwhile, LtCol Ernest L. Reid, squadron commander, who was two hours out of Goose enroute to Detachment 1 at Thule AB, Greenland, was requested to return to Goose to assist in the search for the lost aircraft. His aircraft immediately returned at METO power to start searching for the deuce. An HU-16B from Base Flight was also requested to proceed to the search area.

On the eighth leg of his expanding square search, Capt Victor E. Swanson and crew on the first HC-54 spotted the wreckage of the F-102 on the side of a hill. There was no sign of life amidst the smouldering wreckage. During this period of time, the TF-102 with the smashed windscreen made an emergency landing at the airbase. One of the pilots suffered frostbite during descent in the freezing rain and was taken to the hospital for treatment.

After intercepting the TF-102 at the airfield, the HUSKIE landed to refuel. However, the crew was immediately scrambled when word was received that the wreckage was located. 1stLt Larry A. Nitz and crew, plus two pararescuemen, departed for the crash site. Visual contact with the HC-54 was immediately established and the chopper was directed to the wreckage by Captain Swanson who acted as on-scene commander until Colonel Reid arrived. The terrain was so rugged that a landing at the crash site could not be made. The two pararescuemen were lowered on the hoist while the helicopter hovered above fifty-foot trees on the side of a hill. After discharging the pararescuemen, the helicopter surveyed the crash site for signs of life. Nothing was found. After an intensive search of the area the pararescuemen found that the pilot had not ejected from the aircraft. Colonel C. F. Macomber, commander of Goose Air Defense Sector, expressed his appreciation in a letter to Headquarters ARS for the quick response and support of the 54th Air Rescue Squadron. The ability of the 54th Air Rescue Squadron to perform rescue coverage for two emergencies that occurred almost simultaneously dramatically illustrated the fact that Air Rescue Service may be relied upon to perform its mission even under the most demanding circumstances.

Thule Air Base (Det 1)

Commander Erik W. O. Clausen, Danish Liaison Officer for Thule AB, Greenland, requested through the base commander that a critically ill Eskimo girl at Savigsivik, 65 miles southwest of Thule, be air evacuated to Thule. Due to a wind warning and alert commitment take-off was delayed until 2035. Flying the mission were Capt Grant D. Kerber, pilot; Capt Joseph T. Herr, co-pilot; A1c Charles G. Moinichen, crew chief; Commander Clausen, and Dr. Johannes Stander, local Danish Doctor.

Although the winds were not forecast to be too strong, the first leg to Camp Tuto, 10 miles southwest of Thule, required 15 minutes. The cloud cover over the icecap was completely overcast and right on the surface, neces-

sitating climbing above it. The tops of the undercast required flying at altitudes up to 8000 feet. Once on top, vectors were obtained from P-Mountain, the local GCI site.

After flying for approximately one hour, several small holes were found in the undercast with a glacier visible below. Two attempts to descend through these holes had to be discontinued because of mountains along the descent path and the holes closing up. After circling for 10 minutes a slightly larger hole was found over the edge of the fiord and the glacier. Descent was accomplished through this hole without difficulty. The base of the overcast was from 1000 to 2000 feet, ragged with drizzle and rain showers. Captain Herr determined our position to be approximately 25 miles from Savigsivik. Flight was continued along the edge of the cliffs, mountains and open water as the clouds still covered the ice-cap and mountain tops. Approximately 10 miles from

Savigsivik all factors were considered and it was determined we would have fuel enough to land and return to Thule. Landing at Savigsivik was accomplished without incident, although moderate turbulence was encountered during the approach. Approximately 30 minutes were spent on the ground while the patient was prepared for the flight back and the doctor obtained her medical history. Climb out was accomplished on instruments through a 3000-foot-thick overcast. Once on top, P-Mountain again gave vectors back to Thule. We had to climb to 7000 feet to top the clouds. Because of the stronger-than-anticipated tailwind, the return flight required only 45 minutes as compared to approximately an hour and 45 minutes for the flight to Savigsivik.

Doctor Stander stated the girl was critically ill and probably would have died in the near future if she hadn't received medical attention. At the present time the cause of her illness is undetermined. A base flight C-47 flew as escort for the mission.

MERCY FLIGHT PARTICIPANTS— Shown after hazardous flight are A1c Charles G. Moinichen, Capt Grant D. Kerber, Commander Erik W. O. Clausen, Dr. Johannes Stander and Capt Joseph T. Herr. (USAF photo)

