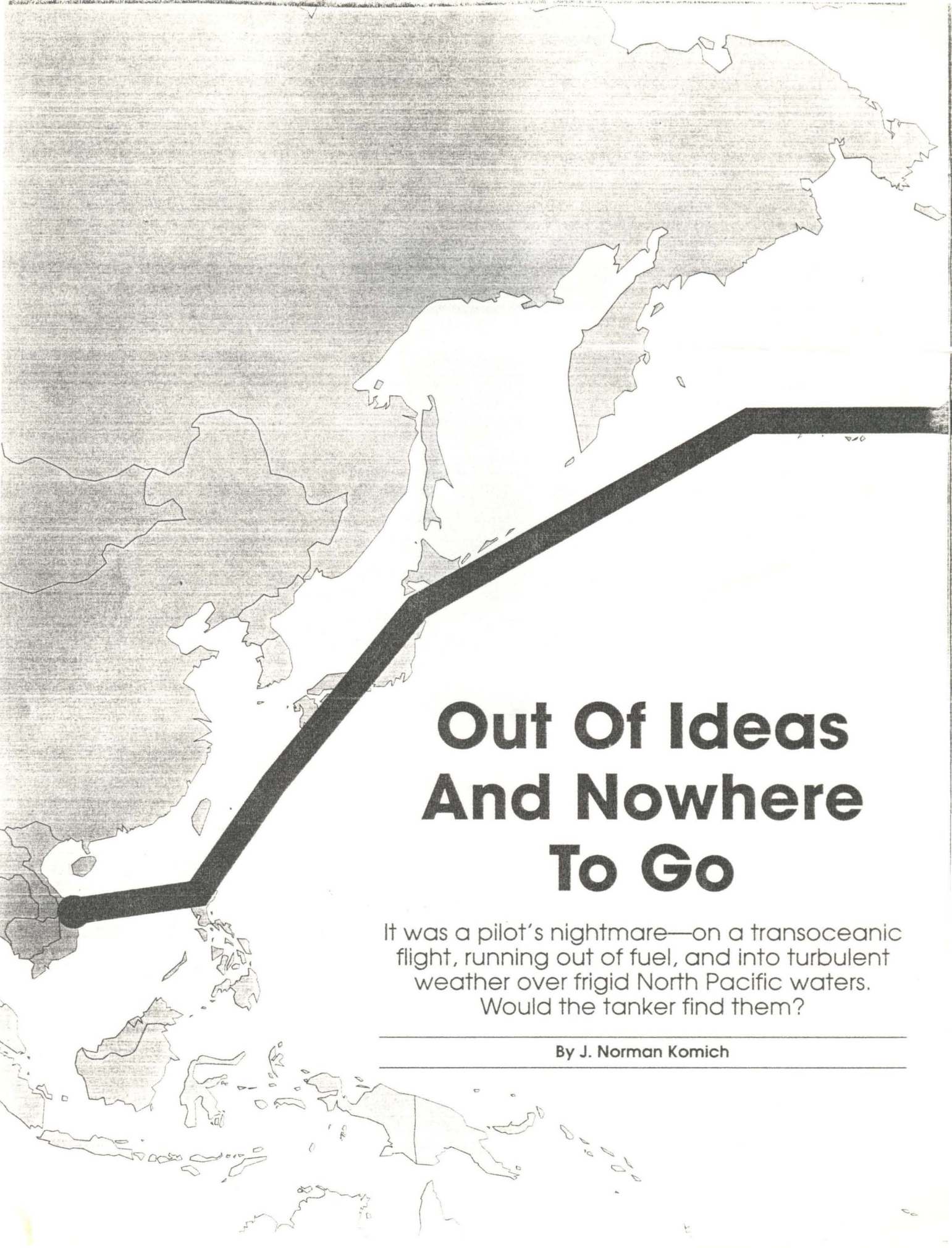

Out Of Ideas And Nowhere To Go

It was a pilot's nightmare—on a transoceanic flight, running out of fuel, and into turbulent weather over frigid North Pacific waters. Would the tanker find them?

