

# KAMAN *Rotor Tips*



*P. 14 rescue*

**KAMAN AIRCRAFT CORPORATION**

**PIONEERS IN TURBINE POWERED HELICOPTERS**

**JUNE-JULY, 1963**



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## THE COVER

*Surrounded by scenic beauty of Swiss Alps, HH-43B HUSKIE shows its high altitude capabilities during recent demonstration. For story see page 12.*

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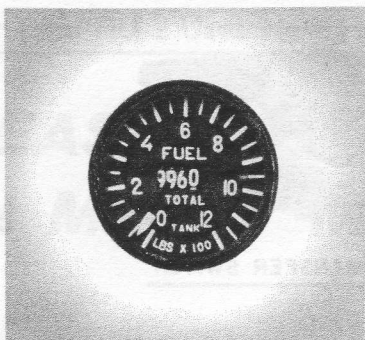
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# UH2A/B FUEL QUANTITY MEASURING SYSTEM

by Robert W. Olsen  
Service Engineer  
Field Service Department



The capacitance type fuel quantity measuring system in the UH-2A/B SEASPRITE is similar to systems used in most modern aircraft. It electrically measures the density or weight of the liquid rather than the level and is not difficult to maintain provided maintenance personnel are familiar with the basic principles involved. Without this knowledge, however, commonplace malfunctions could appear to be complicated when, actually, they are not.

This article reviews the principle of capacitance measurement, briefly describes the component parts of the UH-2A/B system, discusses amplifier operation, and generally outlines an approach to testing the system. The first part of the article is provided for the aircraft mechanic who may be called upon to perform routine maintenance on the system. The second part, dealing with more advanced theory, is furnished for the electrical technician.

Component parts of the fuel quantity system are a gage, selector switch, dual bridge amplifier, probes, and a transfer switch. The gage is a dual instrument containing a pointer-scale combination and a numbered or digital readout in the center of the instrument. The pointer and scale show the amount of fuel remaining in the individual tank selected by the selector switch. The digital indicator is known as the counter or totalizer and indicates the total amount of fuel remaining.

The selector switch is a pilot-operated switch mounted on the instrument panel adjacent to the quantity gage. It selects left auxiliary, right auxiliary, aft, and sump (forward) tanks. The switch is spring loaded to the sump position because the sump tank is the last tank to be emptied. The dual bridge amplifier is an assembly containing two amplifier circuits. One circuit drives the pointer and the second drives the totalizer.

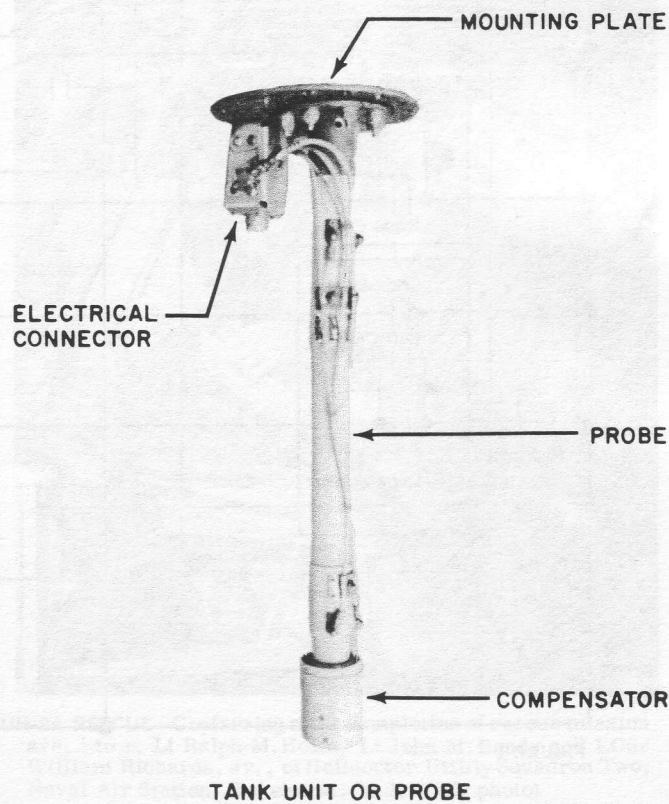
The heart of the capacitance system is the tank unit, or probe. The probe is nothing more than a capacitor. The amount of AC current through the probe will vary with the type of dielectric (insulating material) between its plates. Since air is the dielectric when the tank is empty and fuel is the dielectric when the tank is full, a partially filled tank will result in a dielectric composed partially of air and partially of fuel. The dielectric constant, or insulating strength, of air is rated at 1.0 and that of JP-4 fuel at approximately 2.1, therefore, as the fuel level changes, the dielectric constant also changes and varies between 1.0 and 2.1.

If the plate area of a capacitor is constant and the distance between those plates remains the same, then a variation in dielectric constant will result in a change of capacitor value. Applying an alternating voltage to a

capacitor that changes value as described above, will cause a change in voltage level across that capacitor. The varying level of alternating voltage is compared with a fixed level of alternating voltage and the resultant is utilized to drive an amplifier and, ultimately, a fuel quantity gage.

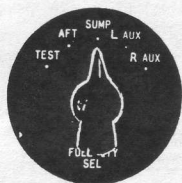
Since the dielectric constant is determined by the fuel density or weight, the resultant measurement of fuel quantity is in pounds. This is the basis for capacitance type quantity system measurement.

The UH-2A/B fuel tank system contains a sump tank, also referred to as a forward tank, an aft tank and two auxiliary drop tanks. Fuel quantity probes are installed in each tank as follows: Two each in the sump and aft tanks, one in each auxiliary tank. The two probes installed in the sump tank have additional small compensating capacitors attached. These compensating capacitors are always totally immersed in fuel and correct for fuel density variations due to temperature changes, different manufacturers and even separate batches of fuel from the same manufacturer.

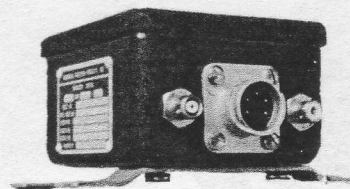


The transfer switch is an assembly consisting of two relays and two capacitors mounted under the floor in either the aft cabin or under the pilot's seat. The switch is operated by a ground loop which passes through the auxiliary tank connectors. When the auxiliary tanks are installed, the transfer switch relays are automatically energized. When the drop tanks are not installed, the relays are deenergized and a 32.0 micro-micro farad capacitor is automatically substituted into the circuit. This capacitor, one for each auxiliary tank circuit, represents the empty tank capacitance value. Thus if the auxiliary tanks are jettisoned or not installed, the gage will read "0" for the auxiliary tanks.

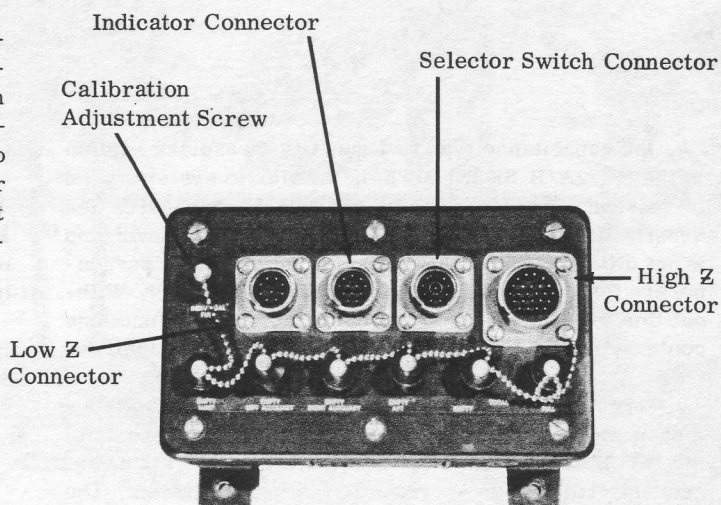
This hardware description is the first step in understanding system operation. Figure 1 presents the essential parts of the system for the purpose of clarification and as an aid to the mechanic whose training was not primarily concerned with electrical maintenance. Part two of this article, which will appear in the next issue of Rotor Tips, is directed toward the electrical technician. At that time a detailed description of the dual bridge amplifier will be presented.



