KAMAN

Rotor Tips

ISSUE NO. 4 JULY 1960

Scroll of Honor

TISDALE

THE KAMAN AIRCRAFT CORPORATION

PIONEERS IN TURBINE POWERED HELICOPTERS

Rotor Tips

JULY, 1960

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

THE COVER

Piloting an HOK-1, Scroll of Honor holder Capt. B. R. E. Pautsch, USMC, rescues an injured fisherman from jetty off California coast.

IN THIS ISSUE

—— PLEASE SHARE THIS COPY ——

RESCUE!

A Marine Master Sergeant pilots an HOK-1 into a canyon crossed with high tension wires and rescues two swimmers from a rock in the middle of a raging river. . . flying in high winds and with poor visibility, an Air Force Lieutenant in an H-43A shuttles 20 stranded fishermen to safety. . . a Navy Ensign piloting an HUK-1 hovers over flaming gasoline to save a flyer down at sea — these are only a few of the many rescues in which military pilots have participated while using helicopters produced by The Kaman Aircraft Corporation of Bloomfield, Connecticut.

In recognition of outstanding humanitarian services such as these, five years ago Kaman Aircraft established the "Scroll of Honor", a bronze plaque now displayed in the lobby of the company's Engineering and Administration building. The names of helicopter pilots who perform rescue feats under adverse conditions while flying aircraft produced by the company are inscribed on individual brass plates and placed beneath the scroll. In addition, each pilot and participating crewman receives a certificate and lapel pin.

Attaining a place on the Kaman Scroll of Honor is not a routine thing, for the Scroll was originated by the company with the express idea of paying homage to those men who accomplished hazardous missions involving flying over water, rugged terrain, at night, or during adverse weather conditions. A routine rescue, even though it saves a life, is not sufficient qualification since this is considered to be the fulfillment of one of the primary missions for which the helicopter was designed.

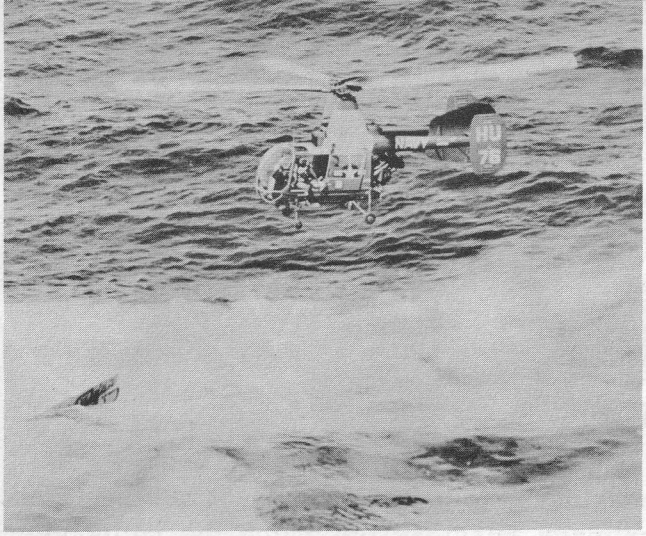
Before a Scroll of Honor award may be made, the rescue report is first screened by the KAC field service representative in whose area the mission took place. The report is then forwarded to a reviewing group in the main plant at Bloomfield for further action.

The first man to qualify for the Scroll of Honor was not a military pilot. Soon after the idea for such a scroll became a reality in 1955, Al Newton, KAC chief test pilot, received the award for rescuing 13 persons during a disasterous flood in Connecticut. Newton tells of his experiences flying an HOK during this time in "Report From the Ready Room."

Soon after Newton received this award, a second was made to Ensign J.P. McCullough, USN, for his rescue of another Navy pilot whose plane crashed into the water directly ahead of the U. S. S. Tarawa during take-off.

Ensign Howard R. Shehan, Jr., USNR, barely had time to get out of his sinking aircraft before it was struck by the big carrier. Gasoline from the plane's fuel tank became ignited and the flames were spreading rapidly toward Ensign Shehan when an HOK-1, piloted by Ensign McCullough and with AD 1 J. L. Thompson as crewman, flew in between Shehan and the fire. The downwash from the heli-

NEXT MONTH: *TECH REPS*



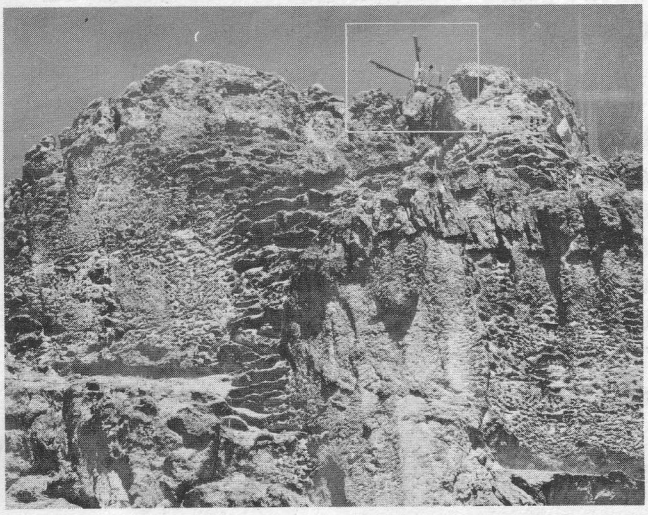
HUKs ON THE JOB—Typical rescue operations at sea are shown in these Official U.S. Navy photos which have been arranged to form a sequence. Shown are HUK-1s operated by Helicopter Utility Squadron Two (HU-2). Three pilots who crashed during a

copter's rotor was used to beat back the flames while the rescue sling was lowered and Shehan lifted to safety. He was in the water only 50 seconds.

A veteran pilot of many rescue missions is Capt. B.R.E. Pautsch, USMC, MCAS. El Toro, Calif. The captain is pictured on the cover during a recent rescue when he held an HOK in a hover with the nose wheels on a rock jetty so an injured man could be placed aboard. Winds up to 35 knots were being encountered, heavy swells and breakers were coming over the jetty and the rotor tips were clearing a beacon tower by about five feet. Acting Sgt. R.F. Grimshaw, USMC, the crewman, jumped out and, by holding on with one hand to the left entrance step to keep from being washed into the sea, aided the injured man into the aircraft. Because of his injury the rescuee could not be hoisted.

