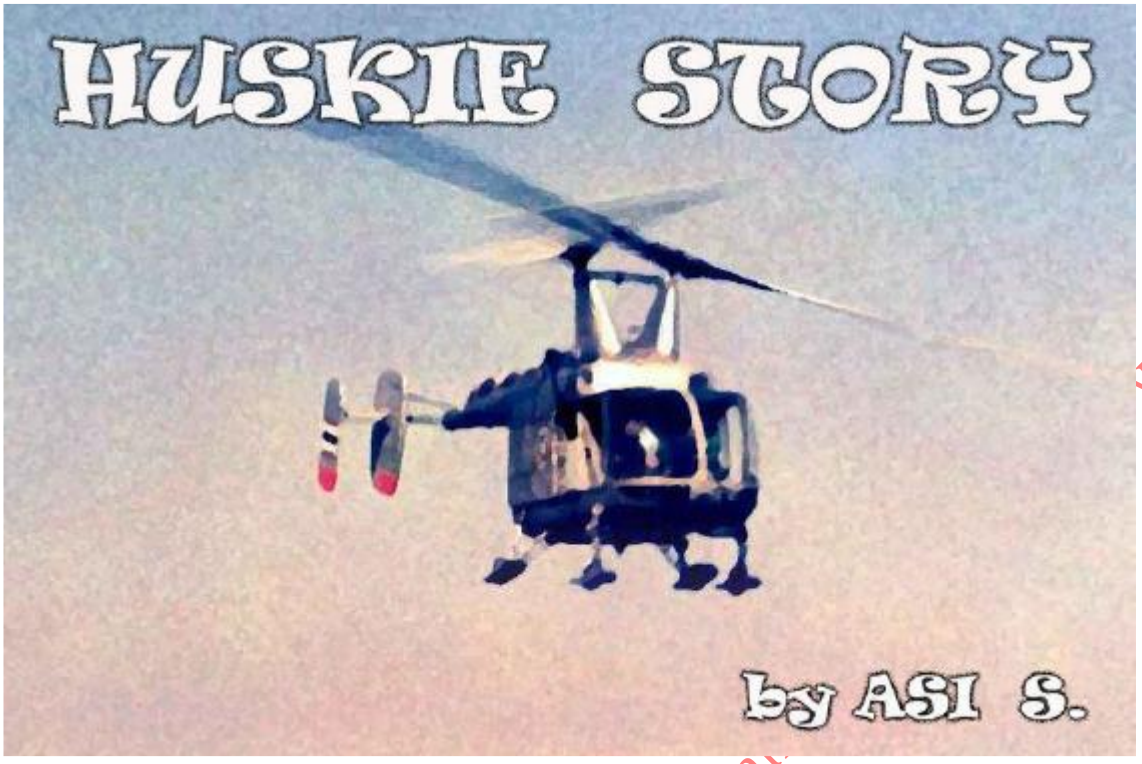

In the saga of helicopters used by various armed forces of Thailand throughout history and up to the present day, I think that there has never been one with such a weird shape to equal the Type 5 Kaman Huskie of the Royal Thai Air Force. Several people have commented, when viewing either the actual aircraft or photographs of it, that they asked if it could actually fly without its rotors clashing and what was its development history. A considerable number of people asked me to relate its story.

The story of the Type 5 (HH-43B) Kaman Huskie starts towards the end of 1961 when the US Government supplied a number of aircraft types to the RTAF. Many of these were provided via military assistance programs. The total number of airframes could be numbered as several hundreds. However, up to that time, Thailand had not received any dedicated search and rescue (SAR) helicopters. Helicopters which had been used in that role included the Type 2 (UH-12B Raven) which was a small two or three-place aircraft, and the Type 3 (H-19A Chickasaw) which was a larger aircraft, but had been reduced in number to no more than four airframes. The Type 3 was used in the general support role rather than a specialized SAR role. The US Government considered this problem from Joint US Military Advisory Group – Thailand (JUSMAG-T) reports and proposed supplying new-built aircraft and helicopters under military assistance programs. Therefore in 1962, the Type 5 (HH-43B) Huskie rescue helicopters were constructed by Kaman Aircraft Corporation. In preparing to receive the new helicopters, the RTAF sent pilots and technicians to the USA to undertake courses. This included aircraft mechanics, signals technicians, and other specialists who would be involved with the program. These courses lasted about three months and were conducted at a small air base in Utah. Shortly afterwards, the first pair of helicopters (Serials 60-292 and 60-292) were delivered to Thailand aboard a USAF C-130 transport aircraft on 29 April 1962.The second pair of aircraft (Serials 60-290 and 61-2920) arrived on 12 July 1962. The RTAF had designated the new type as the “Type 5 helicopter” or “H5”.