**SELECTOR SWITCH**



**TRANSFER SWITCH**



**DUAL BRIDGE AMPLIFIER**

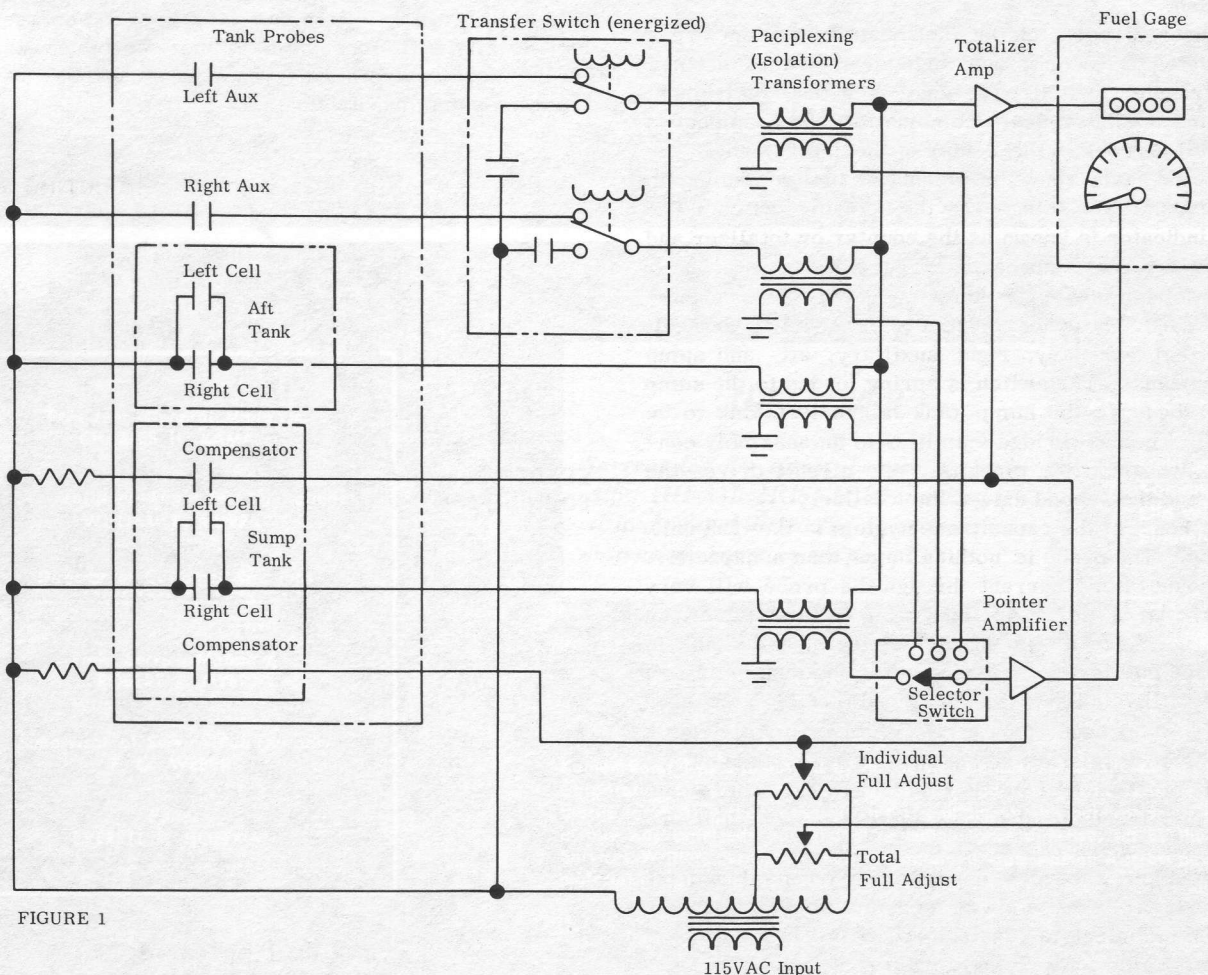


FIGURE 1



First Time HU-2 Uses New Helicopter For Rescue Work

## SEASPRITE AND HUSKIE IN MERCY MISSION

Two veteran helicopter units—one Navy, the other Air Force—teamed up recently to aid the survivors of a civilian light plane crash.

Participating in the rescue were a UH-2A SEASPRITE from Helicopter Utility Squadron Two based at NAS Lakehurst, N.J.; and an HH-43B HUSKIE from ARS Det. 48, Dover AFB, Del. It was the first UH-2A rescue made by the squadron since the new turbine-powered helicopter was delivered a short while ago. Aboard the SEASPRITE were Lt. John M. Bandy, pilot; Lt. Ralph M. Helm, copilot; and LCdr William C. Richards Jr., acting as rescue crewman. Flying in the HH-43B were Capt. Ronald L. Ingraham, pilot; A1c Clyde McClurd and A2c Andrew C. Paparella, crewmen.

The joint mission began after one of the three crash survivors, his back broken and suffering from other injuries, crawled a mile and a half through cedar swamps and cranberry bogs to get help. The painful journey took six hours. Soon afterward searching Civil Air Patrol planes located the downed aircraft amid 20-foot pine trees in a swampy area near Millville, N.J. State Police and other ground rescue parties began fighting their way through the tangled undergrowth toward the crash site. Det. 48, notified of the emergency, immediately dispatched an HH-43B and NAS Lakehurst was contacted by ARS with a request for assistance. The control tower at Lakehurst relayed the message to Lieutenant Bandy who was flying a routine instructional flight in the UH-2A with Lieutenant Helm. The Navy pilot landed, picked up rescue equipment and with Commander Richards acting as rescue crewman, sped for the crash site area.

As the UH-2A approached the spot, the HH-43B crew hoisted one of the seriously injured men aboard in a litter. Captain Ingraham then headed for the hospital at Millville. The SEASPRITE moved in and Lieutenant Bandy elected to set the helicopter down in a clearing close by so the other crash survivor could be loaded aboard. Because of the bog-like conditions it was necessary to hover the helicopter with the wheels barely touching the ground. While the pilots held the UH-2A in this position, Commander Richards climbed through knee deep mud and with the aid of rescue personnel already on the scene carried the other survivor to the helicopter on a stretcher. In order to get as close to the hospital as possible, Captain Ingraham had landed the HH-43B in a sand lot surrounded by telephone poles and strung wires. Soon afterward Lieutenant Bandy set the UH-2A down nearby. ✦



**HH-43B IN ACTION**—One of crash survivors is hoisted to safety from wreckage of light civilian plane by helicopter from ARS Det. 48, EARC, Dover Air Force Base, Del. (Photo courtesy of Philadelphia Inquirer)



**UH-2A RESCUE**—Conferring after completion of rescue mission are, l to r, Lt Ralph M. Helm, Lt John M. Bandy and LCdr William Richards, Jr., of Helicopter Utility Squadron Two, Naval Air Station, Lakehurst, N.J. (USN photo)



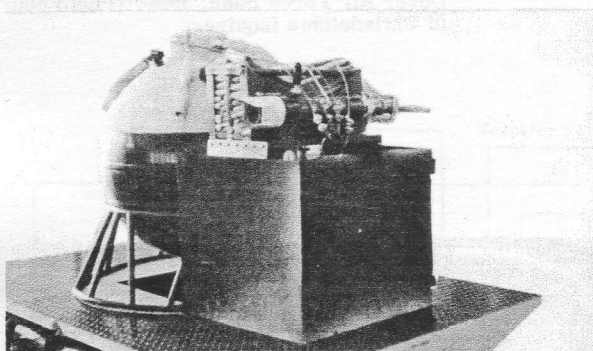
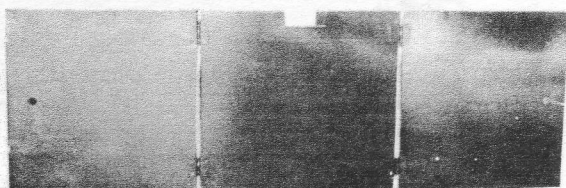
## Hazard Rotorwashed Away

The last thing in the world the control tower at busy Andrews AFB, Md.; needed was a kite flying near the takeoff end of the runway so an HH-43B from Det 59 was dispatched to remove the possible source of aerial FOD. The mission wasn't as simple as it sounds, however.

When Capt John C. Armstrong, the pilot; waved in an attempt to get the youthful kite flyers to move to some spot less hazardous to aircraft, they kept innocently waving back, delighted with all the attention. Finally it was necessary to land and explain the situation to the two boys. They were most receptive to the idea of relocating but, they said, the kite was not. The string was caught on a tree far above their reach. Up went the HUSKIE again and the rotor downwash was used to whisk the kite away from the danger area. With Captain Armstrong were Capt John High, copilot; TSgt Claude Ratcliff and SSgt Jim Kaufmann.

### —Helpful Info—

From Det. 30



TSgt Edward I. Cambio of Det 30, CARC, Cannon AFB, N.M.; devised this safety shield of 1/16" steel plate to protect personnel while the air bottle on the fire suppression kit is being recharged. The two side portions of the shield are 24" x 24" and the center section, which is 24" high and 26" wide, has an opening at the top to accommodate the recharging hose. Straps are passed through holes in the shield to secure it to the FSK frame.

From Det. 4

SSgt George A. Cronk of Det. 4, Paine Field, Wash., has come up with this idea for cutting Plexiglas. The items needed for the job are a 6 or 12 volt battery charger and a piece of 0.041 safety wire approximately 12 inches long. Connect the safety wire between the two leads of the battery charger. Turn the battery charger on and it will heat the safety wire to a cherry red. Slowly saw the safety wire through the Plexiglas. Users report this method may not be as fast as a band saw, but that there is also less likelihood of ruining as many pieces of Plexiglas. This is especially true, they say, when it comes to cutting Plexiglas for the clam shell door on the HH-43B when kick out panels are being installed.

## "Toast To Huskie Maintenance"

by Lt D. L. Reeder



**WELL DONE**— Det. 50 maintenance personnel responsible for high quality "HUSKIE" maintenance are front row, 1 to r, A1c R. Taylor; SSgt G. Jones; A1c D. Black; A2c N. Steele; SSgt T. Heideman. Back row, SSgt R. Propst; TSgt T. Gunter. (USAF photo)

ARS Det. 50, EARC, commanded by Capt W. C. Emrie and based at Shaw AFB, S. C., received two KAMAN HH-43B "HUSKIE" helicopters in mid August, 1962. From that time through 31 Jan. 1963 they maintained an OR rate of 95.5% while flying an average of 62.5 hours per month. During the quarter from 1 Oct. through 31 Dec. 1962 they flew 201.3 hours and maintained an aircraft OR rate of 95.9%, under the maintenance supervision of TSgt T. L. Gunter. Sergeant Gunter recently received the Commendation Medal for maintaining an outstanding in-commission rate during the Cuban crisis.