Captain Pautsch had received his Scroll of Honor earlier in 1958 for a rescue in Okinawa when he and Capt. L.I. Blankenship, USMC, another scroll recipient, in two HOKs saved five men whose boat overturned during maneuvers. The men, all injured when they were swept onto rocks by the heavy surf, were in a cove with 550 foot cliffs on three sides; there was also a strong down draft. Marine crewmen on the mission were Corporals S. E. Shipley and J.R. Vachon.

Less then two years ago the U.S. Air Force received its first Kaman-produced helicopter. Since that time several rescues have been performed with these helicopters. One of the most spectacular was the rescue of 20 fisherman by Lts. John E. Schaeffer and Bert Cowden, USAF, flying an H-43A from Laredo AFB. The fishermen were stranded



H-43B HUSKIE HELICOPTER heads for Superstition Mountain ledge from which three teenagers were rescued. (U.S.A.F. Photo)

HOK-1 piloted by M/Sgt. John Dunlop with co-pilot M/Sgt. J. E. Davis, USMC, of Mojave, California, MCAS, rescuing one of two swimmers saved from Kern River.

carrier operation last year were saved by the 'copters. In the first picture the search begins for the downed airman; second, the pilot is sighted; third, he is hoisted to the hovering helicopter; fourth, the survivor is returned to the safety of the flight deck.

on the rugged shores of Falcon Lake in Texas by a freak rain and snow storm. The helicopter airlifted the men to safety in a number of trips through heavy fog and turbulent air and later conducted a search of the lakes' entire 265 miles of shoreline.

Just a few weeks ago a turbine-powered H-43B HUSKIE from Luke AFB piloted by Capt. Walter C. McMeen, USAF, snatched three youths from a ledge where they were stranded on a Superstition Mountain Peak. With only inches to spare, the helicopter hovered near the cliff while crew chief T/Sgt. William Eckert controlled the hoist which pulled them into the aircraft. 1st Lt. Ryland Dreibilbis, was co-pilot on the mission.

The names of these, and other pilots who have qualified for the Scroll of Honor will be found on page six. Individual accounts of the rescues they performed will appear in future issues. In several of these reports the pilots have praised the helicopters' performance as having made the rescues possible.

Reader contributions of non-routine, unclassified pictures and stories involving Kaman-produced helicopters will be welcome by Rotor Tips and will be published whenever possible.K

Rescue by Remote Control

In the first such flight on record, a Kaman Aircraft Corporation drone helicopter with an injured seaman aboard, Steven W. Patryn, 19, Adams, Mass., was recently flown by remote control through heavy fog from the destroyer U. S. S. Hazelwood, 10 miles off Newport, R.I., to shore. Although still under development, this was the only helicopter now with the fleet which could make the flight with any degree of safety.

HTK—Drone Helicopter

Ralph Lee, KAC's chief test pilot on the HTK drone program, took off soon after the sailor's accident and flew the helicopter 1,000 yards from the ship into fog restricting visibility to about one-quarter mile. The ceiling ranged between 200 and 500 feet. Lee then turned the helicopter's control over to the radio control point operated by Lt. James Julian, operations officer on the Hazelwood and chief controller in the drone test program.

Lt. Julian flew the helicopter so precisely by radio signals, as he watched its path on the ship's radar screens, that he brought it over the shoreline within 100 yards of the spot selected before takeoff. Lee again took control manually, landed at the Naval Underwater Ordnance Station and transferred the sailor to a waiting ambulance. Patryn returned to his ship the same day, after 37 stitches were taken in his wound. K

More From Les . . .

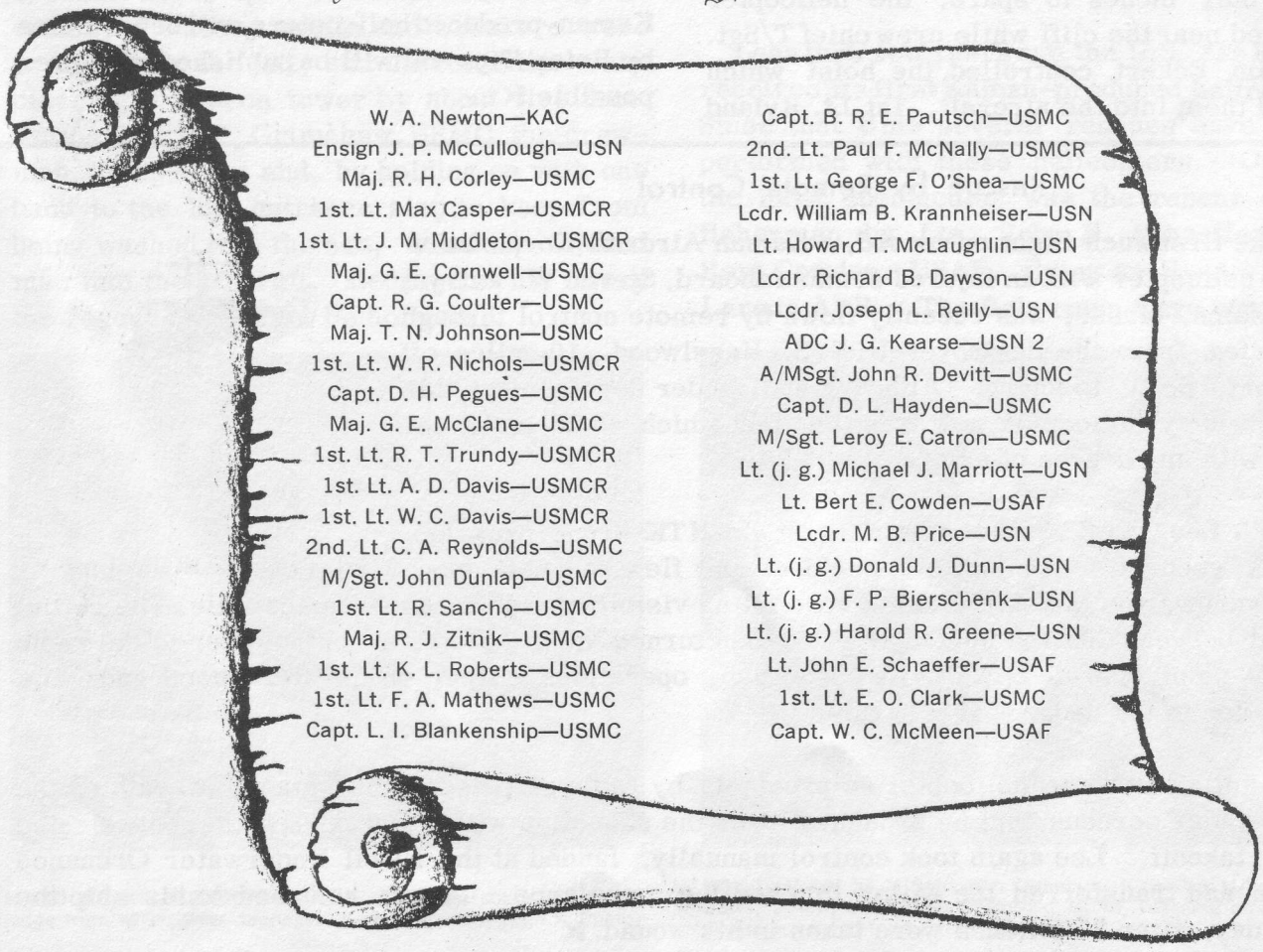
Each month in this column, C. L. Morris, Assistant Vice President–Field Service Manager reports on a subject in which particular interest has been shown

