A Bridge Too Far: Unmanned Aerial Vehicles (UAV) in Navy Service during the Cold War

by

Robert H. Stoner, GMCM (SW) (Ret)

Prologue: *After the end of the Korean War (1950-1953) the United States Navy's largest potential adversary was the submarine force of the Soviet (Russian) Navy. Navy leaders remembered the hard-won lessons of the Battle of the Atlantic against the German U-boats and were determined to find a solution to the menace represented by this huge diesel-electric and nuclear submarine fleet. One of the weapons in the fight was the Drone Anti-Submarine Helicopter or DASH.*

DASH was a design that was far ahead of its time and although it did not succeed in its intended mission (no thanks to a series of mistakes by the Navy), the little robot helicopter only stopped flying in May 2006. Currently, the successor to DASH is the Navy's MQ-8B Fire Scout UAV. The Fire Scout is designed to do many of the jobs DASH pioneered. Let's hope the Navy learned lessons from the management problems that were uncovered in the course of the DASH program.

The Cold War anti-submarine warfare (ASW) problem was one of attrition -- killing submarines in large numbers – and was a reflection of the World War 2 experience. Submarines, by definition, are difficult to find and hard to kill. The keys to the finding and destruction of the German U-boats were good electronic warfare (to detect their radar and radio signals), good shipboard radar to detect submarines on the surface or their snorkels if they were submerged, and sonar and aircraft to locate them underwater and assist in the kill.

Although the Navy had a large number of maritime patrol aircraft (both seaplanes and land based), the problem was the Navy's primary fleet aviation ASW asset was the CVE or CVL (escort or light carriers) and these had been or were being retired. The large attack carrier fleet was likewise shrinking. The numbers of platforms that could put airborne “eyes in the sky” was going away. Manned helicopters were few in number and lacking in range and payload.

Post-War World War 2 Anti-Submarine Weapons: At the end of the Korean War, ASW weapons were much the same as those of World War 2: depth charges and Hedgehog ahead-thrown projectiles. In the years after 1945, the 7.2-inch Hedgehog projector charge was developed into the Weapon ALPHA, a scaled-up 12.75-inch, rocket assisted projector charge. All of these weapons were limited in range and/or warhead capacity.

Above: A rack of Mk 9 depth charges (left) on USS ALLEN M. SUMNER (DD-692). The “teardrop” shape of the Mk 9 depth charge was to promote a faster sink time and to decrease the “dead time” between when the ship’s sonar lost contact with the submarine (about 250 yards from the sub) and the time the depth charge sank to the submarine’s last known depth. The problem with depth charges was they created so much turbulence in the water after detonation that reacquisition of the submarine was sometimes a problem.   (Photo: DD-692.com)

Above: The Mk 11 launcher with 24 "Hedgehogs" also called 7.2-inch Projector Charges on a Predator-class corvette of the Dutch Navy. Fuze caps are installed. Hedgehogs only detonated when the fuse made contact with the submarine. (Photo: NavWeaps.com)

Below: The RUR-4A 12.75-inch Weapon ALPHA anti-submarine projectile at Naval Ordnance Station, China Lake about 1950. (Photo: U.S. Navy)

Below: The Rocket Assisted Torpedo (RAT – B) was another product of Naval Ordnance Station, China Lake. A rocket motor was mated to a disposable airframe with a parachute retarded Mk 43 homing torpedo. RAT-B was developed into the more sophisticated (and costly) Anti-Submarine Rocket (ASROC) system. (Photo: Directory of U.S. Military Rockets and Missiles)

The acoustic homing torpedo had been developed at the end of World War 2, but battery capacity limited its effective range. The Navy Ordnance Station, China Lake, California, experimented with the Mk 43 12.75-inch diameter ASW torpedo with a disposable airframe and a rocket motor. This 1950 combination was called a Rocket Assisted Torpedo (RAT – A). Results were good and by 1954, an improved design called RAT – B, was tested. RAT – B evolved into the more comprehensive (and expensive) ASROC (Anti-Submarine Rocket) system.