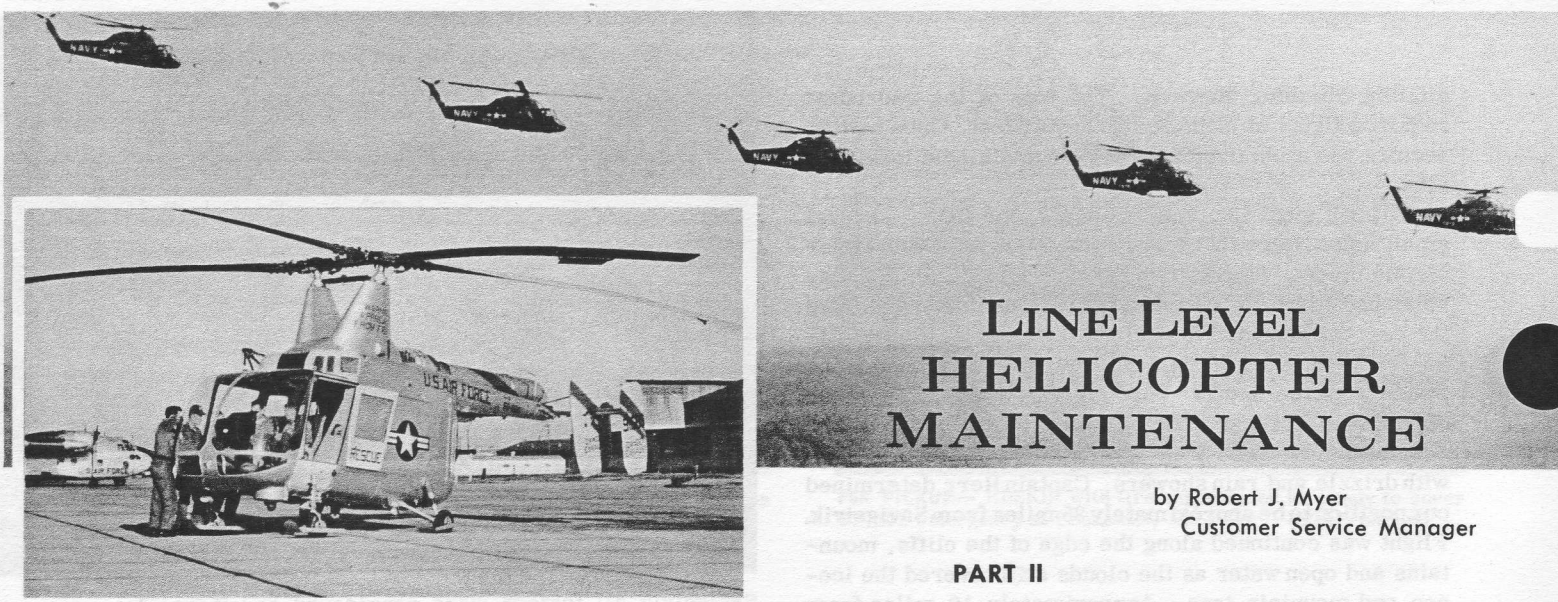
Maintenance Lauded

An Air Rescue Service record was set recently at Det 26, CARC, Selfridge AFB, Mich., by a T-53L1B engine, LE00224, installed in the unit's HH-43B helicopter. This engine passed its 800th hour mark on October 28, 1963 and is the first engine installed in an ARS helicopter to attain this record without a major or minor overhaul. The only maintenance required, other than periodic inspections, was retorquing one torque meter clamp at 300 hours, replacement of 6 vaporizer tubes (t-canes) at 600 hours and replacement of one overspeed governor at 562 hours.

No discrepancies were discovered during the last inspection accomplished at 797 engine hours. The highest vibration indicated on the vibration analysis run after inspection was 1.6 mils from number 3 pickup using the 200 cps filter. Based on the result of this inspection, the time between overhaul has been extended to 960 hours and the detachment maintenance personnel are confident that LE00224 can attain this with no difficulty.

Capt Price S. Summerhill, detachment commander, and MSgt Roland J. Blier, maintenance superintendent, cited the outstanding preventative maintenance performed by SSgt Thomas E. Goodwin and the other maintenance personnel assigned, as being responsible for the long life of this engine.

800 HOURS— SSgt T. E. Goodwin, engine mechanic, and A1c R. E. Renard, crew chief, of Det 26, CARC, Selfridge AFB, Mich., proudly display sign indicating that the T-53L1B engine installed in HH-43B 59-1574 has attained 800 hours and is still going strong. Capt P. S. Summerhill, detachment commander is in the cockpit after landing from the record-setting flight. (USAF photo)



LINE LEVEL HELICOPTER MAINTENANCE

by Robert J. Myer
Customer Service Manager

PART II

GOOD MAINTENANCE PRACTICES

This section will deal with those areas of basic Line Level Maintenance that are often taken for granted and as a result cause much equipment misuse and abuse. The major categories to be considered are: Routine Maintenance; Non-Routine Maintenance; and General.

Routine Maintenance

This category encompasses those day-to-day maintenance tasks that consume the majority of our maintenance man-hours. For the most part, their application to helicopters does not vary greatly from the corresponding handling of fixed-wing aircraft; however, differences do exist and are highlighted when appropriate. The subjects to be considered in this category are: Ground Handling; Servicing; Inspections; and Part/Component Replacement.

Ground Handling - under this heading are included helicopter movement and handling, such as towing, mooring and storage.