By J. Norman Komich

AERIAL REFUELING of helicopters is one of those skills that demands the utmost of a pilot's talent, training, and guts. Not every pilot gets a chance to balance time and space between another aircraft and his helicopter's whirling rotor blades while trying to needle a wafting drogue with a refueling probe.

Could it be any tougher? As one of the crewmembers aboard one of the first trans-Pacific flights of HH-53 models, I can answer "Yes."

My flight was in March 1971, but this story really began in August 1970. The Vietnam War was in full swing, and I had just

(Continued on next page)

Planning for long-distance flights

In looking back on my experience, I have a few suggestions for any long-distance flight planning. First, determine the mission's exact purpose. Is it a publicity stunt or a necessity? In other words, are the risks of the flight—and the commitment of personnel and resources—worth the time saved?

Second, address all possible contingencies, down to the worst-case scenario. Aviation safety is predicated on always having an "out." A preconceived gameplan allows the aircrew to conduct decision-making en route by objectives, rather than just by reaction.

If the flight route approaches countries with which diplomatic relations are lacking, the crews need to be briefed on whether the territory can be used in an emergency. If it can, the country should be advised of the flight, and radio frequencies, squawks, and intercept procedures should be thoroughly agreed upon and briefed to the crews.

If more than one helicopter is on the flight, formation flying should be practiced beforehand—practice in weather is mandatory if there is the slightest chance weather will be encountered en route. Formations also refuel more efficiently and provide mutual support. If one ship goes down, there is a rescue helicopter immediately on scene to recover the crew.

An accurate forecast is another critical factor. However, forecasting for a period 14 to 15 hours from departure is not always accurate. A weather ship, satellite picture, etc., could provide en-route updates.

On a transoceanic flight, a dedicated tanker should accompany the helicopter on legs having no emergency recovery sites. This includes enough fuel for the tanker to slow to allow the helicopters to "draft" in the smooth air just behind the tanker's wingtips, within the refueling range. It requires considerably less power to maintain helicopter cruise airspeed. Under challenging conditions—such as in bad weather, the helicopters could plug into each drogue and remain in the refueling position for the critical portion of that leg.

finished my checkout in the HH-53 at Eglin AFB in Florida. The big Sikorsky was the Air Force's latest combat rescue helicopter.

With its fighter pilots being shot down during airstrikes in Vietnam, the Air Force needed a helicopter capable of performing in Southeast Asia's high temperatures and altitudes. Rescue helicopters had evolved from the HH-43 to the CH-3 to the HH-3, and by the late '60s, to the HH-53.

The requirements to loiter long and to dump fuel to a weight that would allow an out of ground effect hover (HOGE) resulted in the need for in-flight refueling. The HH-3 and HH-53 had this, using the HC-130 tanker.

In a 1967 demonstration of the unlimited range afforded by aerial refueling, two HH-3s flew across the Atlantic to attend the Paris Airshow. That was the first and only transoceanic flight by a helicopter until August 1970, when two new HH-53C models flew across the Pacific from Eglin to DaNang, Vietnam.

Several of my classmates were crewmembers on this flight. Before transitioning to helicopters, I had flown transports out of California, primarily to and from Southeast Asia, and the idea of making the same trip in a helicopter really excited me. However, my lack of prior helicopter experience precluded my chance of being considered.

But in February 1971, I was asked—and jumped at the chance—to be a crewmember on a trans-Pacific flight from DaNang to the United States with two older 53s. We were to pick up two new 53s and ferry them back to DaNang.

We were to depart on March 16, 1971, and be away a total of 30 days: 10 days to the States, 10 days of leave, and 10 days to DaNang. This was an optimistic schedule—we didn't return to DaNang until 73 days later, on May 24.

The route was called a trans-Pacific flight, but it really hugged the land masses. We went from DaNang to the Philippines, Okinawa, Japan mainland, the Aleutians, Anchorage, Seattle, California, Arizona, and cross country to Florida. It was the typical route of all the aircraft with limited fuel range that were ferried to Southeast Asia rather than shipped by boat.