## Outstanding Unit

Personnel attached to Det 32, CARC, are now proudly wearing a new medal—the Air Force Outstanding Unit Award for "performing outstanding service in providing helicopter emergency rescue coverage in support of flight operations at Webb AFB, Texas; and the adjacent area from October, 1961 to October, 1962." Det 32 aircrews conducted 478 scramble missions and rescued 12 persons from 14 actual crashes.

During the last few months Capt Thomas C. Seebo, commander; Capt William F. Glover Jr., 1stLt James L. Butera and 1stLt Keith H. Ricks have all logged 500 hours in the HH-43B's flown by Det 32.

## Blessed Event

The HH-43B has been used for many purposes but, until a short while ago, never as a maternity ward.

That's all been changed now, for, after carefully considering the facilities offered by a HUSKIE in service with the Royal Thai Air Force, the hangar cat climbed aboard during a component change and proceeded to give birth to two kittens in the rear cabin.



# Timely Tips

## Hold The Door

When checking to insure that the pilot or copilot door-jettison mechanism on the UH-2A is operating properly, maintenance personnel should detach the rear lanyard and then hold the door lightly in an upright position when the jettison handle is pulled. DO NOT let the door fall away. Here's what happens if this procedure is not followed: when the jettison handle is pulled, the door drops and falls away from the aircraft. The rear lanyard, however, still holds the aft roller bracket assembly in its normal position, causing the fitting, P/N K633090-15, to bend. The fitting then must be replaced before the next flight, otherwise the door will not be properly secured.

*W. J. Rudershausen, Service Engineer*

## "Rod Roll" Test

On any rotary or fixed-wing aircraft, improper alignment of control rod end bearings with clevises on control rod tubes, links and turnbuckles can cause interference which will result in control binding as well as abrasion of the parts. In order to prevent this, mechanics should always check for rotational "rod roll" after making a component change or linkage adjustment. This simply means that, as the controls are moved from stop to stop through the full travel positions, the mechanic gently rotates each control rod back and forth to make certain that clearances exist in all attitudes. The "rod roll" test is simple and only takes a minute or two, but it can prevent maintenance problems which could be complex and time consuming.

*D. W. MacDonald, Service Engineer*

## Expedite Lube Job

The job of lubricating the flight control bellcranks on the HH-43B can be expedited by simply reworking a standard alemite nozzle. Place a piece of steel wire in the grease opening of the nozzle, P/N 324126, apply heat and then bend the nozzle 90 degrees approximately one inch from the tip. Remove the wire and attach an alemite adapter, P/N 314150, to the nozzle. For less than a dollar you have a useful greasing accessory. *W. J. Wagemaker, Service Engineer*

## New Adhesives

Two part epoxy adhesives are becoming increasingly popular and can be found in most hardware stores, lumber yards, drug stores, mail-order houses and other retail stores. These adhesives come in a variety of formulations including a non-flow paste for general purpose bonding, aluminum filled, and iron filled for abrasive resistance, and as a transparent liquid which is optically clear. KAC uses a product called A-4 Metalset, made in Jersey City, N.J., to seal the balance weight holes in the blade tip. The material is packaged in two tubes. One contains the resin and the other contains the hardener. The simplicity of measuring, as well as its strength and versatility make this product appealing for field use. It is measured by squeezing equal length beads from each tube. When mixed together, the adhesive is ready to use. A permanent bond can be provided for almost any combination of material, however, it is not recommended for bonding nylon, teflon, mylar, polyethylene, vinyls or precious metals. Suggested uses include bonding patches to fiberglass panels, fairings, and stabilizer fins, patching or replacing rotor blade tip caps, sealing electrical terminals, sealing leads, securing screwheads and nuts against detorquing, repairing tools—in fact, its uses are limited only by the ingenuity of the user.

*N. E. Warner, Service Engineer*



*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 CHECKS SHOULD BE MADE IF SMOKE, FUMES OR OIL MIST ARE NOTICED IN THE COCKPIT HEATER SYSTEM.

**A.** The first step should be to check the guide vanes in the inlet housing. If there is no oil residue on the leading edge of the vanes, eliminate possible leakage from the transmission as a cause. Check the drive shaft for the possibility that grease may have been thrown off and found its way into the compressor section. (Care should always be taken to wipe off any excess grease after greasing the drive shaft couplings to prevent this from happening.) Next, check for evidence of faulty inlet strut plug O-rings in the 3, 9 and 12 o'clock position struts. Defective O-rings will usually be accompanied by an oil residue accumulation at the bleed holes on the outside of the inlet housing immediately adjacent to the respective struts. If this condition exists, the housing assembly ring gear support must be removed in order to change the O-rings. At this time inspect the interior of the inlet housing for excessive oil. If a considerable amount of the lubricant is found, it is an indication that oil from the number one bearing area is leaking forward past the preformed packing, P/N MS29561-267. Don't overlook the fact that leakage aft from the number one bearing past the carbon seal and directly into the compressor section is also possible. The tell-tale signs of internal engine oil leakage—excessive oil consumption or an oil residue along the sides of the compressor housing where the halves are joined—can be excellent clues to the mechanic trouble shooting the heater system.

*H. Zubkoff, Service Engineer*

**Q.** (Applies HH-43B) DURING INSTALLATION, WHAT MEANS IS PROVIDED TO AID THE MECHANIC IN DETERMINING THE PROPER BEND DIRECTION OF THE FLEXIBLE PUSH-PULL CONTROL CABLE ASSEMBLY, P/N K773542-1?

**A.** An "A" or "B" is stamped or etched on the wrenching flats at both ends of the cable. These letters should both face toward the inside of the bend if the component has been properly installed. Paragraph 3-95 in T.O. 1H-43(H)B-2, dated 25 Jan., 62 and changed 1 Oct. 62, is being revised to indicate this method of marking.

*H. Zubkoff, Service Engineer*

**Q.** (Applies UH-2A, UH-2B) IS IT POSSIBLE TO REUSE THE ASE ENGAGE SWITCHES, P/N AT1226, AFTER THEY STICK OR BECOME INTERMITTENT?

**A.** With proper cleaning, many of these switches can be used again since their failure to engage may simply be due to small particles of dust or other foreign matter which has contaminated the contacts. If the switches become intermittent or fail to hold in the engaged position, try applying an electrical cleaner such as "INHIBSOL," then work the switch back and forth. If it still will not hold afterward, change the switch. Hermetically sealed switches have been installed in later production aircraft.

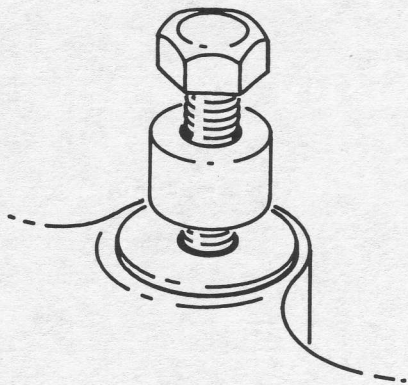
*M. T. Fiaschetti, Service Engineer*

**Q.** (Applies OH-43D, UH-43C, HH-43B) WHAT IS ONE POSSIBLE CAUSE FOR A BINDING VISCOUS DAMPER IN THE FLIGHT CONTROL SYSTEM?

**A.** A bind in the viscous damper can be caused by overtorquing the damper hold-down bolts, thus distorting the body of the damper. The close internal clearances necessary for proper damper operation are destroyed by distorting the body. This possibility should be considered when a damper problem is encountered. Refer to table of standard torques in section I of T.O. 1H-43(H)B-2.

*W. J. Wagemaker, Service Engineer*





**Q.** (Applies HH-43B) WHAT ACTION SHOULD BE TAKEN WHEN SECURING THE TRANSMISSION TOP COVERS TO THE TRANSMISSION HOUSING AFTER REMOVAL OF THE ROTOR SHAFT HOUSINGS?

**A.** Many times the relatively soft magnesium covers of transmissions returned for overhaul have been damaged by the shipping spacers. These spacers have a small cross section and will, under a compressive load, sink into the magnesium covers. To prevent this from occurring, it is recommended that the washers which were removed when the rotor shaft housings were separated from the transmission be placed next to the magnesium covers. The spacers should then be placed on top of the washers and the bolts passed through both.

*F. E. Starses, Service Engineer*

**Q.** (Applies UH-2A, UH-2B) WHEN SERVICING THE DIRECTIONAL CONTROL DAMPER, P/N 1072-550, WHAT METHOD IS USED TO DETERMINE WHEN THE PROPER FLUID LEVEL HAS BEEN REACHED?

**A.** The fluid level indicating pin, located at the center of the cover (See NAVWEPS 01-260HCA-4-1), should be flush with the cover at normal hangar temperature, 70°F. If the pin drops below 1/32" of the cover, fluid should be added. Servicing may be accomplished by using a standard pump-type oil can with Dow Corning DC 510 (1000 centistoke) fluid. This information will be reflected in future revisions of the HMI.

*P. M. Cummings, Service Engineer*

**Q.** (Applies OH-43D, UH-43C, HH-43B) CAN DEICING FLUIDS WITH AN ALCOHOL BASE BE SAFELY USED TO REMOVE ICE AND FROST FROM ROTOR BLADES?

**A.** Deicing fluids with an alcohol base cannot be safely used for this purpose because certain alcohols tend to soften the finish on the rotor blades. A suitable deice and defrost fluid available in the Navy supply system is MIL-D-7946(AER) or MIL-D-19418(AER). The acceptable fluid in the Air Force supply system is MIL-A-8243(NATO S-742) or MIL-A-8243A (Ref. 1-H-43(H)B-1).