The new aircraft were assigned to Number 2 Flight of 63 Squadron of Wing 6 at Don Muang. The Kaman Aircraft Corporation sent pilots and technicians to 63 Squadron to provide technical and operational advice. In addition, the USAF was using HH-43B aircraft during the

Vietnam War and detachments of the 40th Aerospace Rescue and Recovery Squadron were located at each airbase in Thailand where USAF aircraft were based. The callsign of the Huskie was "Pedro" and in addition to its primary role as a rescue helicopter for aircraft which had suffered an accident, it was sometimes used as an early-warning platform for airfield defence. This came about after Viet Cong sapper units conducted nuisance raids on air bases at Udon Thani and Ubon Rachatani.

The Type 5 is considered to be the only RTAF helicopter of that era which had been primarily designed for the rescue role. It was especially capable of use in aircraft accidents and fighting aircraft fires when the crash site was inaccessible to other fire fighting vehicles. It could transport crash crews to isolated locations to assist aircrew faster than any other means. If we look at the characteristics of the HH-43B, we can see that it was developed from the H-43A helicopter. It could carry ten people, rather than five. It had two rows of folding seats, which could be removed if the aircraft was used in a cargo-carrying role. Cargo could be carried in the rear passenger compartment. The size of objects which could be carried was limited by the entry hatch, and weight had to comply with documented limits. It could also be fitted with up to four litters for the air evacuation of patients. However, normally only one litter would be fitted if an inter-provincial transfer was required. The Type 5 helicopter was more-commonly used for short-range carriage of patients, such as from the aircraft hard-standing at Wing 6 at Don Muang to hospitals in Bangkok.

For the transport of passengers, patients or cargo, access to the rear compartment was via clam-shell doors. The pilot-in-command was seated on the right-hand side, with the co-pilot on the left in a side-by-side configuration. The helicopter fuselage was rather wide with a low centre of gravity which allowed it to operate from uneven ground and up to a slope of 30 degrees without fear of flipping over. However the aircraft could not be shut down in such a position. When we look at the wheels, they all seem disproportionately small in comparison with the fuselage. Flat plate collars were therefore required to be fitted around the wheels to reduce the ground pressure when operating from soft ground. A hook enabled equipment with a weight of up to 2500 pounds to be slung under the fuselage. Actually this was designed to carry an external fire fighting unit, containing chemical solutions, compressed air tanks and various pipes and hoses. The total weight of this unit was about 1000 pounds. Apart from this, on the right side of the fuselage, directly above the sliding door was an electric winch to assist survivors. This winch had a capacity of 600 pounds and it was controlled by the pilot-in-command. The crewman who was located in the rear compartment could assist the survivor to enter the fuselage.

The unit operating the Type 5 or HH-43B thought that the most important change was that the R-1340-48 radial engine of the H-43A was replaced with the Lycoming T-53-L-1B turboshaft engine. This engine was located above the passenger compartment and greatly increased the efficiency of the helicopter in the rescue role. The Type 5 was the first RTAF helicopter to use this type of engine. It had a great many advantages such as it could be ready for take-off in only four-five minutes, in starting the engine and checking systems, it could be ready for flight very rapidly. This was different to the Type 4 helicopter (CH-34C/D) which used a radial, aspirated engine and needed about ten minutes to be ready for take-off. Apart from this, it also had a far higher power to weight ratio (the aircraft empty weight was about 4,500 pounds, with a total all up weight of about 9,000 pounds). The total power was 880 horsepower but top speed was a quite modest 107 miles per hour (mph). Cruising speed was 90 mph which was slower than the Type 4. Actually, the aircraft was designed from first principles as an aircraft rescue helicopter. Therefore its operating environment was only to be the immediate environs of airfields. It had no requirement to operate outside the immediate area of an airfield or travel long distances apart from when it needed to travel for annual airborne weapons competitions.

Two Type 5 aircraft were deployed to aerial weapons range Chai Badan ("Chandy") in Lopburi province. They were positioned in readiness to provide assistance to any aircraft in the competition which might experience an accident. In such a case, flight speed was not as important as reaction speed. At all times, at least one Type 5 was on standby alert for immediate take-off.

The Type 5 was designed to have two main rotors. These two rotor disks intermeshed and were controlled to avoid a rotor clash. No tail rotor was required and power could be concentrated into lift. The centre of gravity was quite centralized. The intermeshing of the two rotor disks also reduced the overall rotor diameter when flying at low altitude where trees might become a rotor strike hazard. This contrasted with the larger Type 4 which had very long main rotor blades, as well as a tail rotor. The Type 4 also had a long tail and a high tail fin. This (concentrated rotor force) assisted Type 5 pilots to control the aircraft and rapidly change direction of flight to increase manoeuvrability. In addition, it increased control of flight in blustery conditions or when hovering during a rescue.