GREASES FOR KAMAN HELICOPTERS

We have standardized on MIL-L-7711 throughout the entire control system except for extreme cold weather operation (-40° F. or C.), when MIL-G-3278 is used. MIL-G-3278 could be used at all times but, under some circumstances, it has an adverse effect on the rubber which is used on the leading edge of the rotor blades and flaps. Therefore, to minimize maintenance, we prefer MIL-L-7711 for the rotor head area; and obviously it is better to use one grease as far as possible throughout the aircraft.

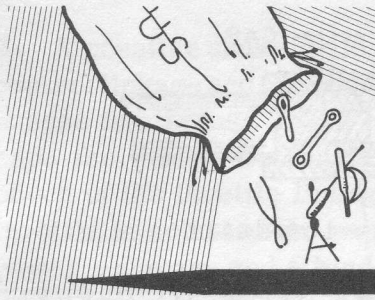
When changing from one grease to the other, the bearings must be purged completely with the new grease; otherwise the mixed greases may emulsify or cake. This is called out in the H-43B -2 handbook and will be in the next revision to the handbooks for the HOK/HUK and the H-43A. If it is ever necessary to use MIL-G-3278 around the rotor head area, care should be exercised to remove excess grease from the fittings, and to wipe down the rubber leading edges frequently to remove any throw-off. K

SCROLL OF HONOR



W. A. Newton—KAC
Ensign J. P. McCullough—USN
Maj. R. H. Corley—USMC
1st. Lt. Max Casper—USMCR
1st. Lt. J. M. Middleton—USMCR
Maj. G. E. Cornwell—USMC
Capt. R. G. Coulter—USMC
Maj. T. N. Johnson—USMC
1st. Lt. W. R. Nichols—USMCR
Capt. D. H. Pegues—USMC
Maj. G. E. McClane—USMC
1st. Lt. R. T. Trundy—USMCR
1st. Lt. A. D. Davis—USMCR
1st. Lt. W. C. Davis—USMCR
2nd. Lt. C. A. Reynolds—USMC
M/Sgt. John Dunlap—USMC
1st. Lt. R. Sancho—USMC
Maj. R. J. Zitnik—USMC
1st. Lt. K. L. Roberts—USMC
1st. Lt. F. A. Mathews—USMC
Capt. L. I. Blankenship—USMC

Capt. B. R. E. Pautsch—USMC
2nd. Lt. Paul F. McNally—USMCR
1st. Lt. George F. O'Shea—USMC
Lcdr. William B. Krannheiser—USN
Lt. Howard T. McLaughlin—USN
Lcdr. Richard B. Dawson—USN
Lcdr. Joseph L. Reilly—USN
ADC J. G. Kearse—USN 2
A/MSgt. John R. Devitt—USMC
Capt. D. L. Hayden—USMC
M/Sgt. Leroy E. Catron—USMC
Lt. (j. g.) Michael J. Marriott—USN
Lt. Bert E. Cowden—USAF
Lcdr. M. B. Price—USN
Lt. (j. g.) Donald J. Dunn—USN
Lt. (j. g.) F. P. Bierschenk—USN
Lt. (j. g.) Harold R. Greene—USN
Lt. John E. Schaeffer—USAF
1st. Lt. E. O. Clark—USMC
Capt. W. C. McMeen—USAF

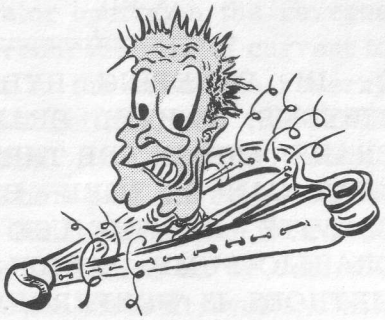


MAINTENANCE MAILBAG

Dear Jim,

All sorts of excitement around here. We had a squadron party last night and the clown that rented us the hall got mixed up on his dates and when the boys showed up they found some women's garden club was having a flower exhibition. To top it off, he also scheduled a big wedding reception at the same time.

We had a juke box, the women had what they call a stringed quartet,and a five-piece gypsy band showed up for the reception. Everybody was pretty shook for awhile but,it was a big place so we went ahead anyway. Didn't work out too bad except Dusty Rhodes got in a big argument with some woman after he slipped on a gob of gouloush and sat on her aspidistra. She got mad, slugged him with a harp, and then played a tune on his head with a tambourine. Then her friend came rushing up and lashed him with a long-stemmed rose. Poor Dusty, his forehead looks like a waffle griddle and his nose will never be the same.