*C. J. Nolin, Service Engineer*

**Q.** (Applies UH-2A, UH-2B) WHAT COLOR DOES A TEMPERATURE-INDICATING TAPE TURN WHEN ITS DESIGNATED TEMPERATURE HAS BEEN REACHED?

**A.** BLACK! When installed, these tapes are white. The fact that after they have been in use for awhile, they start to turn grey, does not indicate an overheat. If the tapes are subjected to oil contamination, primarily at installation, or if they operate in an area where high ambient temperatures are present, they will tend to turn color over a period of time. When this condition is noticed, the tapes should be replaced with new ones. Rubbing tapes with finger will also discolor them.

*C. W. Jenkins, Service Engineer*

**Q.** (Applies HH-43B) WHAT IS THE PROPER TORQUE FOR THE NUT ON THE LEFT REAR ENGINE MOUNT BOLT?

**A.** The nut, P/N NAS 679A5, should be torqued to 45-50 pound-inches on the left rear engine mount bolt, P/N K772519-11. Reference T.O. 1H-43B(H)-2 Table of Torque Limits. On page 21 of the June, 1962 issue of Kaman Rotor Tips the torque figure given for this nut is incorrect. If the magazine is on file for reference purposes, the erroneous information should be deleted and the correct figure entered on the margin or other conspicuous place.

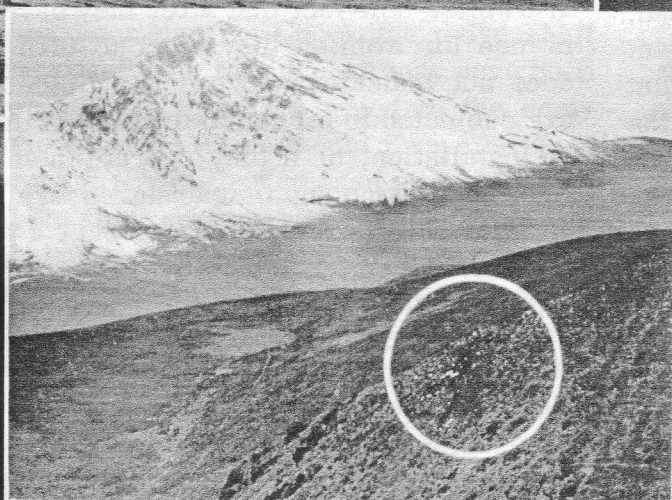
*H. Zubkoff, Service Engineer*

*(Editor's note: Please notify Rotor Tips immediately if an error such as this appears in the future so that a correction can be made as quickly as possible.)*



# HUSKIES FLY AT 17,000 FEET IN SOUTH AMERICAN MISSION

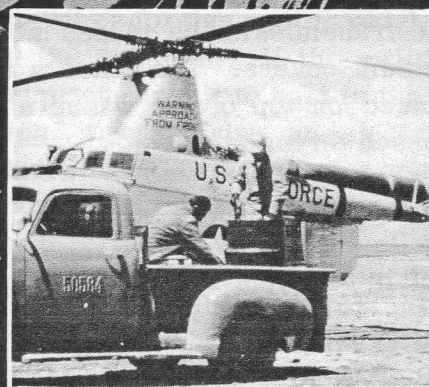
by Capt Herbert A. Lee  
Commander, Det 52, EARC  
Charleston AFB, S.C.



HH-43B PILOTED BY CAPTAIN LEE MAKES APPROACH TO VILLA INDUSTRIAL, ELEVATION 14,000 FEET. CRASH SITE WAS 5 MILES TO LEFT OF MOUNT TACORA IN BACKGROUND. BOTTOM PHOTO SHOWS WRECKAGE OF AIRLINER WHICH CRASHED IN ANDES MOUNTAINS. RESCUE TEAM SCALED 14,700-FOOT PEAK TO REACH SCENE. (UPI RADIOTELEPHOTO)



CAPTAIN ARVO, L. AND CAPTAIN LEE SHOWN DURING REFUELING AT CHARANA, ELEVATION 13,339 FEET.



CAPTAIN COAN SUPERVISES REFUELING FROM DRUMS TRANSPORTED BY BOLIVIAN C-47 FROM TACNA.



SPECTATORS EXAMINE HUSKIE FROM ARS DETACHMENT 52 AS HELICOPTER IS READIED FOR MISSION.



CAPTAIN COAN, L. AND CAPTAIN ARVO AT VILLA INDUSTRIAL DURING HIGH ALTITUDE OPERATION.



*ARS Detachment 52, Charleston AFB, S.C., which carried out this highly-successful mission also claims the honor of being the first to land an HH-43B aboard ship while assisting in the recovery of the first Minuteman booster rocket fired from an underground silo. In earning a 1962 MATS' Safety Award, the unit's two HH-43B's were flown 600 hours on search and rescue, fire suppression and training missions without an accident. Captain Lee, Detachment Commander, has logged more than 710 hours in the HUSKIE; Captain Coan who set a new closed-course distance record in the HH-43B last year, has flown more than 610 hours in the helicopter.*

I was initially notified by Captain Jones, EARC SAR, at 1830 16 Mar 63 to pick up a five minute standby alert on all Detachment personnel. It was unknown at this time as to the where, when and how we would deploy but I could be sure we would. The execution order was given by Lt Colonel Sauers at approximately 1930E. Notification of personnel and assembly was quickly started. As the men gathered at approximately 2100, a short briefing on the known aspects of the mission was held and specific tasks were assigned to individuals.

First indications pointed toward LaPaz, Bolivia; as our destination with the mission outlined as a Search for a missing DC-6 airliner on a flight between ARICA, Chile and LaPaz. As the altitude at LaPaz is in the neighborhood of 13,000 feet, preparation was made for this altitude. Adequate clothing, food and water were procured. The disassembly of the helicopters started at 2100 - 2130. Five helicopter mechanics were augmented with five base support personnel between 2200 - 2400 which allowed both helicopters to be disassembled simultaneously. Both helicopters were completely disassembled by 0115 or approximately four hours from the beginning of disassembly.

Enroute to South America, word was received that the crash had been found. Our destination was changed to TACNA, Peru; as this was the closest town to the crash site. Our mission was changed to one of good will between the United States, Peru, Bolivia and Chile. Our job would be to remove the 41 crash victims from the site, located at 14,700 feet on the side of a steep, sloping, barren mountain, 33 miles northeast of TACNA.

We arrived at TACNA airfield at 0600 Monday morning. It was a very small airport with only one building, the terminal. The terrain was desolate desert, 1600 foot elevation, with rapidly rising mountains to the northeast in the direction of the crash site.

I contacted Navy Capt C. P. Callahan, who was in charge of the overall mission, and Lt Colonel Fox, the Air Force Liaison Officer. It was with deep regret that I informed them we could not be airborne in 30 minutes. My boys would do their best to furnish an aircraft for an afternoon flight and this was about as much as could be promised.

Work began immediately with the unloading of first the C-130 and then the C-124 which was completely offloaded by 0900. It was decided to assemble one helicopter at a time and the maintenance boys got started. The early morning cloud layer gradually dissipated and the temperature began to rise steadily. No hoist facilities or work platforms except for a passenger loading stand were available so the rotor shafts and housings

were placed in the proper position manually. Helicopter 59-1576 was ready for a functional check flight at 1500.

The first Take Off for the crash site was made at 1640 Monday afternoon. Due to turbulence, a low setting sun which practically prohibited seeing the intended landing spot and a power check which indicated only two inches reserve torque, it was decided not to land and we returned to TACNA. Some adjustments were made to the engine and flaps and it was with anticipation that we looked forward to Tuesday for our next try.

Meantime, ground parties from Peru, Chile and Bolivia had reached the site on foot. Their progress was very slow due to the high elevation. In this thin atmosphere, merely to walk requires a tremendous effort. The ground party was used to carry the litters from the crash site to the helicopter landing spot during the next two days.

Take Off was made Tuesday morning at 0830 with myself as pilot and Captain Coan as copilot. We carried two passengers, a doctor and judge, plus food and water for the ground party. The engine cowling, sound protection blankets, clam shell doors and two seat cushions—total weight, 107 pounds—had been removed from the helicopter and a safety net and two oxygen bottles placed aboard. Our fuel load was 1000 pounds. A power check was completed and a shallow approach and landing was made. The two passengers wished to remain at the site so we returned to TACNA for two more passengers and body bags. A delay resulted in procuring body bags and by the time we returned to the site, clouds had enveloped the entire area. An observation weather flight was made during the afternoon by the C-124, which flew cover for the helicopters during the entire mission, and the pilot reported the site was socked in.

Helicopter 58-1843 was assembled and a functional check flown Tuesday. Two aircraft would be used Wednesday and an early start was planned.

All personnel were at the helicopters by 0530 Wednesday morning and take off was made by 0600 with myself and Captain Arvo in 576 and Captain Coan and Captain Frazier in 843. The C-124 cover ship was already airborne and the pilot reported the normal early morning cloud layer as being about 1800 feet thick. Climb was made through the clouds and landings made at the site. We started transporting the bodies to the mountain village of Chárana, Bolivia; which was 30 miles east of the site at an elevation of 13,339 feet. Here, at a small airport, fuel had been transported by a Bolivian C-47 from TACNA. Initially drums of fuel and a portable pump were flown in to TACNA from Howard AFB, Canal Zone. We removed 18 bodies during the morning, stopping only long enough at the site to load and at Charana to unload and take on one drum of fuel each trip.