Before proceeding, however, it seems appropriate to point out that a key word to keep in mind when working around any operating machine is RESPECT. Respect not only for the machine and the fact that it can be damaged, but also for the fact that personnel may be injured if they become careless. All aircraft have potential personnel hazard areas, both when static or semi-static, and operating. Possible disturbance while resting on jacks or suspended by hoists, as well as inadvertent action of a component by a fellow worker, imposes the requirement to be duly cautious when working in related vulnerable areas. Ground operation of fixed-wing aircraft requires extreme care to avoid danger zones created by whirling propellers on reciprocating engines and high negative inlet pressure zones of turbine engines. These concerns also apply to an extent on turbine-powered helicopters, but the most obvious helicopter hazard areas are in the vicinity of whirling main and tail rotor blades. Tail rotors maintain a fairly fixed disc area relationship with the aircraft and warrant similar treatment to fixed-wing aircraft propellers. Main rotor disc movements, however, are governed by control input as well as wind gusts due to their normal teetering and coning action and can be expected to vary several feet from a nominal reference plane. The degree of proximity to the ground varies with the slope and roughness of the terrain as well as the size and specific configuration of the helicopter involved. The best practice to observe is to stay clear of whirling disc areas and out of line of blade tip paths whenever practical; and abide by officially established approach instructions for the respective model. When in doubt insure that blade-to-ground clearance exists and then approach operating helicopters from the front, making certain that your movements and intentions are known by the person at the controls.

RESPECT these hazard areas — your safety depends on it!

Towing or Pushing - the act of moving the aircraft on the ground with other than its own power.

The same restrictions apply to helicopters as specified for fixed-wing aircraft. However, due to the usually higher center of gravity (C.G.), more caution relative to speed, turning radius, and brake application is required. Another important difference is consideration of damage that could be incurred to flapping rotor blades if the helicopter is towed over uneven ground. Short tows over rough surfaces can be made with care and reduced speed. Longer runs should be planned ahead and accomplished with blades removed or adequately supported. Another rotor blade concern while towing or manually handling helicopters is what is commonly referred to as "hangar rash," caused when blades are brought into contact with hangar doors or walls, although damage is equally serious if blades inadvertently strike other stationary or moving objects such as aircraft or ground vehicles. The age-old bugaboo of insuring that landing gear centering pins are unlocked also applies to helicopters. Many man-hours are lost unnecessarily replacing these easily overlooked items.

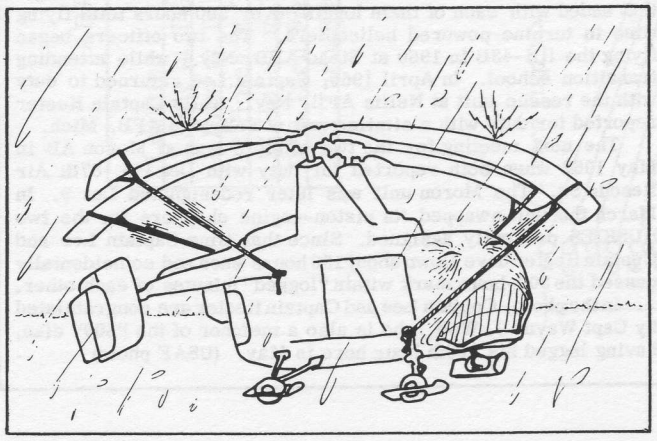
Mooring - the act of securing an aircraft for various periods of time.

As indicated by a recent Navy shipboard report, the degree of restraint required is not only related to the length of time but also to the circumstances. A helicopter spotted on the hangar deck near the #1 elevator door had chocks in place, standing by to be taken up to the flight deck. The ship was maneuvered in such a way as to cause the helicopter to start to roll. It pushed the chocks along, climbed the elevator door ramp, passed between the guard rails and plunged into the sea.

Again one of the major differences between fixed-wing aircraft and helicopters that also has a bearing on this item is the relatively higher C. G. Long-term mooring or mooring in high winds should compensate for this condition by securing adequate lines to the highest tiedown points. On sea-going vessels, pitching and rolling decks further aggravate helicopter turn-over tendencies requiring even greater high tiedown precautions.

Rotor blade susceptibility to injury when subjected to high or gusty wind conditions is similar to that mentioned under towing. The degree of restraint or support usually varies with the anticipated conditions, but it is obviously the wiser course to err on the safe side. The degrees of rotor blade mooring are — no restraint other than built-in teetering or flapping stops; blade tip tiedown provisions; supplementary teetering or flapping restrictors; blade support struts or saddles; and, in extreme weather or long duration mooring, rotor blade removal. Tail rotor blades on helicopters so equipped are subject to much the same considerations, although certain models provide more built-in restraining accommodations than others.

It must also be noted here that incorrect rotor blade mooring or tiedown practices can cause as much or more damage than insufficient security. The prime example is blade tip tiedown ropes secured with inadequate slack. This is especially harmful in periods of dampness or high humidity when rope shrinkage can take place. The pull of the shrinking rope and resultant excessive blade droop can easily preload the blade structure beyond safe limits, resulting in permanent damage. Much emphasis must be stressed relative to the proper handling of rotor blades, especially during mooring or folding. The handling or securing devices should be carefully applied in the manner and to the portion of the blade specified. As indicated in a related article in the August '61 issue of Kaman Rotor Tips, rotor blade structure is designed primarily to withstand loads imposed while rotating. A blade at rest, deprived of the stiffening effect of centrifugal force, is most susceptible to handling or static types of damage.