In February 1971, I was asked—and jumped at the chance—to be a crewmember on a trans-Pacific flight from DaNang to the United States with two older 53s.

Even with the larger tip tanks installed for this trip, we still had only $4^1/_2$-hours of fuel on board. The H-53 can go 170 knots indicated airspeed (KIAS), but at that speed, the drag is horrendous and the fuel consumption per mile was prohibitive.

We also had a "cruise-guide" indicator that limited how much torque we could continuously pull with a full fuel load. Consequently, we cruised at between 105 to 125 KIAS, depending upon the fuel load.

Of the numerous unexpected situations along the way, the primary one occurred on the longest leg—between Japan and the Aleutians. Stretching from Misawa AB on Japan's northern tip to Shemya Naval Air Station at the Aleutians' western end, this leg was 1,025 nm, with a flight time of 12 to 14 hours depending on winds. We planned for four refuelings on this leg.

The problems we encountered on that leg began weeks earlier during the planning phase. Due to a shortage of serviceable HC-130 rescue tankers, mission planners failed to commit a dedicated support tanker for the entire flight.

It was decided a DaNang tanker would take us on the first day to the Philippines. Then a Philippines-based tanker was to escort us to Japan and part way through the Misawa-Shemya leg. Meanwhile, another HC-130 flying out of Shemya, would intercept us and escort us back to Shemya.

This plan was chosen because, even if full of fuel, one tanker alone was unable to provide gas for itself and the two helicopters on such a long leg. Since a similar plan was successful on the August 1970 ferry flight, no consideration was given to scheduling two tankers to escort us throughout that entire leg.

The fact that the previous flight had been during the fair weather summertime never entered the discussion. Consequently, for a four-hour period in the middle of the flight from Misawa to Shemya, our only support would be each other.

Outbound from Misawa

We left Misawa April 11, 1971, with a favorable en-route weather forecast. The initial portion of the flight went normally. The weather was CAVU, and we even had a Russian Mig-17 come out and circle us twice as we performed the second aerial refueling while paralleling the Kuril Islands south of the Kamchatka Peninsula.

Since we had no briefing about any type of notification to the Soviets about our trip, we assumed the MiG had been launched when Soviet air defense radar showed three unidentified blips proceeding northerly at 120 knots. When I read about the shootdown of KAL 007 in the same vicinity years later, I fully realized how sensitive the Soviets were about this area.

The weather was still good, the two helicopters were mechanically sound, and we had HF contact with the replacement HC-130 coming down from Shemya. Consequently, at the appointed time, our escort tanker during the first half of the flight turned back to Japan, and the two helicopters pressed on unescorted.

Two hours later, we passed the ETP—the midpoint of the Misawa-Shemya leg. We were now committed to Shemya—and problems began, as weather began to form along our route.

How severe was our situation? We were now in a position where we *had* to get fuel to get to the nearest friendly land. The alternatives were less than desirable. We could ditch in the hostile, frigid North Pacific Ocean with the closest formal rescue forces, at Elmendorf AFB in Anchorage, a day and a half away.

Or we could divert to Russian territory and land with no formal diplomatic clearance *or* instructions, other than the basic visual signals to follow when being intercepted. Considering the Soviet involvement in the Vietnam War and the fact we were U.S. military forces out of Southeast Asia, this option was No. 1 on the "Let's avoid that" list, closely followed by ditching.

Of the numerous unexpected situations along the way, the primary one occurred on the longest leg—between Japan and the Aleutians.

Consequently, the helicopter crews were committed to that refueling. However, our commitment was only half the story—the tanker crew's performance was equally pivotal. Our limited airspeed capability required them to join up on us from behind and fly into a position abeam the helicopter(s) at three o'clock, 200 feet below the helicopter.

When the lead helicopter pilot had the tanker in sight, he would radio "Tally-Ho," and the tanker would assume the formation lead. The helicopter would then move into an "observation" position off the tanker's left wingtip, then drop down and refuel with a probe-to-drogue system.