A noticeable decrease in crew efficiency was evident after working for approximately 5 hours at altitudes varying from 14,000 to 17,000 ft. density altitude. Oxy-



gen from portable walk around bottles was used quite frequently, (we did not have enough for full time use) but the crew members were still bothered by headaches and fatigue. Clouds started to descend upon the site and increased turbulence began around 1130. This, plus the above mentioned fatigue, dictated a halt to operations for the 20th and we returned to TACNA.

#### ARS DET. 52, EARC (MATS)

Capt Herbert A. Lee — Rescue Crew Commander  
 Capt Richard H. Coan — Rescue Crew Commander  
 Capt Waino E. Arvo — Rescue Crew Copilot  
 Capt David J. Frazier — Rescue Crew Copilot  
 1stLt Larry D. Salmans — Rescue Crew Copilot  
 SSgt Charlie J. Montgomery Jr. — Acting NCOIC  
 SSgt Larry K. Henderson — Helicopter Mechanic  
 A1c Lenzy M. Autry — Helicopter Mechanic  
 A2c Jimmy R. Lewis — Helicopter Mechanic  
 A2c Allen A. Eggleston — Helicopter Engine Mechanic  
 A3c Charles J. Gibbons — Helicopter Mechanic

#### 1608TH COMMUNICATIONS ELECTRONICS MAINT. SQDN.

A1c Ronald B. Hunter — Aircraft Radio Repairman  
 A1c Weldon W. Sellers — Aircraft Electrical Repairman  
 A1c Lee R. McLeon — Instrument Repairman  
 A1c Frank A. Prouty — Jet Engine Mechanic

At sunrise on Thursday, both helicopters were airborne. Lt Salmans flew as copilot with myself and Captain Arvo was copilot for Captain Coan. The solid overcase again was present and an instrument climb through the 1500 ft. layer was made. Heading for the site, we resumed the grim task of evacuating bodies, this time to a very small mining town in Chile, Villa Industrial, elevation 14,000 feet and only 10 miles from the crash site.

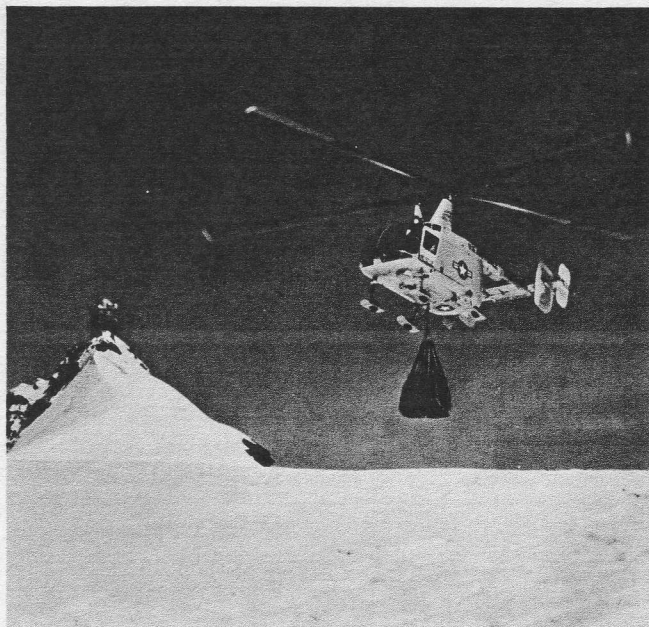
This shorter shuttle expedited our operation and 15 sorties in rapid succession were flown. No refueling was needed until the return trip to TACNA after 24 bodies and 13 nearly exhausted officials and rescue workers were removed from the crash site. With our mission completed we departed Villa Industrial for TACNA where the maintenance boys hardly had the "coast down" time taken before the disassembly was begun. One helicopter was disassembled in four hours and the second in two hours the following morning. After the loading of the C-124 and C-130 we departed TACNA for home at 1500 Friday 22 Mar, satisfied in our minds with what we think was a job well done. It was a team effort with each person doing his own particular duty in a truly professional manner.

#### EXAMPLE CONFIGURATION - 59-1576

Operating Wt.	5421 lbs. (includes 250 lb. fuel load)
Pay Load	1300 lbs.
Temperature	8°C - 46.4°F
Wind	Calm - 5 knots
N1	Max. 96.5%
N2	105%
Torque	Max. 26.5 psi
EGT	550°

T. O. accomplished with this configuration at approximately 17,000 ft. density altitude. Landing was made at 14,000 ft. level after burning off 60 lbs. of fuel. No problems encountered. This configuration held fairly constant with the payload being adjusted against fuel load. **K**

## HUSKIE Performs For Swiss



The HH-43B was one of three helicopters participating in a recent competition held before Swiss Air Force officials to demonstrate external and internal load carrying capabilities at three different altitudes. At Emmen, Switzerland, the turbine-powered HUSKIE lifted off at 1,641 feet carrying a total payload of 4,480 pounds. At the Mutthornhuette it took off at 9,250 feet with a 3,080-pound payload. In another demonstration at the Jungfraujoch, the HH-43B lifted off at 11,401 feet and hovered in ground effect with 16 men aboard (2,900 pounds plus 390 pounds of fuel). The HUSKIE then hovered out of ground effect with 12 men aboard. The accompanying photograph was taken during the demonstration on the Jungfraujoch. The building in the background is a landmark known throughout Europe as "The Sphinx."

### Safest Helicopter

The HH-43B HUSKIE, in operation with the United States Air Force for the last three years, is the safest rotary wing aircraft in the military inventory today. It has also achieved an accident-rate record even lower than the All-Aircraft rate, which includes aircraft of all types.

These facts were revealed recently by KAC President Charles H. Kaman while speaking before the members of the Kaman Aircraft Management Club.

Mr. Kaman said the figures covering the calendar year 1962 disclosed the accident rate for the HUSKIE to be 4.7 while the All-Helicopter rate in the Air Force is 12.6. Both figures were based on estimated flying hours received from official sources. Even more impressive, he said, is the fact that the rate achieved by the HH-43B in 1962 was lower than the All-Aircraft (rotary and fixed wing) category rate of 5.7.



# HH-43B FUEL BOOST PUMP CHECK

by Herman Zubkoff  
Service Engineer  
Field Service Department

A description of the HH-43B fuel system and the recommended trouble shooting procedures were presented in the December 1962 issue of Kaman Rotor Tips. The following supplementary information relative to a ground functional check of the fuel boost pump system, utilizing an external auxiliary power unit (APU), is presented in this issue.

The APU should produce a constant 27 volts DC. APU output below 27 volts will result in a decreased flow and a lower fuel pressure, causing erroneous conclusions. Do not exceed 800 AMPS - 28.5 volts. In the following procedure it is assumed that related systems, such as fuel quantity, electrical and instrument, all function normally.

This procedure consists of a three-part check. The first determines if a leak exists in the fuel system. The second check identifies which, if any, boost pump is

malfunctioning and the third shows which, if any, check valve is leaking. The four boost pumps are operated simultaneously by a single fuel boost "on-off" switch through their respective circuit breakers as shown in Figure 1. Each pump will be referred to according to the installed position as depicted in the drawing: Forward fuel cell—Left forward pump (LF); Right forward pump (RF). Aft fuel cell—Left aft pump (LA); Right aft pump (RA).

Each pump should develop between 7 and 11 psi and pressure should be steady. The RF and LA pumps operate off the secondary or non-essential bus and the LF and RA operate off the primary or essential bus. The circuit breakers, located on the pilot's overhead panel, are marked to correspond to the pump locations.