Another point related to short-term mooring that is peculiar to helicopter operations is the possibility of problems being created by the type and location of tiedowns during rotor turnup, prior to take-off or shutdown. This concern is commonly known as "rig resonance" and, due to the nature of operation, is more bothersome aboard seagoing vessels. "Rig resonance" results from the same rotor imbalance and ground contact initiating causes as ground resonance but is further influenced by unnatural tiedown restraints. Semi-rigid or uneven tiedown to points on the structure above the landing gear invites rig resonance and resultant helicopter damage, if in place during rotor turnup or shutdown. Some models have runup tiedown points located above the landing gear oleo action but avoid difficulty due to their geometric relationship to the rolling axis of the helicopter; others utilize the more positive approach of providing tiedown points below the landing gear oleo action to allow normal motion without undue restraint. Consideration has also been given to the use of resilient materials such as nylon, but in any case it is strongly advised that the same type of tiedown be applied to both sides when rotor operation is required while a helicopter is tied down. As a related point, when ground roughness or resonance occurs, consideration should also be given to proper servicing of tires and landing gear shock struts, as well as correct blade damper action. This applies whether the helicopter is tied down or not.

Caution regarding removal of control locks is equally important on helicopters as on fixed-wing aircraft; however, the seriousness of insuring that all tiedowns are removed before helicopter lift-off cannot be overemphasized. One of the most common violations listed in helicopter accident statistics is the undetected and, therefore, unreleased tiedown. Although helicopters and pilots vary in control capability, very few have survived the sudden imbalance caused by a lift-off with one tiedown unreleased. Removal of tiedowns and teeter or flapping locks from rotor blades should also be stressed for obvious reasons and loose gear should be secured to avoid possible entanglement in the rotors.

Another caution regarding mooring is to use only those points specified for the tiedown and with loads applied in the recommended directions. Arbitrary application of tiedown loads to points or in directions other than specified can easily result in structural damage which is sometimes not readily apparent. And finally, always insure that adequate mooring gear is taken along on longer flights in the event that circumstances require its availability.

Storage - the act of caring for systems or components during extended periods of inactivity.

Very little in this area of helicopter ground handling differs from fixed-wing considerations; however, due to the unique construction of helicopters, certain requirements warrant increased emphasis. When extended periods of unhangared storage are anticipated, in addi-

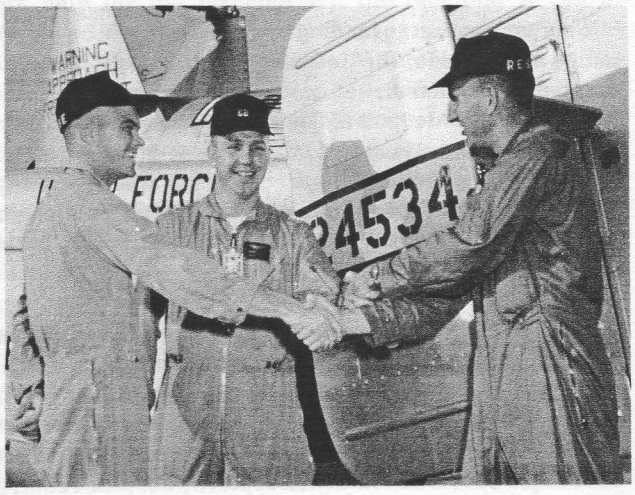
tion to specified preservation practices, all the provided covers should be employed to protect exposed control linkages, large bubble areas and materials susceptible to weather damage. It is good practice to remove rotor blades to avoid handling injury or physical deformation that may result from long periods (two or more weeks) in a static droop attitude. All procedures relative to engine and drive system runup or preservation should be closely followed to avoid corrosion injury to these costly components. On the other hand, application of surface preservation materials should be done with appropriate discretion. Sloppy or excessive application of preservation materials will consume additional man-hours unnecessarily when the system or component is reactivated. The nature and extent of preservation should be compatible with the local environment and length of anticipated storage period.

> Treatment of today's removed components can greatly influence tomorrow's aircraft availability.

Although the relationship between the Ground Handling storage information presented above to "preservation and packaging" in general can be qualified, there appears to be enough overlap to justify pursuing the latter subject here. As many of you are well aware, the dollar value of spare major aircraft components, especially those on helicopters that require periodic replacement and overhaul, make up a very significant portion of major system procurement contracts. In many cases procurement personnel's judgment as to actual operational requirements is necessarily influenced by the funds available. This all adds up to the obvious fact that unless removed components are properly preserved and packaged, not only will a substantial dollar loss result, but in all probability the mission for which the basic system was procured will be jeopardized. As indicated during a 1960 overhaul conference sponsored by BuWeps and the NAS Jacksonville O&R Department, many costly components are received from operating activities without proper records, or minus detail parts; some are inadequately preserved or poorly packaged, resulting in complete component loss in many instances. Related details are also presented in an August '60 Kaman Rotor Tips article entitled "Sunburn and Corrosion," which describes an HOK-1 transmission received at the overhaul facility "in an unsealed, wooden crate — and no preservation measures of any kind taken." Needless to say, the transmission was a total loss! Even when the proper containers are used, slipshod or careless packaging and securing causes much damage and loss. In summary, maintenance and supply personnel must recognize the importance in treating removed components with the same care and respect as those in a Ready For Issue status. Removed component recommended treatment:

1. Accomplish specified preservation procedures, including those involving requirement for runup while installed.
2. Insure that all applicable parts and covers are in place. (Withholding parts can slow down overhaul processing.)
3. Secure component in correct, serviceable container, insuring that all mounts, supports and pads are properly installed in accordance with applicable handbook instructions. (Many cases of component damage have been reported due to improper securing or placement of supports. Helicopter rotor blades are especially vulnerable in this respect.)
4. Service container as specified, insuring that adequate quantities of fresh desiccant are provided and moisture-warning indicators replaced as necessary.
5. Bring affected service records up to date, including total time, time since overhaul and specific reason for removal; and package with component in provided compartment.
6. Secure cover, insuring that all fasteners and gaskets are serviceable and in use.
7. Place container in hands of appropriate supply personnel for required processing back to the overhaul facility.

500-Hour Club



Moron AB Spain - Two helicopter pilots assigned to Det 9, AARC, here simultaneously joined the "HUSKIE 500 Club" recently.

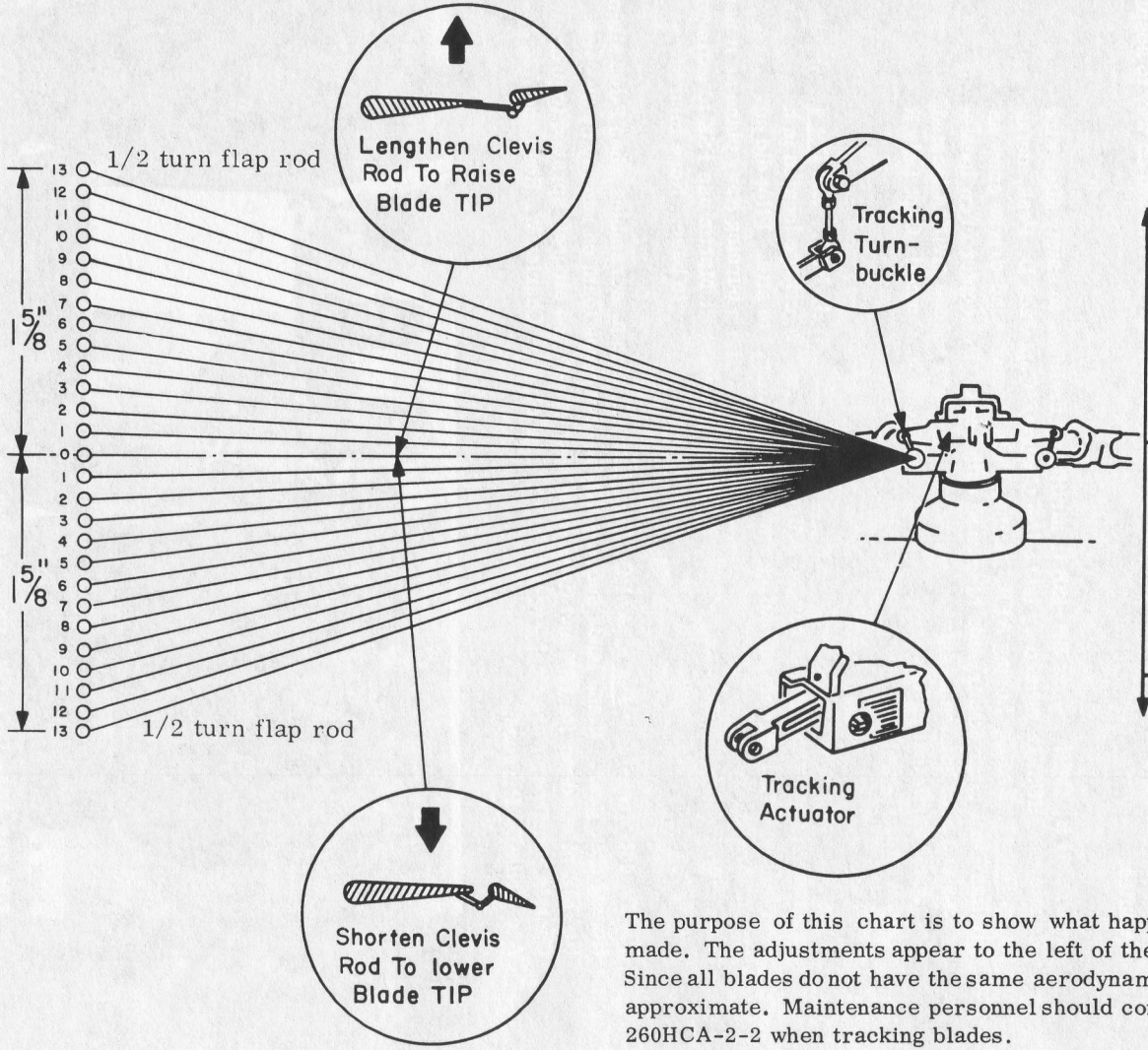
Capt Robert E. Lee, detachment commander, and Capt Owen A. Heeter, operations officer, were pilot and copilot on a flight that ended with each of them logging over 500 hours total flying time in turbine-powered helicopters. The two officers began flying the HH-43B in 1960 at Stead AFB, Nev., while attending transition school. In April 1960, Captain Lee returned to duty with the rescue unit at Nellis AFB, Nev., while Captain Heeter reported for duty with a similar unit at Selfridge AFB, Mich.