Not much else doing here except one of the new transfers gave me a little trouble the other day. He's a nice kid and wants to be helpful but doesn't know a heck of a lot about aircraft yet. I asked him to make sure there was no dirt on the bubble and cabin windows on one of the HUKs and first thing I knew he'd grabbed a rag loaded with kerosene and began polishing like mad. You'd have thought he was the main stockholder in a 12-seat shoe shine stand on the corner of Broadway and 42nd St. I ran up and grabbed the rag away from him. At the rate he was sloshing kerosene around,that plastic would eventually have clouded up so much the pilot would have thought he was flying a rubber meatball from the inside. I explained to him about not using kerosene, gasoline, thinner and stuff like that because of what it does to the plastic.

I thought I had him squared away pretty good,'cause he later washed the bubble down with mild soap and water and was using a chamois just like I told him. One thing I did forget though, to tell him to take off his ring. He had one of those heavy silver jobs, the kind you get when you graduate from high school. He was being careful but still getting the plastic all scratched up.

Later on I showed him where to look in the maintenance handbook for all the dope on how plastic should be treated (it's section II, in the AN01-260HBA-2). Reading it over again reminded me of a couple of things. I knew you shouldn't rub plastics down with a rag because it can scratch the surface but I'd forgotten using a dry cloth can also build up an electrostatic charge which attracts dust. This sure is no cotton-picking help at all.

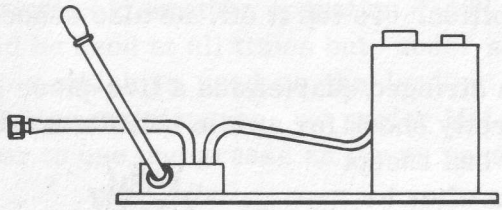
The next day, after reading the maintenance handbook, "my helper" showed up with some diapers he'd latched onto at home. He said if plastic had to be treated as gently as a baby, he might as well go all the way. Corny but true.

Your friend,
Hank

P.S. Just heard about another fellow who washed down a plastic window on a 'copter with a wet rag after he dropped it in the sand. Looked like midnight in the Sahara when he got through, they tell me. K

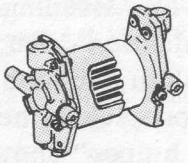
Q's AND A's

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



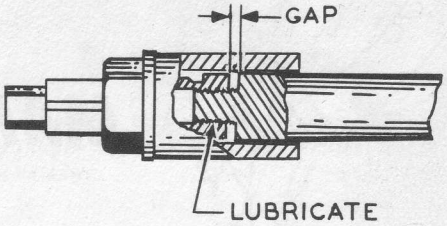
Q. IN BLEEDING HYDRAULIC BRAKE SYSTEMS, (WHEEL BRAKE AND ROTOR BRAKE), THERE ARE THREE (3) METHODS THAT CAN BE USED: BLEEDER BOMB, GRAVITY, AND THE USE OF A HAND HYDRAULIC PUMP. WHICH ONE OF THESE METHODS IS PREFERRED AND DEEMED THE MOST SATISFACTORY? (Applies HOK-1, HUK-1, H-43A, H-43B)

A. A hand hydraulic pump is the most successful since the fluid is pumped through the system without the use of air. If a bleeder bomb is used, air pressure should not be permitted to remain in the bomb except when in actual use. Air permitted to remain in the bomb will mix with the hydraulic fluid and result in improper bleeding. Bleeding by gravity is generally used where facilities are limited. This method requires more time than bleeding by pressure; however, satisfactory results can be obtained.—R. A. B.



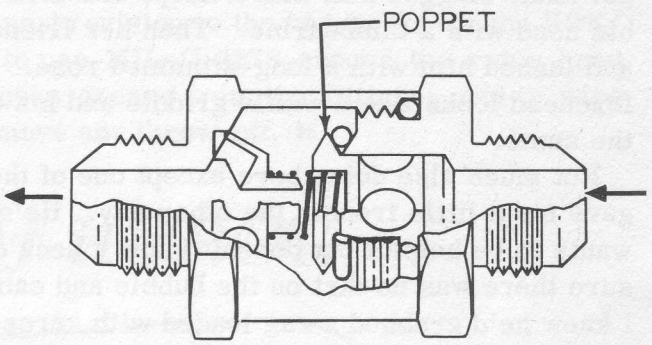
Q. CAN THE K774680 DRIVE SHAFT, ENGINE TO TRANSMISSION, BE INSTALLED WITH THE MALE SPLINE FACING EITHER FORWARD OR AFT? (Applies to H-43B)

A. It is permissable to install this drive shaft either way. Current handbook procedure is being revised to clarify this.–L. L.



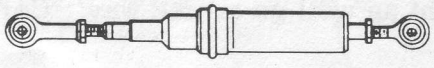
Q. WHAT CAN BE DONE TO PREVENT TAPER PIN PULLERS FROM SEIZING ONTO THE TAPER PIN? (Applies HOK-1, HUK-1, H-43A, H-43B)

A. Before installing the puller on the pin, lubricate the threads with grease. Don't bottom the threads when screwing the puller on the pin. Snug it down and back off one turn before attempting to pull the pin.—N. W. .



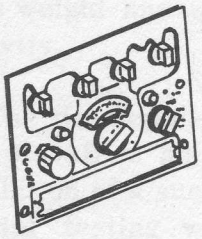
Q. WHAT IS A PROBABLE CAUSE WHEN NO OR LOW FUEL PRESSURE IS INDICATED, YET BOOST PUMP IS OPERATING NORMALLY PRIOR TO ENGINE STARTING? (Applies HUK-1, H-43A)

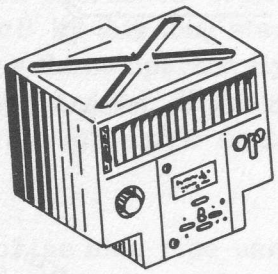
A. Several cases have been reported where small foreign objects entering the fuel system have lodged under the poppet or "O" Ring in the check valve downstream from the aft sump (Refer to IPB page 110, figure 28 index 63, P/N 869A-10TT-3) allowing the fuel to circulate back into the tank. Inspection or replacement of this check valve would be in order.—T. C.