It is obviously paramount that the tanker have the helicopter in sight to complete the join-up. Regulations required visual contact by one-half mile or the join-up was to be broken off, and the tanker would "go-around" by accelerating in level flight until achieving maneuvering speed and then breaking right. It would maneuver back around in a race-track pattern for another attempt to join-up from behind.

Solidly socked in

We advised the inbound tanker of the weather that had moved into the route as soon as we encountered it. When the 130 entered the same weather pattern, its crew advised us that they had gone down to 500 feet and up to 15,000 feet looking for some clear space to refuel. It was solid weather throughout.

We likewise attempted to find a clear altitude and had to descend to 300 feet before visually picking up the frigid water below the ragged ceiling.

Although we did fly in formation in Southeast Asia, it was a loose "combat root" position, and *always* in VFR conditions; we avoided weather like the plague. However, on this trip, to break up the monotony of the long straight-and-level legs, we flew a lot of tight formation, maneuvering in and out, crossing over, etc., and we swapped leads every hour. Also, all four helicopter pilots were PIC-qualified, and we swapped seats on every leg.

For a four-hour period in the middle of the flight from Misawa to Shemya, our only support would be each other.

On this leg, I was flying copilot in the left seat of the lead aircraft. Our wingman was Evin C. "Chris" Christensen, a former Mach 2 B-58 "Hustler" pilot who transitioned to helicopters at the same time I did, when the B-58 was phased out. His experience and the required aggressiveness in such a high performance aircraft was going to prove to be beneficial.

As the weather got thicker and thicker, Chris moved in tighter and tighter on the left side, and I can vividly remember looking out the left window and realizing we were in some "very" thick clouds, but I could still make out the other helicopter...barely.

Chris "stacked high" on us to allow the rotor blades to overlap, and he had to tuck in so tight to keep us in view that

(Continued on next page)

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I began to wonder how close our main rotor blades were to his fuselage. Fortunately, the HH-53 had wing tip lights on the top of the main-rotor blades, and these provided Chris with a reference on exactly how close they were. As the visibility deteriorated, I think he was referencing feet instead of yards in the clearance between aircraft.

We had no radio navaids at this point, and since the Dopplers were typically unreliable, we were navigating by dead reckoning only at this point. It helped immensely that the other pilot in Chris' crew, John Harris, was a former navigator. But with no outside inputs, we were basically just flying a heading.

To determine if there was a clear area to refuel below us, we initiated a gradual descent to see what the bases of the clouds were. We did not have a current altimeter setting, but we did have radar altimeters on board both helicopters, and we utilized them to descend, cross-checking each other's readout every 50 feet.

Whitecaps below

When we got to 250 feet above the water, we could pick up the whitecaps on the waves below us through a ragged base. It was not at all inviting, and the helicopter crews questioned the feasibility of the tanker joining up on us at such a low altitude. We climbed back up to 500 feet above the water and pressed on.

Thanks to a "mini-transponder" on each helicopter, the tanker could pick us up on his weather radar. It homed in on us, passed overhead, and eventually was overtaking us from behind. The tanker was out of Pease AFB, N.H. (which indicates how desperate they were for tankers), and the HF radio transmission we made with them earlier was the first contact we had with them.

We advised the inbound tanker of the weather that had moved into the route as soon as we encountered it.

Standardization of procedures is supposed to assure that a refueling between a flight of helicopters from one base and a tanker from another base literally half way around the world should go off without a hitch.

However, the only guideline provided by those standardized procedures for bad weather was do not attempt to refuel. So here we were with unfamiliar crews, in unfamiliar weather, in a *very* unfamiliar location.

Consequently, we used the known procedures, and the tanker ran a join-up attempt with us at 600 feet AWL (above water level) and the tanker at 400 feet AWL. The helicopters had reset their barometric altimeters from the radar altimeters when at 300 feet, and we had the tanker utilize that altimeter setting.