The next meeting for the two officers was at Moron AB in May 1962 when both reported for duty with Det 1-5, 67th Air Rescue Sq. The Moron unit was later redesignated Det 9. In March the unit swapped its piston-engine choppers for the two HUSKIES presently assigned. Since that time Captain Lee and Captain Heeter have flown about 150 hours each and coincidentally passed the 500-hour mark within "logged" minutes of each other.

In the photo, Captain Lee and Captain Heeter are congratulated by Capt Wayne J. Wolf, who is also a member of the "500" clan, having logged his 500th hour here in May. (USAF photo)

UH-2 TRACKING CHART

ADJUSTMENT			RESULT	
Location	Number of Blades Adj.	Tracking Actuator Travel	Movement at Blade Tip	Rotor Speed % Autorotation
1 Hole at Turnbuckle	1	5°	1/8 inch	N/A
1 Hole at Turnbuckle	4	N/A	N/A	N/A
13 Holes at Turnbuckle	1	60° From Neutral	1-5/8 inch	N/A
13 Holes at Turnbuckle	4	N/A	N/A	3%
1/2 Turn Flap Control Rod Clevis	4	N/A	N/A	3%
1/2 Turn Flap Control Rod Clevis	1	60°	1-5/8 inch	N/A



DESIRED Torque Indicator 15-17%
Rotor R.P.M. 93%

By Bringing Rotor Tip Path Plane UP Rotor R.P.M. DECREASES In Autorotation	By Bringing Rotor Tip Path Plane UP Torque INCREASES
By Bringing Rotor Tip Path Plane DOWN Rotor R.P.M. INCREASES In Autorotation	By Bringing Rotor Tip Path Plane DOWN Torque DECREASES

The purpose of this chart is to show what happens when autorotation and tracking adjustments are made. The adjustments appear to the left of the center line of the rotor hub; the results to the right. Since all blades do not have the same aerodynamic characteristics, the results of the adjustments are approximate. Maintenance personnel should continue to use the applicable sections of NAVWEPS 01-260HCA-2-2 when tracking blades.

Huskie Happenings

...Four minutes after ejecting from F-100 and landing in palm tree, pilot is rescued by HUSKIE crew from ARSQ 58, Wheelus AB, Libya. HH-43B maneuvers in dense growth of trees so pickup can be made. Rescuee, suspended 40 feet above ground by shroud lines, lowered to ground.... F-106 pilot rescued from burning plane by HH-43B crew from Det 41, EARC, Loring AFB, Maine. HUSKIE, with 1stLt Joseph T. Connell as RCC and 1stLt Bruce Duffy as co-pilot, lands near crash site 20 miles from base. SSgt James Gonyea, aeromedic, and SSgt Duncan Calcote, fire rescue technician, free pilot from flaming wreckage as Lieutenant Duffy and A1c Rick Suszczewicz, fire rescue technician, prepare litter. Sergeant Gonyea gives first aid on trip back to base hospital. Entire mission time—26 minutes.

...Just before midnight, Det 5, WARC, at McChord AFB, Wash., scrambles HH-43B in fog and haze after fighter pilot forced to eject from crippled aircraft. Proceeding to site with aid of fix supplied by RAPCON, Capt Edwin A. Henningson, RCC, inches HH-43B down between tall trees at crash site. A1c John G. Atkins and A2c Ronald B. York, fire rescue technicians, search unsuccessfully for pilot. Helicopter takes off and locates injured pilot soon afterward in heavily wooded area. SSgt George Williams, medic, gives first aid on way to hospital. Entire mission time, 15 minutes.