Summary: In 1954, the typical anti-submarine weapons of the day were: (1) depth charges (obsolete), (2) projector charges (Hedgehog and Weapon ALPHA) were semi-obsolete or too expensive and two few in number, and (3) the new anti-submarine homing torpedoes that were limited in range. The proposed solution of the ASROC missile was expensive and required extensive modifications to destroyers with enough growth potential to receive it. The ASROC system used a sophisticated sonar fire control system to lob an unguided, rocket-thrown Mk 44 homing torpedo or a Mk 17 nuclear depth charge to the vicinity of the submarine. ASROC did extend the standoff range of ASW weapons, but not far enough. Enter the Drone Anti-Submarine Helicopter (DASH) concept that took into account:

- Shrinking numbers of aircraft carriers (CVE, CVL, CV).
- Large numbers of war-built destroyers (DD).
- Limited numbers of expensive manned aircraft.
- Limited numbers of USN hunter-killer submarines.
- Inability of most manned helicopters to land on DDs.
- Inability of most manned helicopters to operate from DDs.

The DASH was a small, unmanned helicopter that could carry one or two Mk 44 ASW torpedoes or a Mk 17 nuclear depth charge. DASH would deliver either of them to the vicinity of the hostile submarine that had been detected by the destroyer's sonar or by other means. Destroyers modified under the Fleet Rehabilitation and Modernization (FRAM) program received a helicopter landing area for the DASH helicopters and a hangar maintenance facility for them. The typical DD then had its own organic aviation department with two anti-submarine helicopters.

Gyrodyne Company of America was a small helicopter company founded by Peter James Papadrakos (1914-1992). Mr. Papadrakos bought the defunct Bendix Helicopter Company located near Massapequa, New York, and reopened it as Gyrodyne in 1946. By 1951, Gyrodyne had relocated to a 500-acre tract on Long Island, at St. James, New York, where it remained until 1999.

Unlike conventional helicopters being built by companies like Sikorsky, Bell, and Piasecki, the Gyrodyne Company specialized in helicopters with counter-rotating rotor blades. Gyrodyne installed the counter-rotating rotors on a single shaft. The opposite turning rotor blades eliminated the need for a tail rotor (Sikorsky, Bell) or separate, opposite turning rotors (Piasecki) to stabilize the helicopter in flight. The first Gyrodyne helicopters were manned helicopter technology demonstrators.

Why Gyrodyne? The counter-rotating rotors of the Gyrodyne design offered many advantages over conventional twin rotor or main rotor and tail rotor designs.

- The design was very compact compared to others.
- The design could carry a high useful load.
- The design had safe deck and ground characteristics.
- The design had a low empty weight.
- The design featured complete symmetry of the rotors.
- The design featured a simplified rotor system.
- The design was free from control cross coupling.
- The design had low tooling and manufacturing costs.
- The design provided optimal power transmission.
- The design featured modular construction.
- The design provided affordable growth potential.

In 1954, Gyrodyne received a government contract for the development of two lightweight, single seat helicopters called the XRON-1 Rotorcycle. The XRON-1 was the answer to a Marine Corps contract for a one man helicopter that could be dropped to a shot-down pilot, assembled on-site by him, and would allow him to fly to safety from behind enemy lines.

The experimental XRON-1 Rotorcycle flew for the first time on 23 November 1955. As delivered, the XRON-1 weighed 500 pounds, had two 15-foot main rotors, and was powered by a Nelson two-cycle 40 hp engine. Tests showed the 40 hp engine was underpowered and tended to overheat. Overheating led to shortened engine life.

Gyrodyne applied for and received permission from NavAir in mid to late 1956 to change the engine to a higher horsepower, modified 55 hp, four-cycle Porsche air-cooled engine. Rotor diameter was increased to 17 feet and weight increased to 670 pounds.

Above: The XRON-1 Rotocycle in flight. (Photo: Gyrodyne Helicopter Historical Foundation)

Meanwhile, Gyrodyne built another XRON-1 with a Solar gas turbine of 55 hp. This helicopter had 20-foot diameter rotors and weighed 617 pounds. Gyrodyne tested all three versions of the XRON-1 extensively during 1956 and 1957. Gyrodyne thought the Porsche engine version was the better of the three designs and requested a 72 hp version of the engine from Porsche specifically for the XRON-1.

In addition to the XRON-1 experimental helicopters, the USMC, procured an additional three YRON-1 prototype helicopters as part of the 1954 contract. The USMC and USN extensively tested the X/YRON-1 at its Patuxent River, Maryland, test center with varying engine types during the late 1950s. However, interest shifted to the QH-50 DASH program. Development of the Gyrodyne-sponsored 72 hp version of the XRON-1 was terminated in 1964 due to heavy production demands placed on the company by the DASH program.

While the manned X/YRON flights were in progress at Pax River, the Navy wanted to know if the XRON could be "droned" (that is, made into an unmanned helicopter). Gyrodyne was awarded a contract on 31 December 1958 for a drone version of the XRON-1 and the first unmanned type first flew at Pax River on 12 August 1960.