Q. WHAT COULD BE A REASON FOR THE ENGINE OVERSPEEDING DURING A POWER RECOVERY FROM AUTOROTATION? (Applies HOK-1, HUK-1, H-43A)

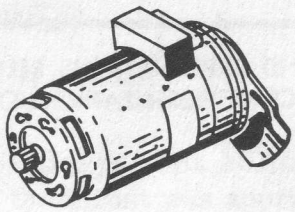
A. A possible cause could be that the throttle control linkage and/or throttle override spring bungee is sticking. This condition might escape the pilot's notice during ground static check of the throttle linkage; however, if the throttle is actuated too rapidly later during a power recovery and a bind exists, the spring in the bungee could be compressed momentarily. The sudden release of this bind would result in fast acceleration of the engine which, in turn, would result in momentary engine overspeed. A thorough inspection of the throttle control linkage system should be made if this overspeeding condition occurs.—C.W.J.





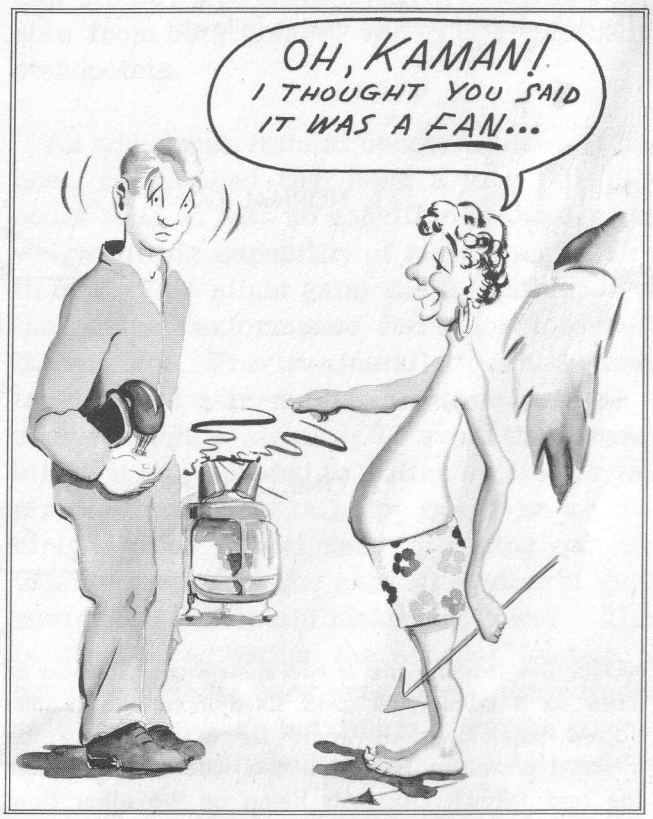
Q. CAN THE ARC-34 RADIO BE CAUSED TO MALFUNCTION BY KEYING THE TRANSMITTER BEFORE IT HAS COMPLETED ITS TUNING CYCLE? (Applies H-43A, H-43B)

A. Yes, malfunctioning can be caused if the ARC-34 Transmitter is keyed before the tuning cycle is complete because rapidly changing frequencies will then be fed into the two power amplifier tubes (X/V 602 and X/V 603) causing these tubes to burn out. To eliminate this possibility certain precautions should be taken while operating the radio. (1) The set should be given a minimum initial warmup period of 60 seconds before being used. (2) After selecting a frequency to be used it should be determined that the radio has completed its tuning cycle before keying the transmitter. While the set is tuning an audible sound made by the tuning mechanism can be heard. The length of the tuning cycle will depend upon what frequency is selected. —W. H. Z.



Q. IS IT POSSIBLE FOR THE GENERATOR TO FUNCTION LIKE AN ELECTRIC MOTOR AND TURN THE ROTOR BLADES? (Applies HOK-1, HUK-1, H-43A, H-43B)

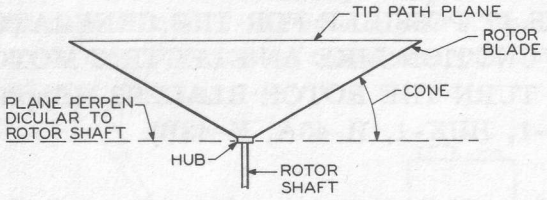
A. Yes, if the proper voltage is applied to the generator it will run like a motor. During normal generator operation the reverse current relay prevents the flow of current to the generator, but in the event the reverse current relay malfunctions, so that after generator operation its contacts remain closed, there will be a path for current flow to the generator. Consequently, the next time the battery switch is turned on or external power is applied to the aircraft, voltage will be fed into the generator. If this voltage is the same as the normal generator output the generator will run like a motor and due to its mechanical connection to the transmission will turn the rotor blades provided the rotor brake is in the off position.—W. H. Z.



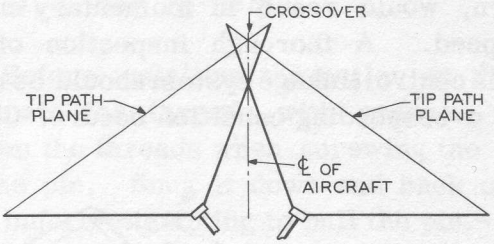
TRAINING

DRAWINGS AND EXPLANATIONS BELOW WERE FURNISHED BY ED WHITE, KAMAN SERVICE REPRESENTATIVE NOW ON DUTY IN JAPAN.

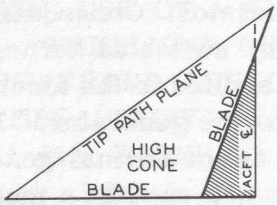
A training aid easily made of scrap metal or cardboard can be of assistance to instructors explaining what is meant by "cone height" and "crossover" when checking synchropter rotor rigging. "Cone" is the angle between the blades of a rotor and a plane perpendicular to the rotor shaft.

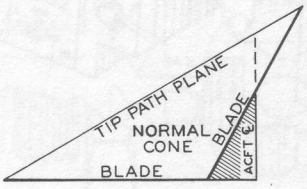


"Crossover" is the term used to indicate the point at which the tip path planes of the two rotors of a synchropter intersect.