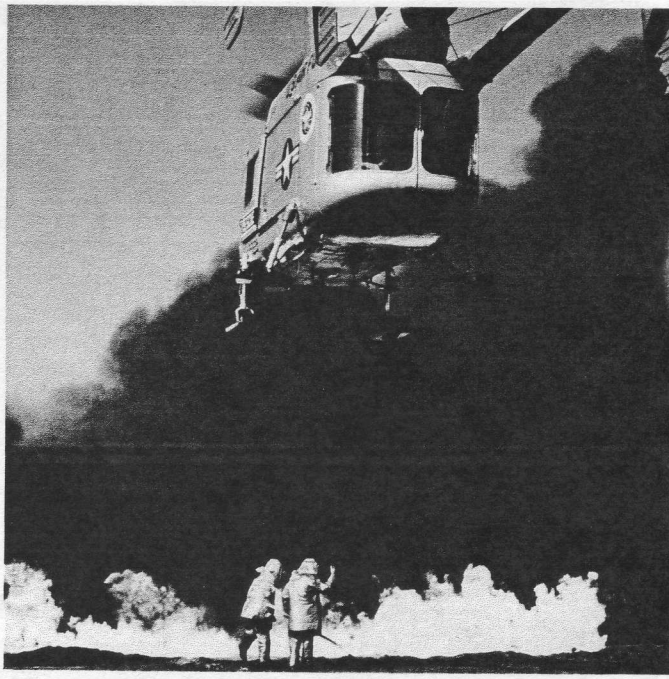
...Crew from Det 12, WARC, George AFB, Calif., uses HH-43B to airlift two civilians to safety after single-engine plane crashes in Tehachapi Mountains. HUSKIE piloted by 1stLt Jim Crabbe. Capt Jack D. Peak, detachment commander, co-pilot.... HH-43B from Det 41, EARC, Loring AFB, Maine, flies through wind-driven snow and rescues hunters—two airmen and a civilian—lost after countryside blanketed with snow. Helicopter crew locates airmen, lost overnight, by following tracks and both hoisted to safety. Sling again used to rescue civilian located later on mountain. Among Det 41 personnel participating in search were 1stLt Joseph T. Connell, Capt Dale R. Tyree, 1stLt Wilson T. Arnold and TSgt Walter G. Coffman.

...HH-43B crews from ARS Det 43, Griffiss AFB, N.Y., and Det 44, Westover AFB, Mass., in night and day search for F-86 down in rugged Adirondack area. Wreckage located in heavily wooded area by Det 44 crew and both helicopters lower investigative and other personnel to site. Pilot did not survive crash.... HH-43B crew from Det 7, AARC, Torrejon AB, Spain, scrambles and follows burning Navy plane as it bellies into plowed field. Capt Bruce Hepp lands HUSKIE and A2c Paul Scarpa and Paul R. Martin use FSK to extinguish engine fire. Sgt Ruben Garza gives three Navy men medical checkup while on way to base. None injured.

...HH-43B crew from Det 8, AARC, Zaragoza AB, Spain, scrambles when F-102 attempts landing at dusk with malfunctioning nose gear. Plane lands successfully but overruns foam on runway by 30 yards. Capt Richard Schrieber, HUSKIE pilot, deposits FSK and firemen at nose of 102 and aircraft sprayed to prevent fire from friction. With Captain Schrieber were Capt Frank Schnee, copilot; SSgt Charles W. Rose and A2c Joseph E. Walenta, firemen; and A1c Arlin E. Parsons.

RIPE OLD AGE— On 8 Oct. 1963, HH-43B 59-1549 assigned to Det 5, WARC, McChord AFB, Wash., attained the "Ripe Old Age" of 1000 hours. Capt E. A. Henningson, Det 5 commander, congratulates SSgt J. F. Glenn, 549 crew chief, for a job well done. Other detachment members shown are, front row, left to right, MSgt D. R. Pavel, A2c J. E. Walker, SMSgt H. J. Luty, SSgt H. M. Lord. Rear row, 1stLt D. M. Welsh, Capt W. A. Luther, A1c G. H. Twiggs, TSgt E. Hagerman, A2c R. H. Landry, Capt H. A. Solbert, Capt W. K. Davis. (USAF photo)

100TH EMERGENCY——Det 58, EARC, had its 100th actual emergency mission for this year on 11 October. The detachment, a member of the Brookley AFB team since June, 1957, has had 188 missions and saved seven persons since October 1961. Members of the 100th mission crew are, left to right, SSgt L. M. Bynum, SSgt G. S. Lamont, A1c N. B. Tenney, 1stLt F. M. Espiau, SSgt T. C. Felts. (USAF photo)