Apart for this, another advantage in conducting firefighting activities was its ability to fly very close to the source of a fire as its rotor wash was concentrated downwards. Pilots used this characteristic to practice low hovering with the aircraft nose-high and gradually creep forward. This used the rotor wash to push the flames forward and create a corridor for the ground-based rescuers to access the crash and move towards the crashed aircraft with the Type 5's fire-fighting equipment pod. They could extinguish the fire with the water spray or rescue the occupants of the damaged aircraft.

Apart from this, the rotor wash also reduced the heat of the fire for the rescue personnel and also assisted to blow the firefighting foam and smother the flames to the maximum extent. However in the period of the Type 5's service, this technique was never needed to be used operationally. So it was only seen in training and in demonstrations.

Furthermore, most normal flights were training and maintenance of currency and flying standards. Training included flying air routes, night flying, or instrument flying in accordance with the scheduled unit training program. In addition there were special activities which were designated by senior personnel which were known only to a small number of selected pilots and aircraft maintainers.

Officials of 63 Squadron who worked with the Type 4 aircraft were not involved in the Type 5 as the helicopters had very different systems. If any aircrew cross-training had occurred it may have caused damage and errors when flying their own aircraft.

Although the Type 5 mechanics serviced their own engines, they were absolutely forbidden from re-installing the engines. This was different to the Type 4 mechanics who were allowed to re-install engines in order to conduct certain tests themselves. So in spite of it making servicing a bit difficult, problems only occurred if people did not follow the stipulated service and maintenance program, servicing tasks, checks and work cycle. (During start-up, if strict checklists were not followed) engine temperatures could rapidly escalate to the point where turbine blades could melt and separate from the turbine assembly. If this occurred, the entire compressor unit might need to be replaced.

In May 1967, both Type 4 and Type 5 aircraft were transferred to 31 Squadron of Wing 3 which had been newly re-raised after previously being disbanded in 1945. The new squadron was a purely rotary-wing unit. In its temporary time under Wing 3, it used the facilities

previously used by 63 Squadron. In the middle of 1969 it moved to permanent facilities in Khorat, which had previously been the Flying School.

During this time some Type 5 aircraft were deployed to conduct counter-insurgency (COIN) operations against the Communist Party of Thailand (CPT) insurgency in the upper region of of Northern Thailand. They operated from Chiang Klang airfield in Nan Province. They also operated in the lower region of Northern Thailand in the tri-border area of Phitsanulok, Petchabun, and Loei where they operated from Lom Sak airfield (Sak Long district) of Petchabun Province. Their primary mission was rescue of downed aircrew whose aircraft had encountered an accident or encountered enemy weapons fire. If we include aerial resupply missions to regional forces and casualty evacuation missions within the area of operations, it can be seen that the rate of effort not very high. This is because, when compared with the number of available Type 4 and Type 6 aircraft, there were only a very small number of Type 5 aircraft.

From recorded evidence that is available, on 9 March 1969, Type 5 helicopter 3105 from 331 Flight , with Flight Lieutenant Phaisarn Samutkhiri (Pilot-in-Command) and Flight Lieutenant Sakul Intrasophoa (Co-pilot) and Wing Commander Prasit Klapkamol (Crew) conducted a resupply flight with reinforcement personnel from Joint Headquarters 394 who were conducting a COIN sweep in the vicinity of Baan Daan village, Nakhon Thai district, Phitsanulok province. Insurgent forces of the CPT engaged the aircraft with heavy fire and the aircraft was struck by about ten rounds. The pilots were able to recover the aircraft to base with no casualties.

In 1972, the order was received to withdraw the four remaining Type 5 aircraft from service. Two aircraft remained airworthy however spare parts were scarce. This caused a low rate of operational serviceability. In addition, the RTAF reduced the number of aircraft types in order to simplify the maintenance system. So the withdrawal of the Type 5 helicopter from Thai service was hastened.

In Thailand there is currently only one surviving Type 5 helicopter (Thai serial T.O. H5-2/05) which is on display at the RTAF Museum. If any of you would like to have the opportunity to closely examine a Type 5 helicopter, this will be your only option.

Table

Serial	**US Serial number**	**RTAF Serial number**	**603 Sqn**	**63 Sqn**	**31 Sqn**
1.	60-292	H5-1/05	6321	6316	3104
2.	60-291	H5-2/05	6322	?	3105
3.	60-290	H5-3/05	6323	?	3106
4.	61-2920	H5-4/05	6324	?	3107

In spite of looking weird, several of its flight characteristics were considered exceptional.

Pilot training exercise, Type 5 of 63 Squadron. In the early days of the aircraft, USAF pilots were flying instructors.

Type 5 aircraft transporting a 20mm Madsen anti-aircraft cannon during an airfield defense guard exercise.

Type 5 aircraft of 31 Squadron, deployed in support of COIN operations during 1967.

Translated by:
Tony Rigby
March 2017