Such an attempt had half the tanker crew straining to see the helicopters above and the other half straining to see the water below. At the book-prescribed one-half mile (they used the range rings on the weather radar to gauge distance from us), the tanker went around and set up for another attempt.

This time we went to 500 feet AWL, and the tanker came in at 300 feet AWL. The pilot in the tanker, Dave Laubhan, was attempting to hand fly a precise track—in light-to-moderate turbulence in the soup—with a combination of dead reckoning and a blip on the radar scope—all at an airspeed just 10 knots above stall.

Remember that our barometric altimeters were only accurate to within 75 feet, and the turbulence did not allow precise maintenance of altitude for any of the three aircraft. Another problem the tanker crew encountered was that the weather radar did not provide accurate distance guidance within a half mile as the blip merged with the basic radar pattern.

On this second attempt, Dave pushed it to what he "guesstimated" was one-quarter mile before going around.

Still out of any new ideas, we dropped to 400 feet and the tanker went to 200 feet, and this time Dave pushed it to what he felt was an eighth of a mile before pushing the throttles up to go around. I can't imagine the tension in that cockpit as the crew strained to see us. They reported the water in sight to us, but we were still solidly in the soup. At the eighth-of-a-mile point, Dave was actually apologetic when he transmitted, "Sorry guys, I don't have you at an eighth, and I'm going around again."

The fourth attempt

He began to accelerate, and as he pulled abeam of us, there was a momentary break in the ragged bases of the clouds, and my pilot, Gene Hollingsworth, just caught sight of the tanker as it passed abeam and below us, and he literally screamed into the mike: "I've got you!" and then banked and dove to get on the tanker's wing. I jerked around to the left to see what happened to Chris with that maneuver, but he was stuck on us like glue.

Dave immediately throttled back and slowed to let us catch up. In the

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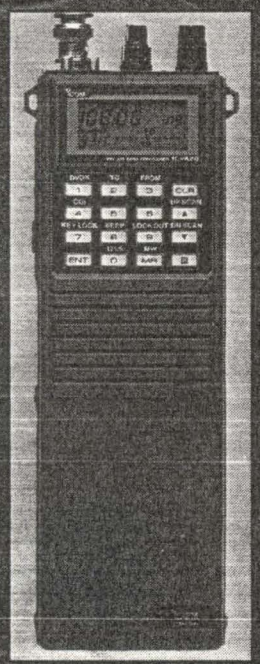

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join-up configuration with partial flaps out and the gear up, the tanker is flying right above stall speed, and with all the extra fuel they were carrying for this particular leg, its crew had even less margin for error. Yet Dave horsed it back to refueling speed and allowed us to join-up on him.

I can't imagine the tension in that cockpit as the crew strained to see us. They reported the water in sight to us, but we were still solidly in the soup.

In spite of the bad showing by the H-53 during Desert One, the Iranian hostage-rescue attempt, let me assure you that it is one impressive helicopter. I describe it as a bus you can drive like a Porsche, particularly at the lighter gross weights, and this performance allowed us to catch the tanker with Chris right on our wing before we lost sight of it in the ragged cloud base.

After such a join-up, in spite of the fact that we were at 200 feet above the water in turbulence, the refueling went without a hitch, and we stayed at low level on the tanker's wing until we reached clearer weather.

After the fourth and final refueling, the tanker was low enough on fuel to require it to press on to Shemya, and we followed as fast as we could, arriving with a spectacular (for a helicopter) "bomb-burst" pitch left and right, and joining back up for a wing landing.

Good to be back

It felt good to be back in complete control again. As typically follows a stressful flight, there were lots of joking and kidding and boasting, but there was no real analysis of "What if..."

If Chris had gone "lost visual contact" with us in the weather, this would have required him to climb and alter his heading. We probably would have lost him, as he did not have sufficient fuel remaining for two separate join-ups.

Likewise, if Dave had not bent the regs and pushed, both helicopters might have been lost. It was an impressive effort for the benefit of two helicopter crews he had never met before. And as is often the case, we all owe a lot to Lady Luck who provided that momentary break in the clouds. ■