The training aids consist of templates as follows:

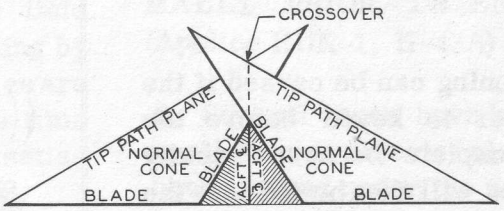




The templates should be lettered on each side so they can be reversed.

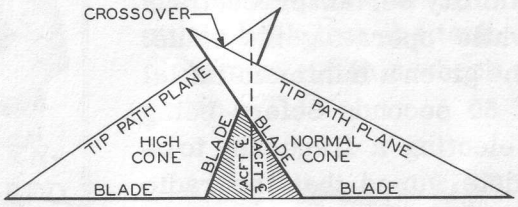
The two demonstrations are as follows:

1. NORMAL CONE



(Note that the crossover of the two tip path planes coincides with the aircraft C/L).

2. ONE CONE HIGH



(Note that the crossover of the two tip path planes does not coincide with the aircraft C/L).

NOTE: This training aid is two dimensional instead of three so it cannot be used to demonstrate a misrigged azimuth which would be indicated by the forward crossover being on one side of the center line and the aft crossover being on the other side.

(continued on page 12)

MORE PIPE–MORE POWER

by C. W. ELLIS
Chief Test Operations Engineer

ENGINEERING

Why the long exhaust tail pipe on the engine of the H-43B? It's a question which has been asked several times since these helicopters first began coming off the production line a few months ago for delivery to the U.S. Air Force.

The answer is simply that this type of installation represents a net power gain of 50 to 70 horsepower which, in turn, results in better aircraft performance and control characteristics. The increased capability provided for the H-43B by this long stack is worth at least 10 times the comparatively few pounds of added weight and the slight effect this weight has upon the aircraft's center of gravity.

The development of the long pipe used on the H-43B is an interesting example of the evolution of a successful aircraft component. Initial testing with an experimental T53-powered HOK established that a short, curved exhaust stack directing the high temperature engine exhaust up into the rotor tip path plane had undesirable effects on the helicopter vibration level. Afterward, an experimental exhaust installation carrying the engine gases back straight aft over the horizontal tail was found to produce a significant reduction in some of the higher frequency rotor induced vibrations. Later, during the development of the H-43B, it was desired to incorporate this improvement in order to provide as smooth a flying aircraft as possible. As the detail design of the pipe began, ways had to be found to minimize the effect such a long stack might have on the engine's performance, due to back pressure, and on the helicopter's center of gravity, because of the increased weight aft. Normally, these conditions would mean a sacrifice in the aircraft's performance.

Taking these items one at a time, it was soon recognized that a significant engine thrust existed from the velocity of the exhaust gases leaving the tail pipe. At Military Power on the H-43B, the thrust was approximately 100 lbs. By directing some of this thrust downward, it would be possible to develop an additional lift on the aircraft at least the equal of the weight of the tail pipe extension necessary to develop this increased vertical lift. The present design turns the exhaust gases downward 30^{o}, and therefore realizes approximately a 50 lb increase in lift due to engine thrust. Since the tail pipe weighs approximately 20 lbs, this represents a net gain in lifting capability of about 30 lbs. Similar reasoning was applied to the effect the tail pipe would have on aft c.g., because of its position to the rear of the aircraft. By deflecting the exhaust stream downward at the rear, a significant upward thrust is developed at the tail; this upward thrust, again at approximately 50 lbs, is equivalent to shifting the c.g. forward approximately 1-1/2". Since the static weight of the tail pipe shifts the c.g. aft 1/2", the net gain in effective forward c.g., due to the tail pipe installation, is approximately 1". It is therefore evident that the tail pipe installation by itself is valuable from both control and lifting capability standpoints.

An additional item of concern, once it had been established that such a long tail pipe could be used with no sacrifice in the c.g. or weight lifting capability of the aircraft, (and in fact with a slight gain) was the influence on the engine performance due to the losses in the tail pipe. Previous installations had shown instances of extreme performance loss due to poor exhaust systems. To avoid this possibility, it was decided to utilize an ejector tail pipe. The ejector tail pipe works on a principle similar to that used by racing car enthusiasts who tune the exhaust system of their automobiles to obtain maximum power. This is done by adjusting the exhaust system to have a minimum back pressure at the cylinder exit and provide a maximum of engine power. This is accomplished on an H-43B by making

the long tail pipe approximately 2" larger in diameter than the short exit pipe on the engine and overlapping the two pipes. Operation of the engine then causes outside air to be drawn in around the short engine tail pipe and into the larger, longer pipe, where it mixes with the engine exhaust gases and reduces the back pressure on the engine. This pressure reduction occurs because the air drawn into the ejector tail pipe is speeded up and therefore has its static pressure reduced below the static pressure outside the tail pipe. Looking at it from a technical standpoint, such an operation improves the engine efficiency by recovering some of the velocity and temperature energy in the hot, high-speed exhaust stream of the engine which would normally just be dissipated in the atmosphere. It converts this otherwise lost energy into useful engine operation by reducing the back pressure in the engine exhaust system. Measurements have shown approximately a 10% reduction in engine back pressure. This 10% reduction in back pressure represents about a 10% increase in power at a given set of engine operating limitations, or about a 7% reduction in engine fuel consumption at a given power condition. In the H-43B this represents approximately a 70 horsepower increase in engine power available at Military Power, and approximately a 40 lb per hour

reduction in fuel flow rates at the same power level.