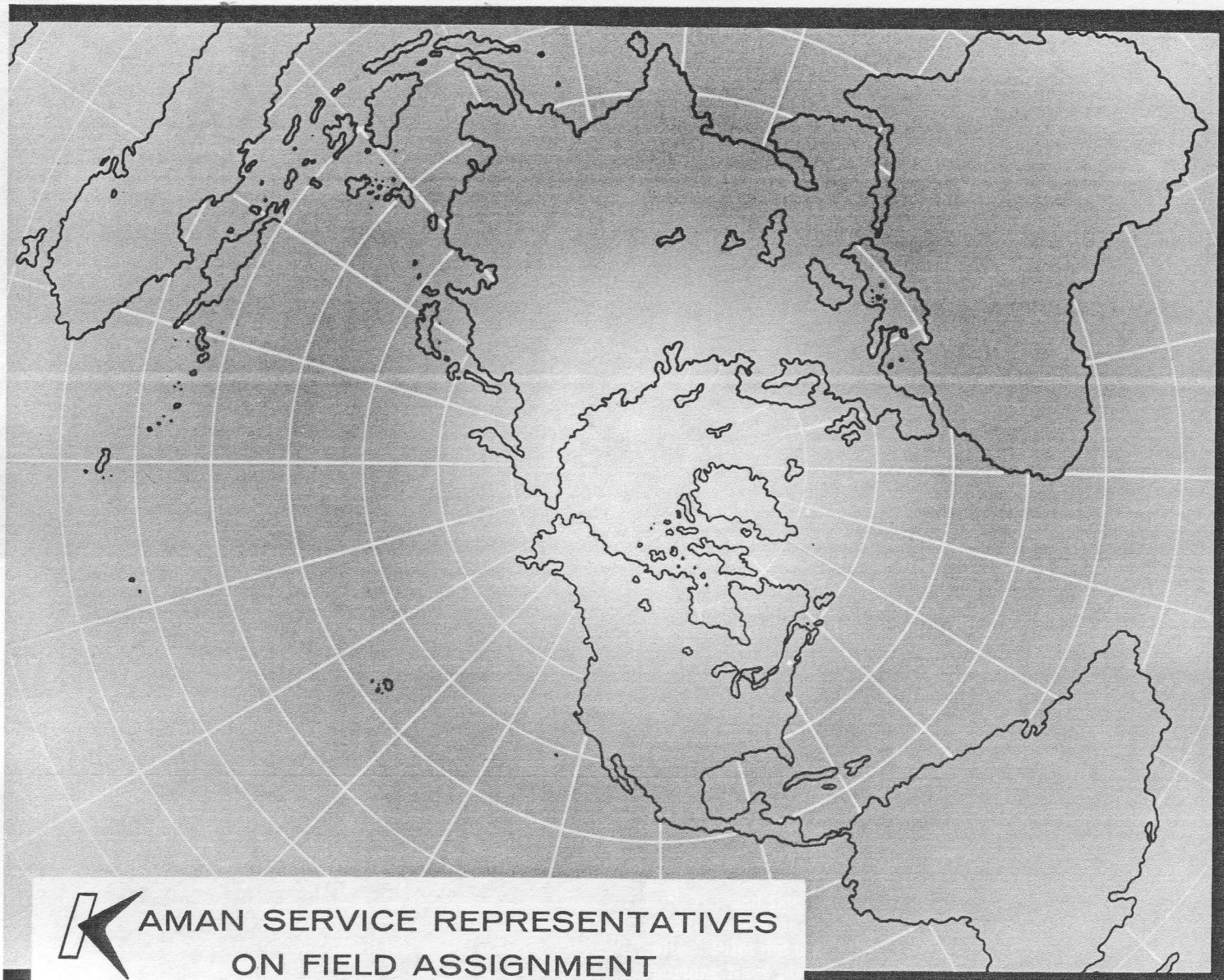
"KNOW—HOW" DEMONSTRATED——HH-43B crew from Det 46, EARC, Suffolk County AFB, N. Y., demonstrates air-to-ground fire rescue techniques before an estimated crowd of 3,500 during a recent Fire Prevention Open House Program at the base. (USAF photo)

COMMENDATION— BrigGen A. N. Williams, left, ARS commander, presents Air Force Commendation Medals to Capt R. E. Lee, commander of Det 9, AARC, Moron AB, Spain, and Capt O. A. Heeter, operations officer, for their part in Moroccan flood relief mission last January. Over 50 survivors were rescued and 4200 pounds of food airlifted to stranded Moroccans. Recently, while on the same flight, Captain Lee and Captain Heeter each logged their 500th hour in the HH-43B. (USAF photo)

NDANG RESCUE DRILL——Air national guardsman is lifted to safety of HH-43B during water rescue practice. Thirty guardsmen and their regular Air Force counterparts at Grand Forks AFB, N. D. participated in the realistic drill which included leaping into the lake while fully garbed in flight gear. Assisting, and also gaining valuable knowledge regarding water procedure, were members of ARS Det 21, CARC, which is stationed at Grand Forks. (NDAKANG photo)

1000TH HOUR—Capt W. J. Zimmerman, Jr., assigned to Det 42, EARC, Dow AFB, Me., logged his 1000th hour in the turbine-powered Kaman HH-43B on 16 Oct., 1963. Captain Zimmerman, who has been flying the HUSKIE since September 1960, will receive KAC's new award in recognition of his achievement. Shown greeting him after his 1000th hour landing is Capt G. M. Marks, detachment commander. (USAF photo)

FISHED FISHERMEN——Two fishermen, stranded on a mud flat, were hoisted to safety by an HH-43B crew from Det 58, EARC, Brookley AFB, Ala., after their plight was discovered by a truck driver crossing the Mobile Bay Causeway and reported to the Coast Guard. Rescuers and rescuees are, left to right, Capt H. Gates, H. P. Beck, E. R. Sturgis, SSgt W. Fulford, Capt F. Lockhart, and SSgt G. Lamont. (USAF photo)



KAMAN SERVICE REPRESENTATIVES ON FIELD ASSIGNMENT

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

WILLIAM C. BARR
Morocco

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

HORACE F. FIELD
Burma

CLINTON G. HARGROVE
Pakistan

DARRELL HEICK
Colombia

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.
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.

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.
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TERRELL C. TURNER
Thailand

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.