## I. Test For Fuel System Leak:

Place battery switch, boost pump switch and fuel

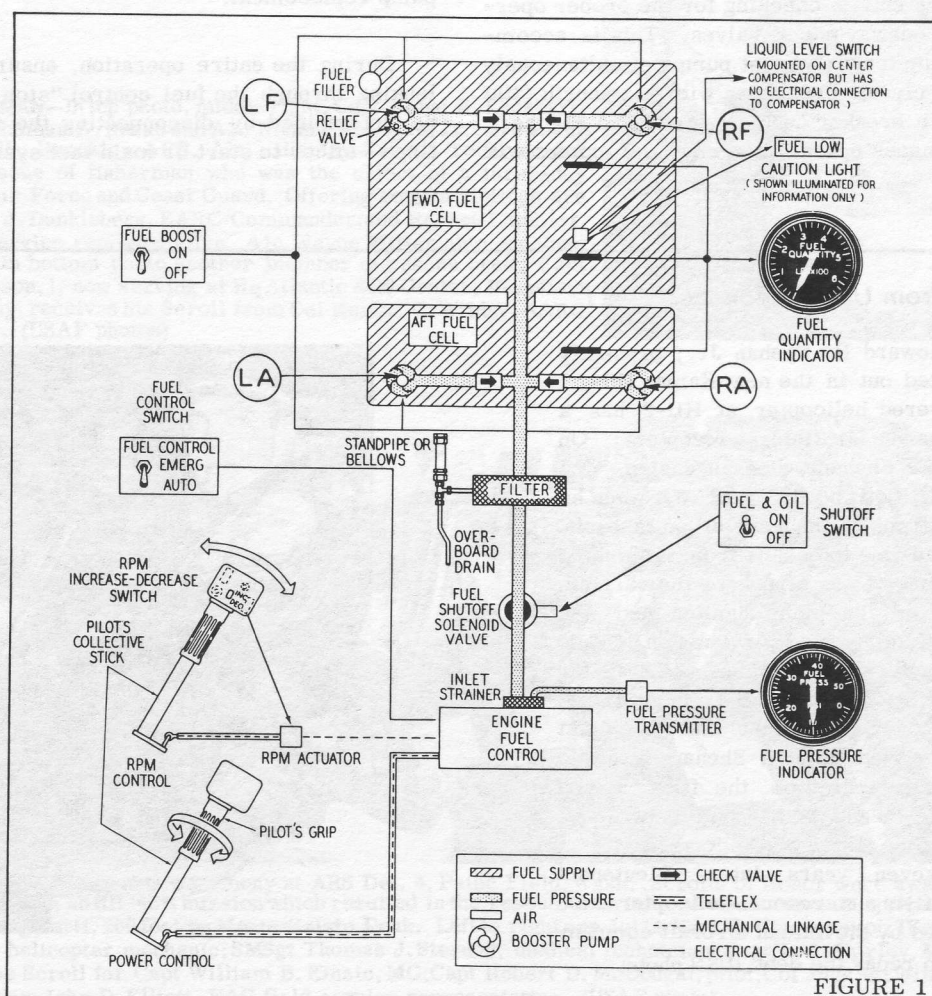


FIGURE 1



shutoff valve ON, throttle in CUTOFF position. Allow boost pumps to operate for approximately one minute. Pressure should stabilize at some point between 7 and 11 psi. Shut boost pumps off and observe fuel pressure gage. If gage is steady no leakage exists in fuel system. Proceed with boost pump test in part two (2). If, however, a pressure dropoff occurs, proceed with test procedures outlined in part two (2) and part three (3).

## II. Test For Malfunctioning Boost Pump:

- a. Attach the APU, ensuring 27 volts DC. Leave battery and generator switches off during the entire period that external power is connected.
  - b. Place the fuel-oil switch ON.
  - c. Place the four boost pump circuit breakers OFF.
  - d. Place the fuel boost pump switch ON.
  - e. Place each boost pump circuit breaker ON in turn, allowing each pump to operate for at least one minute before placing back in OFF position. Also bleed pressure at fuel strainer prior to proceeding with next pump check.
  - f. During operation of each pump, note pressure and any unusual noises by comparison with the other pumps.
  - g. If any one pump does not operate, determine cause and replace pump if at fault.
- (Extreme care should be exercised when using circuit breakers as "switches." Indiscriminate or excessive use may be conducive to circuit breaker malfunction.)

## III. Test For Malfunctioning Check Valve:

This procedure entails checking for the proper operation of the four oneway check valves. This is accomplished by actuating three (3) boost pumps simultaneously by means of the circuit breakers, with the fourth (4th) boost pump circuit breaker OFF. Referring to Figure 1, note that simultaneous operation of any three pumps will

cause fuel pressure to be exerted against the check valve in question. Should leakage past this check valve occur, low fuel pressure or fluctuation of pressure will exist. Ensure that the pilot's throttle is properly rigged and in the "Cut-Off" position.

For the purpose of illustration, the following test sequence is suggested:

Steps	Pumps Operating	Check Valve Pressurized
1.	LF, RF, LA	RA
2.	LF, RF, RA	LA
3.	LF, LA, RA	RF
4.	LA, RA, RF	LF

Starting with step 1 and before proceeding with subsequent steps, fuel pressure should be bled off to "zero" at the fuel filter. If low or fluctuating pressure occurs during any one of the above four (4) steps, complete the remaining checks and then repeat the step or steps during which the malfunction occurred, as a matter of verification. After definitely isolating the "leakers" by this procedure, replace affected check valves and repeat the entire procedure.

If fuel pressure fluctuates or is below 7 psi consistently during the entire procedure, there obviously is one or more defective boost pumps or, less probably, all four check valves are leaking! Since the latter is most unlikely, replace any boost pump which failed to develop proper pressure during the check in accordance with part 2. Repeat the complete procedure after boost pump replacement.

During the entire operation, ensure that fuel is not leaking through the fuel control "stop cock." This can be determined by disconnecting the fuel control "out" line—either to start or main fuel system. **K**

## Report From USNAS Lakehurst, N.J.

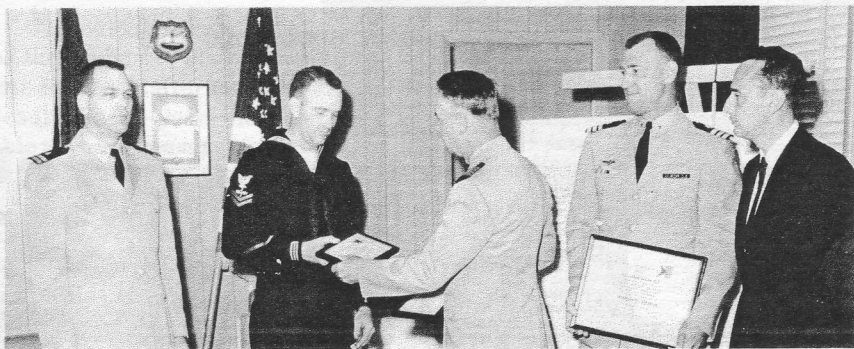
...Lt Howard R. Shehan Jr., presently being checked out in the new Kaman UH-2A turbine-powered helicopter at HU-2 has a personal reason for flying helicopters. On 1 Aug., 1956 Shehan, then an ensign, was flying an AD-5 off the USS TARAWA when he crashed in front of the carrier on take-off. He barely had time to escape from the sinking aircraft before it was struck by the carrier. Gasoline from the plane ignited and was spreading rapidly toward him when an HOK-1, also manufactured by Kaman, came in for the rescue. The rotor wash from the helicopter beat back the flames while the hoist was lowered and Ensign Shehan lifted to safety. The rescue was the first at-sea rescue made by the HOK-1 which was, at that time, being tested by the Navy.

Now, seven years later, Lieutenant Shehan is flying a rescue helicopter also manufactured by the Kaman aircraft company and hopes to repay the debt. (USN photo)





## — SCROLL OF HONOR —



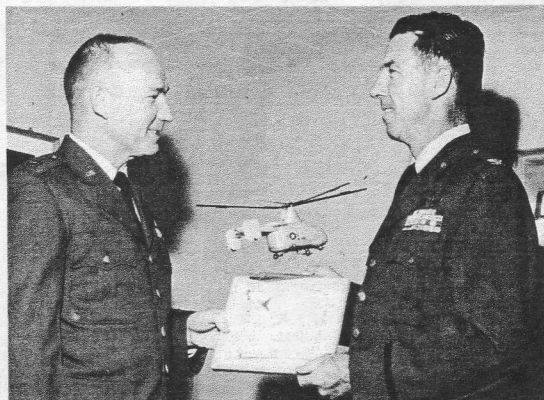
**RESCUED THREE**—Scrolls of Honor were presented recently to the crew of an UH-43C based at USNS, Mayport, Fla., for the rescue of two plane crash survivors and a Navy diver from shark-infested waters off the Florida coast. Receiving the scrolls from Captain Kibbe, commanding officer; are LCdr George Peebles, pilot; D. G. Davis, ADR2, crewman; and Lt C. J. Cox, flight surgeon. Bill Magnan, KAC field service representative, is at left. (Official USN photo)



**ALTITUDE RESCUE**—Capt F. M. Donohue, HH-43B pilot from Stead AFB, Nev., receives Scroll from Stanley Balcezak, KAC field service representative; for night rescue of injured mountain climber at 11,600-foot level. Also receiving awards were Capt G. L. Kekuna, copilot; and SSgt C. E. Baker, crew chief. (USAF photo)



**SAVED FISHERMAN**—In top photo, middle right, Capt Floyd R. Lockhart, pilot; SSgt Thomas A. Nesko and A1c Robert P. Logan, Jr., crewmen; from Det. 58, Brookley AFB, Ala., display Scrolls received for HH-43B rescue of fisherman who was the object of a three-day search by Air Force and Coast Guard. Offering congratulations are Col Grover J. Dunkleberg, EARC Commander; and Robert Lambert, KAC field service representative. A1c Wayne Miller also received an award. In bottom photo another member of rescue crew, Capt John V. Allison, I, now serving at Hq Atlantic ARS Center, Ramstein AB, Germany, receives his Scroll from Col Harlan C. Wilder, AARC commander. (USAF photos)



**MERCY FLIGHT**—In a recent ceremony at ARS Det. 4, Paine Field, Wash., Scrolls of Honor were awarded to the participants in an HH-43B mission which resulted in the rescue of an injured woman mountain climber from a narrow ledge at 4,200 feet on Monte Cristo Peak. Left to right are 1stLt Karl G. King, copilot; TSgt James E. Johnson, helicopter mechanic; SMSgt Thomas J. Sternad, medical technician; Capt L. A. Shirley, MC who accepted the Scroll for Capt William B. Kinzie, MC; Capt Robert D. McDougal, pilot; Col Jack W. Williams, base commander; John D. Elliott, KAC field service representative. (USAF photo)