Summing it up then, the investment of approximately 20 lbs in weight and 1/2" of static c.g. has allowed the recovery of 50 lbs of vertical thrust, 70 horsepower of available engine power and 40 lbs per hour reduction in fuel flow. The 70 horsepower represents approximately a 500 lb increase in weight lifting capability under hot, high altitude operating conditions. The total improvement in performance for a one hour mission is 50 lbs of vertical thrust plus 40 lbs less fuel required plus 500 lbs additional lifting capability, less the 20 lb weight penalty of the tail pipe, for a net gain of 570 lbs of increased lifting capability on the helicopter. It therefore represents a very significant improvement in helicopter performance. K

Training *(continued from page 10)*

SPECIAL HOK MAINTENANCE CLASS, USMC

Front Row—left to right: AM/Sgt. C. K. Pangborn, AGy/Sgt. A. D. Burns, Pfc. L. J. Chastain, L/Cpl. A. C. Thompson, Sgt. C. W. Revier, Cpl. D. A. Martinez, M/Sgt. W. C. Barr, AS/Sgt. L. S. Santos, **Rear row—left to right:** J. E. Smith, KAC, Cpl. J. H. Amerson, S/Sgt. C. A. Arrants, S/Sgt. J. H. Dural, A/Sgt. R. P. Miller, Cpl. T. L. Kracker, AGy/Sgt. H. I. Whitehurst, Cpl. D. E. McHaney, AS/Sgt. L. L. Love, Cpl. L. G. Moser, 1/Lt. D. C. Sharp, Sgt. J. J. Limbaugh, AGy/Sgt. E. R. Laraway, 1/Lt. P. F. McNally, S/Sgt. R. G. Spencer, MAG 26 2nd MAW, MCAF New River, N. C., R. A. Vokes, KAC, H. J. Tanzer, KAC.

Report FROM THE READY ROOM

FLOOD RESCUES

AL NEWTON
Chief Test Pilot

I have been asked to relate for ROTOR TIPS, my experiences during the 1955 flash flood in the Farmington River Valley here in Connecticut.

Just about 5 years ago, August 19th to be exact, at 4:00 a. m., an official of the Connecticut State Police called me at home, from Hartford. He said that an unpredicted, and alarming, situation was fast coming about in the valley and wondered if we could help with the Kaman HOK helicopters. Torrential rainfall from hurricane Diane was causing every brook, creek and river to overflow its banks.

I alerted the necessary people at Kaman Aircraft Corporation and then barely made it through rising waters to the plant. The roads were mostly under water and a couple of times the car's engine almost flooded out.

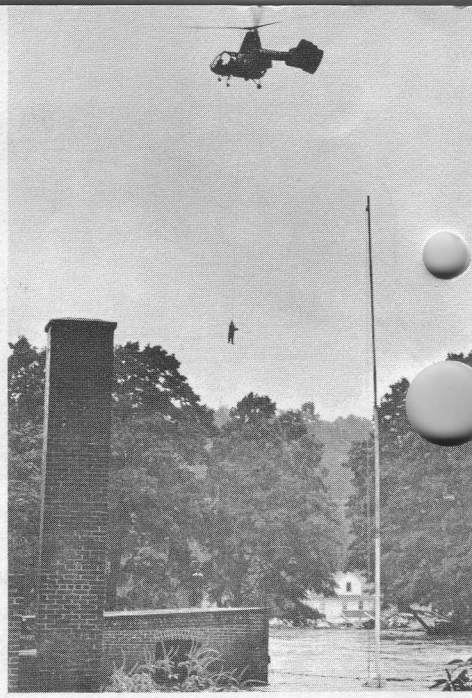
After receiving both KAC and Navy blessings, and waiting for later reports from the State Police, it was decided about 6:00 a. m. to try to get to the Unionville, Conn., area with one helicopter to be followed by a second helicopter later on, if necessary.

As this was during the early HOK production days and before the hoist and other equipment had been finalized or jelled as to requirement, we had no aircraft with hoist or cargo hook. With Tom George, KAC experimental mechanic as crewman, we took off in helicopter number 129813 at 7:00 a. m. and slowly worked our way over Avon Mountain via the highway. Visibility was extremely bad due to very heavy rain in the lowlands and cloud level below the top of the mountain.

We had rigged up a 75' length of 5/8" manila rope with a loop in the end, to be tied to a leg of the pilot's seat at the desired length. We had also decided that rescues with this crude equipment would be attempted only where life was immediately at stake.

In the area between Farmington and Unionville, the water was high but over a wide area and, as a result, was moving slowly. We passed up several homes with water to the roof and people on top who didn't seem in imminent

danger. As we approached Unionville, the valley narrowed and the water was rushing violently through the pass, sweeping trees and buildings with it. In a part of town called River Glen Section, a development of small residential homes located in a wooded area, water was well up on the houses and some had already been swept away. Here we came upon our first critical situation when we saw a man waving out of an attic window (water was above the drain gutters). The house was shifting off the foundation but was surrounded by high, old oak trees.



KAMAN HOK-1
flown by Chief Test Pilot Al Newton making a rescue in Unionville, Conn., flood.
(Hartford Times photo)

We wiggled the noose or loop down through 60 feet of trees to the man, who pulled it into the attic. Extreme turbulence existed, to the point of taxing the helicopter, power-wise, so I finally started to take up on the rope to cause the person or persons in the attic to make a decision. Needless to say, I was somewhat concerned that they might have hooked it onto the chimney or other structure so Tom stood by with a fire axe. To our surprise, a woman and child came out of the window in our loop, we pulled them up through the trees, carried them to a spot on high ground (a hundred yards or so), and lowered them to the ground as gently as possible. It was soon determined that on a 75-foot rope the people began to swing in a large circle under the ship and due to the confined areas and turbulent conditions this could not be effectively controlled. The solution was to lower them into the water near shore where their swinging motion would be stopped and people on dry land could get to them.

Nine people were taken out of this house and I cherish a very fine letter from the wife and mother thanking me for what seemed a wondrous blessing to them.

Three men were rescued from the Riverton Inn through side windows using the same procedures. All were invalids and one man had only one leg.

I have always marvelled at the 13th rescuee who was a man 70 years old whom we took from a pile of floating trash up against a heavy wooded area (the woods were washed away shortly after the rescue). When I first hovered over him, Tom George, a State Policeman and I were aboard with our pile of gear, full fuel (I had refueled with 80 octane at a nearby private field), and the turbulence was such that I was concerned about power limitations. Just before we left he waved in a way which seemed to say, "Never mind boys, I appreciate the effort but I have had it". We landed at the school yard a mile away, took out the extra equipment, unloaded the two people and strung out the 75 feet of line behind the helicopter. I took off alone and sure missed Tom when I found that the only way of getting the rope down through the trees was to wiggle it through with the helicopter. The old gent got into the loop (all of the people rescued got in correctly - loop under armpits with the knot in front - much to my surprise) and signaled, "OK boy, take it away". As I pulled him up through the trees I noticed he was carrying a small tin box similar to the ones in which valuables are kept. I could not let him off at the nearest dry land because it was a built-up area and the swing of the rope did not make getting him down in a street feasible. As a result, I carried him to a field well up on the south side and some Civil Defense people helped him out of the loop and took him away. I have often wondered what that ride must have been like and so much admired his attitude through it all. I probably had him 200 feet in the air at one point of the rescue.

Tom George did a terrific job as crewman but after other helicopters with hoists, etc.,

CURRENT CHANGES

FIELD INFORMATION DIGESTS (KAMAN)

Applies — H-43A H-43B

No. B-25, 17 June 1960
Removal of L.H. and R.H. Rotor Assembly Shaft and Housing Assembly from Transmission Assembly. (H-43B)

No. B-27, 27 June 1960
Battery Case Sealing. (H-43B)

Applies — HOK-1 HUK-1

No. A-50, 16 June 1960
Precautionary Measures to be Observed During Helicopter Ground Operations.

SPECIAL SUPPORT EQUIPMENT BULLETIN

Applies — H-43B

No. 37, 20 May 1960
Protective Shield Assembly, Addition of Warning Streamers (Protective Shield Assembly, Upper Cabin Windows (H-43B)

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started arriving, we no longer continued our crude, but fortunately effective, rescues. Meanwhile, the second HOK, flown by KAC test pilot Pete Russell and with Harley Tower, another Kaman employee, aboard, picked-up a doctor from his flooded backyard and transported him to Farmington to aid the injured. Both HOK's then helped transport food and medical supplies into areas which could be reached only by helicopters. Another KAC employee, Henry Baranowski, also served as a crewman during the operation. The HOK, though early in its development life, did a remarkable job.

The prime and important part that helicopters play during large-scale emergencies was indelibly impressed on me during this period. The various military services also had helicopters in the Valley before the day was over. Their rescue work was outstanding and involved transport of Civil Defense, State, Medical, and Municipal Officials about the area. One of the most important jobs performed was that of carrying medical and other critical supplies to flooded areas. My family doctor has since told me that we probably avoided a typhoid epidemic primarily because the helicopters were able to render this outstanding service.K

Kaman Service Representatives

on field assignment

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Okinawa

STANLEY M. BALCEZAK
Sheppard AFB,
Wichita Falls, Texas
Webb AFB,
Big Springs, Texas
Cannon AFB,
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O&R NAS North Island
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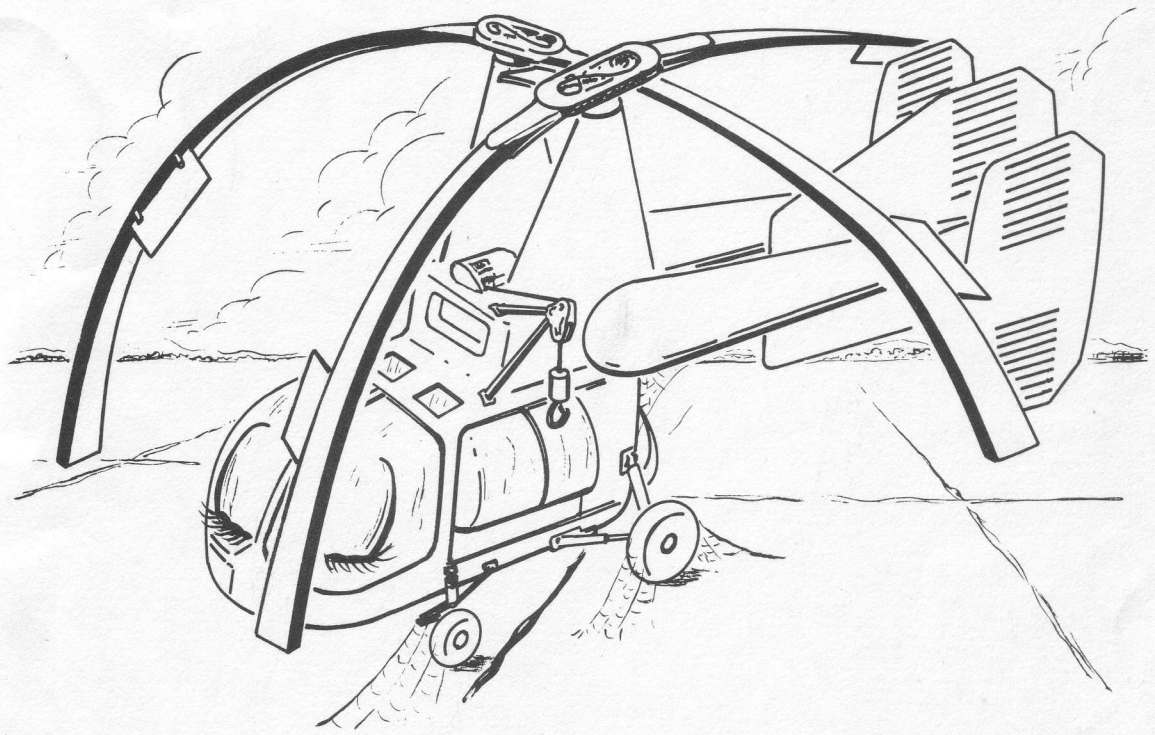
G. D. Eveland, Asst. Supervisor, Field Service Representatives.
R. W. Spear, Asst. Supervisor, Training.

HELP

STAMP OUT ROTOR BLADE DROOP

Remove rotor blade assemblies whenever helicopters are to be stored for two weeks or more.



***ATTN:* ALL MAINTENANCE CREWS — HOK/HUK , H-43A & H-43B AIRCRAFT**

Also recommended, to prevent blades from "taking a set" or droop, that assemblies be stored in properly lined and supported racks.

***REWARD* — $ aving in time, money and man-hours.**

OPERATING UNITS PLEASE POST

Kaman Aircraft Corp.
Field Service Dept.
July, 1960