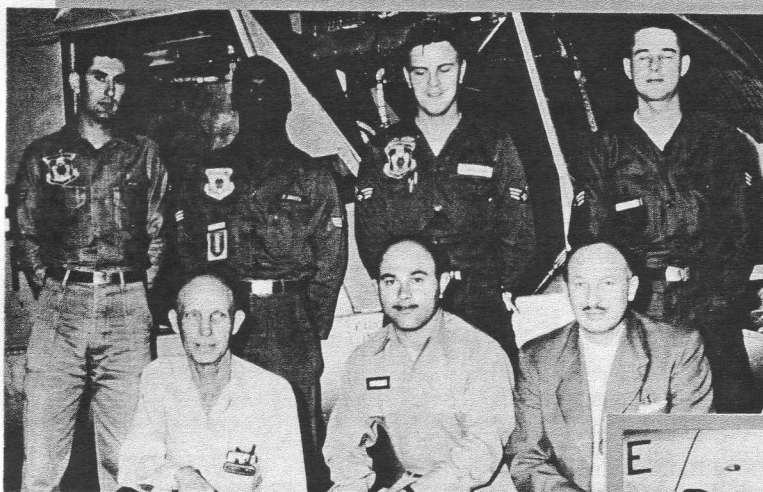


# GRADUATION

HH-43B TRAINING  
SHEPPARD AIR FORCE BASE

3750TH TECHNICAL SCHOOL, USAF (ATC)

MARCH 12, 1963—Front row, l to r, A2C David R. Hostetter, Eglin AFB, Fla.; A1C Edward R. Meador, Clinton Sherman AFB, Okla.; A2C Forrest R. Macoy, Clinton Sherman AFB; A1C Richard L. Minnich, Clinton Sherman AFB; A3C Charles J. Gibbons, Det. 52, Charleston AFB, S.C.; Rear row, Fred Morrison (Instr.) Sheppard AFB, Texas; SSgt David D. Dere, Wright Patterson AFB, Ohio; SSgt Ira H. Beavers, Det. 1 NAF, El Centro, Calif.; SSgt Bertrum E. Brundridge, Randolph AFB, Texas; A1C Maxie L. Hilligoss, Jr., Hill AFB, Utah; SSgt James R. Hatten, Det. 21, Grand Forks, N.D.; A2C Charles E. Fetting, Det. 42, EARC, Dow AFB, Maine. (USAF photo)



APRIL 4, 1963—Front row, l to r, Fred Morrison (Instr.) Sheppard AFB, Texas; 1st Sgt Arjomand Mohamad H. Nassehi, Iran; Herman Zubkoff, KAC. Rear row, A2C Thomas D. McKiddle, Det. 39, Laughlin AFB, Texas; A1C James E. Smith, Det. 45, Pease AFB, N.H.; A1C John H. Stewart, Det. 35, Kirtland AFB, N.M.; A1C Charles P. Jones, Det. 22, Duluth MAP, Minn. (USAF photo)

APRIL 9, 1963—Front row, l to r, Alvin C. Fulton (Instr.) Sheppard AFB, Texas; A2C Kenneth R. Scheer, Det. 6, WARC, Fairchild AFB, Wash.; A2C John M. Venema, Jr., Det. 16, WARC, Williams AFB, Ariz.; A2C David P. Gonshorowski, Det. 8, WARC, Glasgow AFB, Mont.; MSgt James L. Paul, Det. 15, WARC, Luke AFB, Ariz.; A2C Edward L. Thorpe, Det. 10, WARC, Kingsley Field, Ore. Rear row, A2C George R. Campbell, Det. 34, CARC, Biggs AFB, Texas; A2C Kenneth L. Elkins, Det. 12, WARC, George AFB, Calif.; SMSgt Adam T. Lauman, Det. 32, CARC, Webb AFB, Texas; TSgt William H. Michael, Det. 33, CARC, Perrin AFB, Texas; SSgt Knight C. Younk, Det. 14, WARC, Nellis AFB, Nev.; SSgt Charles L. Butcher, Det. 15, WARC, Luke AFB; A2C Charles G. Moichen, Det. 7, WARC, Malstrom AFB, Mont. (USAF photo)



APRIL 23, 1963—Front row, l to r, SSgt Curtis Washington (Instr.) Sheppard AFB, Texas; A1C Wera Tongkamnurd, Thailand; A2C Frank J. Strelecki, Det. 27, CARC, Truax Field, Wisc.; A2C Robert F. Miller, Det. 37, CARC, England AFB, La.; TSgt Donald D. Kieft, Det. 36, CARC, Laredo AFB, Texas; MSgt Niyon Kraisi, Thailand. Rear row, A2C George E. Koch, 4136 FMS (SAC) Minot, AFB, N.D.; TSgt Bobby L. Gunn, Hdqs. ARS, Orlando AFB, Fla.; A3C Phillip A. Mann, 4780 AB Gp, Perrin AFB, Texas; A1C Frederick H. Goodman, Jr., 4411 FMS, Shaw AFB, S.C.; 1stLt Housharg Mastoor, Iran; SMSgt Raymond B. Harrison, Det. 23, CARC, K. I. Sawyer AFB, Mich.; A2C John E. Walker, Det. 5, WARC, McChord AFB, Wash. (USAF photo)



## Silent Prayers Answered

He couldn't shout, hear the calls of groundsearchers or the sounds of the helicopter in the sky above. From late Saturday afternoon and all through the night Robert Schultz, a 22-year-old deaf mute waited for help, unable to move because of his broken foot and other injuries suffered when he fell 50 feet down a mountain slope. Meanwhile his 17-year-old brother, also a deaf mute, had made his way out of the Santa Catalina Mountains where the pair had been hiking and scribbled a note telling of his brother's plight. During the night-long search ground parties passed within feet of the injured youth.

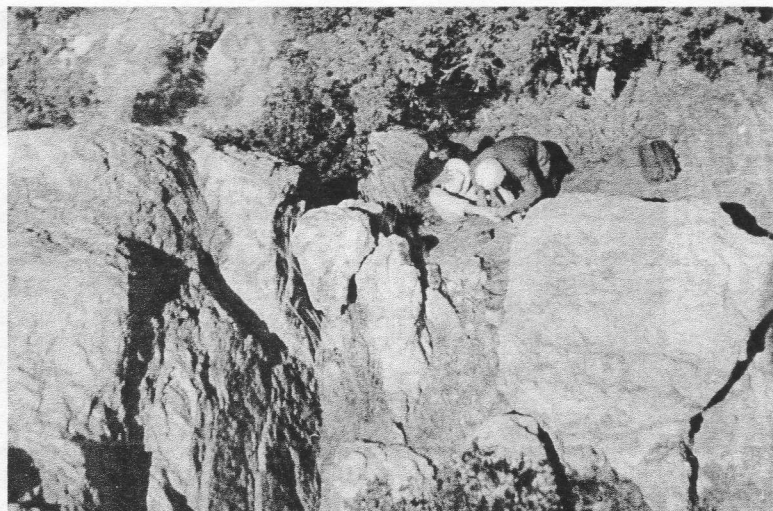
Early Sunday morning an HH-43B crew from ARS Det 17, WARC, Davis-Monthan AFB, Ariz.; joined the search. After 45 minutes, Alc Thomas E. Stevens, rescue crew chief; spotted the injured hiker. The pilot, Capt Stanley O. Schaetzle, hovered the helicopter over the 60-degree slope and TSgt William B. Wood, rescue medical technician; was lowered to assist. The rescuee and sergeant were then hoisted aboard the HUSKIE. The dramatic photo of Sergeant Wood and Schultz was taken by Capt Jack D. Peak, copilot.

On another mission, an HH-43B crew from the detachment rescued an injured hiker from a ledge at the 5,000-foot level in the mountains. Because of the extreme turbulence 1stLt Gayl D. Bernhardt, the pilot, was forced to make seven approaches before the sling could be lowered. At times the rotors were less than 20 feet from the mountain. With Lieutenant Bernhardt were Captain Peak, copilot; SSgt Hector R. Gonzalez and Medical Technician Robert D. Wakefield.

Detachment 17 also undertook a mission which not only saved valuable railroad property, but enabled personnel to claim "The longest FSK mission—62 nautical miles."

An official of the Southern Pacific Railroad had read articles describing the effectiveness of the HH-43B in suppressing and controlling crash fires so, when a 50-foot railroad bridge in an isolated area caught fire, he immediately thought of the HUSKIE.

A request for assistance was made to Col William C. Bacon, division commander. The colonel, always interested in maintaining good community relations, frequently provides military assistance on request when primary mission capability is not compromised. He checked the local air traffic situation, contacted Capt Robert H. Busch, detachment commander; and directed that help be given.



An HH-43B crew consisting of Lieutenant Bernhardt, pilot; 1stLt Dale L. Potter, copilot; SSgts Patt H. Ross and J. C. Johnson, rescue technicians; flew the 62 miles to the bridge. Foam was applied and held down the fire while an Army fire truck at the scene went for more water. The blaze was then completely extinguished by the joint efforts of the Air Force, Army and railroad personnel.✶

## 1,000 Hours

Capt Harold L. Hering of Det 29, CARC, Vance AFB, Okla.; reached the "magic" 1,000-hour mark in the HH-43 on Feb. 28. A total of 630 hours were logged by Captain Hering in the HH-43A and 370 hours in the HH-43B.

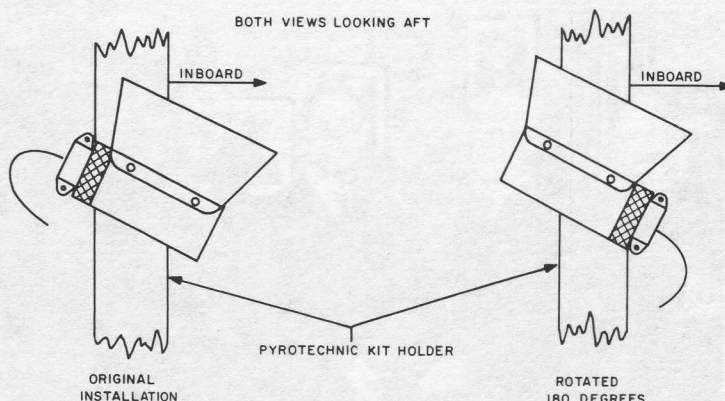
## HH-43B's In Libya

The first HH-43B Helicopters assigned to the USAFE arrived recently at Wheelus Air Base, Libya, and are being flown by pilots of the 58th Air Rescue Squadron commanded by LtCol William M. McDonald. The squadron was selected to receive the first of the command's new helicopters on the basis of the large number of jet flights operating from the base. All of USAFE's combat units rotate through Wheelus for proficiency testing at the command's weapons center. The 58th ARS, which gained world-wide fame recently through its efforts during the Barce, Libya, earthquake, is responsible for air-sea rescue missions over a wide area of North Africa.

## Timely Tip

If the UH-2A instrument floodlight, P/N A-4255A, on the pyrotechnic kit holder behind the pilot tends to loosen, reverse the bracket holding the light 180 degrees (see illustration). The shade should also be reversed. This is done by removing the four screws holding the shade and name plate, reversing the shade and re-installing the four holding screws. The holes in the bracket will match the holes in the pyrotechnic kit holder after it has been reversed. This change has been incorporated in later production aircraft.

M. T. Fiaschetti, Service Engineer







# Huskie Happenings

...HH-43B from Det 16, Williams AFB, Ariz.; rescues youth from precarious position on Weaver's Needle in Superstition Mountains east of Phoenix. Also rescues man who went to youth's aid after he became stranded on narrow ledge on famous landmark, known for its connection with Lost Dutchman gold mine. Twenty-four hours before rescue made, youth's companion had toppled to his death. Aboard the HUSKIE are 1stLt K.C. Franzel, pilot; Capt. C.E. Brandon, copilot; SSgt T.J. Brown, flight engineer; and Capt J.A. Murtagh, flight surgeon....Crew from Det 44, EARC, Westover AFB, Mass., utilizes HH-43B to fly injured B-52 radar navigator to hospital. Navigator parachuted into park after escape hatch of bomber blew off and he was sucked out of the plane.

...Personnel from Det 9, AARC, Moron AFB, Spain; scramble with recently received HH-43B when turbo prop aircraft unable to extend landing gear. Runway foamed, aircraft comes in for wheels-up landing and, as it slides to stop, small flame erupts from beneath starboard engine. FSK deployed and rescue technicians from HUSKIE extinguish fire in seconds. Minor damage sustained by aircraft and no personnel injured. HH-43B pilots are Capt Robert E. Lee, commander; Capt Wayne J. Wolf, maintenance officer; A1c Kroon and A2c Keyser, rescue technicians....HH-43B crew from Det 52, EARC, Charleston AFB, S.C.; flies 43 miles to sea, picks up seriously ill officer from Navy destroyer and delivers him to hospital for immediate surgery. HUSKIE pilot is Capt Herbert A. Lee; 1stLt Robert S. Henderson, copilot; SSgt Larry K. Henderson, crew chief; SSgt Stanley Lipps, medical technician.

...HH-43B from Det 59, EARC, Andrews AFB, Md., utilized to aid in spotting forest fires in four Maryland counties. Supervisor of Forest rangers uses walkie-talkie to direct fire fighting crews. Aboard HUSKIE are Capt John M. High, pilot; and Lt Darvan E. Cook, copilot. Same day, Lt J.H. McKibben HH-43B pilot; and his crew, Lt Darvan E. Cook and SSgt Robbie White locate body of woman drowned in Potomac River after boating accident.

...HH-43B crews from Det 42, EARC, Dow AFB, Maine; participate in five-day search for two missing college students who disappeared while on canoe trip. All detachment personnel participate in flights and include Cpts Glenn M. Marks, detachment commander; and Donald E. Stranahan; 1stLts Walter J. Zimmerman, Jr., Mitchell E. James and Ronald G. Fitch, pilots. Crew chiefs are MSgt Maxwell C. Hartman, SSgts Weldon E. Cobb and Clifford R. Langley; A2c Charles E. Fettinger. ...Crew of HUSKIE from Det 59, EARC, Andrews AFB, Md., rescue lawyer and his 17-year-old son stranded on island after their canoe capsized in rough waters of Potomac River. Aboard HH-43B are Lt J.H. McKibben, pilot; Capt John High copilot; A2c Kenneth Morrin, hoist operator; A1c Jedson Miller, fire rescue technician; and A1c Robert Bobbitt, medic. While on another mission earlier, Lieutenant McKibben and his copilot, Capt R.L. Haglund, spot damaged red convertible in heavily wooded area notifies state police and then hover HUSKIE over vehicle to aid troopers in locating car which had been stolen.

...Det 4, WARC, Paine Field, Wash.; dispatches HH-43B to aid mountain climber seriously injured by avalanche. Survivor, on 65° slope at 5,200-foot elevation in open area surrounded by tall trees, hoisted to HUSKIE and flown to waiting ambulance. Aboard HH-43B are 1stLt Karl King, pilot; Capt Robert D. McDougal, copilot; SSgt Benny A. DeGaetano, crew chief; A2c Roger Vipperman, medic. Also Dr. Otto Trott and Paul Williams, Seattle Mountain Rescue Council.

...Flying capabilities of HUSKIE demonstrated by Cpts C.R. Pinson and H.Q. Long of ARS Det 28, CARC, Randolph AFB, Texas; before group of civilian and military officials from Laredo, Texas; and Nuevo Laredo, Mexico. Detachment personnel also fly utility and fire-rescue demonstration for San Antonio television show.



**SAFETY AWARD**—Fifty ARS Local Base Rescue Detachments in the United States and two overseas, Det. 1, Thule AB, Greenland; and Det. 2, Harmon AFB, Newfoundland; have received the coveted MATS' Flying Safety Award for year-long operation without mishap. This almost 100 percent achievement was based on the hundreds of flights, many made under hazardous or scramble conditions, from Oct. 1, 1961 through Dec. 31, 1962. At the present time there are 51 CONUS LBR detachments in operation. The above photograph, taken at Det. 28, Randolph AFB, Texas; typifies the award presentations also made at the 51 other units. L to r are MSgt Wayne Pullen, maintenance supervisor; Col Jack W. Saunders, base commander; Capt Henry Q. Long, detachment commander; Capt Lawrence E. Burke, maintenance officer. (USAF photo)





**DRAMATIC RESCUE**—HH-43B from Det. 34, CARC, Biggs AFB, Texas; hovers near face of Franklin Mt. where a 12-year-old girl had fallen 50 feet down the sharp rocks and suffered critical injuries. Recovery through hoist operation techniques was not possible due to extent of girl's injuries. 1stLt Billy J. Johnson was pilot on the mission; Capt Price S. Summerhill, copilot; A2c Larry D. Varvel, rescue crew chief; SSgt Ralph DePina, 828th Medical Group, medical technician. Afterward the HUSKIE made the first landing at the newly prepared heliport adjacent to the hospital. (Photo courtesy of the El Paso Times)



**HERE TO THERE**—Civil Engineering, Maintenance and Supply Groups teamed up with an HH-43B crew at Stead AFB, Nev.; in placing this 700-pound beacon atop the new control tower so the light would be back in operation by nightfall. Aboard the HUSKIE were Maj Harold Wheeler, pilot; Capt William L. Henderson, copilot; and SSgt Roger Winkle, crewman. (USAF photos)



**HAPPY ENDING**—An HH-43B from Det. 49, EARC, Seymour Johnson AFB, N.C.; recently picked up Maj Hoyt S. Vandenberg, Jr., son of the late Air Force Chief of Staff. Major Vandenberg ejected from his disabled F-105 shortly after takeoff, after turning the aircraft away from a congested area. Minutes later, Major Vandenberg was returned unharmed to the Base Hospital. The HUSKIE crew which made the rescue are, 1 to r, SSgt George E. Bostick, medic; SSgt Boyce W. Allen, crew chief; SSgt Donald H. Holloman and A2c Frank A. Zelenka, rescue specialists; Capt Hayden C. Moore, pilot; and Major Vandenberg. Not shown, Capt John R. Oberst, copilot. (USAF photo)



**AERIAL DELIVERY**—HH-43B's of the Burmese Air Force practice cargo hook utilization with jeep and field gun. Transporting of these and similar loads are a daily occurrence in Burma despite high ambient temperatures and elevations.



**ROYAL VISIT**—Members of ARS Det. 59, EARC, Andrews AFB, Md., jokingly pose for a "formal" picture with Prince Johannes of Liechtenstein, in civilian clothes. The heir to the throne of the fairytale, mountainous principality in southwestern Germany recently visited the detachment as part of his tour of Andrews AFB. With Prince Johannes are, 1 to r, SSgt George Cowgill; SSgt Jim Kaufmann; Lt J.H. McKibben; Capt John M. High and A1c Lorraine Perron. Airman Perron, from the Andrews WAF Squadron Section, served as interpreter during the prince's visit to the base. (USAF photo)





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Vance AFB, Okla.  
Webb AFB, Texas  
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McChord AFB, Wash.  
Paine Field, Wash.  
Portland Int'l Airport, Ore.  
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Burma

**DARRELL HEICK**  
Libya  
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