As delivered, there were nine QH-50A (Q = unmanned, H = helicopter, 50 = model, A = variant) models and three QH-50B models. The QH-50A birds were used to validate the concept of a drone helicopter that could carry a Mk 43 torpedo or Mk 17 nuclear depth charge. The QH-50A used the modified Porsche 72 hp engine. Improvements to the “A” model were implemented into the improved QH-50B variant. During tests, the engine of the QH-50 was changed to the T50-BO-8A turbine made by Boeing Company that used JP-5 fuel (considered less volatile and safer for shipboard use).

Above: A QH-50A launches from USS HAZELWOOD (DD-531) on 12 September 1960.

The trials ship for DASH was the Fletcher-class destroyer USS HAZELWOOD (DD-531). HAZELWOOD did not receive the later FRAM modifications. However, a further 131 Fletcher, Sumner, and Gearing destroyers did receive these changes. Of the group, three Fletchers received FRAM modifications in 1960 and 1961 [USS RADFORD (DD-446), JENKINS (DD-447), and NICHOLAS (DD-449)].

Thirty-three of the 53 Allen M. Sumner-class DDs received FRAM II modifications (without ASROC). The Sumners retained all three twin 5”/38 gun mounts, two Mk 10 Hedgehog launchers, two Mk 32 triple Mk 43/Mk 44 torpedo tubes, and DASH.

Forty-four of the 98 Gearing-class DDs received FRAM I modifications (with ASROC). These modifications were broken down into Groups A and B. The Group A ships retained both twin 5”/38 gun mounts forward, two Mk 10 Hedgehog launchers aft of the second 5-inch twin mount, an ASROC launcher between the stacks, two Mk 32 triple Mk 43/Mk 44 torpedo tubes aft of the second stack, and DASH. The after twin 5-inch mount was removed. Group B ships had a twin 5-inch mount fore and aft (Mounts 51 and 53), the forward Mount 52 was replaced by a 5-inch loading machine and two Mk 32 triple torpedo tubes, the ASROC launcher was installed between the stacks, with the DASH hangar and flight deck aft. Group B ships carried increased torpedo storage.

Other Gearing class destroyers received FRAM. Eight hunter-killer or DDK conversions were given FRAM I or FRAM II conversions (two FRAM I and six FRAM II); 36 radar picket destroyers or DDR received conversions (10 received FRAM I with a variable depth sonar (VDS), 26 received FRAM II); seven escort destroyers or DDE were given FRAM I, Group B conversions. In all, 131 Fletcher, Sumner, and Gearing DDs received DASH. A further 37 destroyers, destroyer escorts, and destroyer leaders received DASH conversions.

Between 1961 and 1963, 373 QH-50C DASH were delivered. The first flight of the QH-50C was on 25 January 1962. The USS BUCK (DD-731) was first to fly the QH-50C on 7 January 1963. The QH-50C had an extended tail boom with twin rudders and a 300 shp T50-BO-8A engine. The follow-on QH-50D dispensed with the tail boom and used a 365 shp T50-BO-12 engine. From 1964 to 1968, 373 QH-50D models were delivered to the Navy. A total of 746 QH-50C/D models were produced. Of these, some 411 were lost operationally. High attrition rates and other problems caused the USN to begin phase-out DASH on 1 June 1970. All DASH operations ceased on 30 November 1970.

Initially, there were two DASH assigned to an operating ship with one assigned as a replacement. In service, for various reasons related later, attrition was much higher than expected and more units were procured.

Above: A pair of QH-50C drones aboard USS ALLEN M. SUMNER (DD-692). (Photo: DD-692.com)

Below: Loading a Mk 44 torpedo onto the Mk 8 bomb rack of an OH-50D. The brown object attached to the rear of the torpedo by the hand of the sailor moving the yellow torpedo cradle is the pack for the retarding parachute to slow the torpedo's water entry speed. (Photo: DD-692.com)

***Operational concept**.* The DASH was designed to extend the range of the ship to strike at enemy submarines when they were detected. Either one or two Mk 44 torpedoes were loaded onto the DASH. The DASH was moved to the helicopter deck from the hangar and two cables were hooked up. One cable provided starting power for the gas turbine engine; the other cable provided power for the onboard electronics and gyro stabilization system.

Below: Making sure the Mk 44 torpedo's Mk 64 suspension straps are correctly positioned for hookup to the Mk 8 bomb rack. Note the connected starting cable in front and the electric power cable beside the portside landing skid. (Photo: DD-692.com)

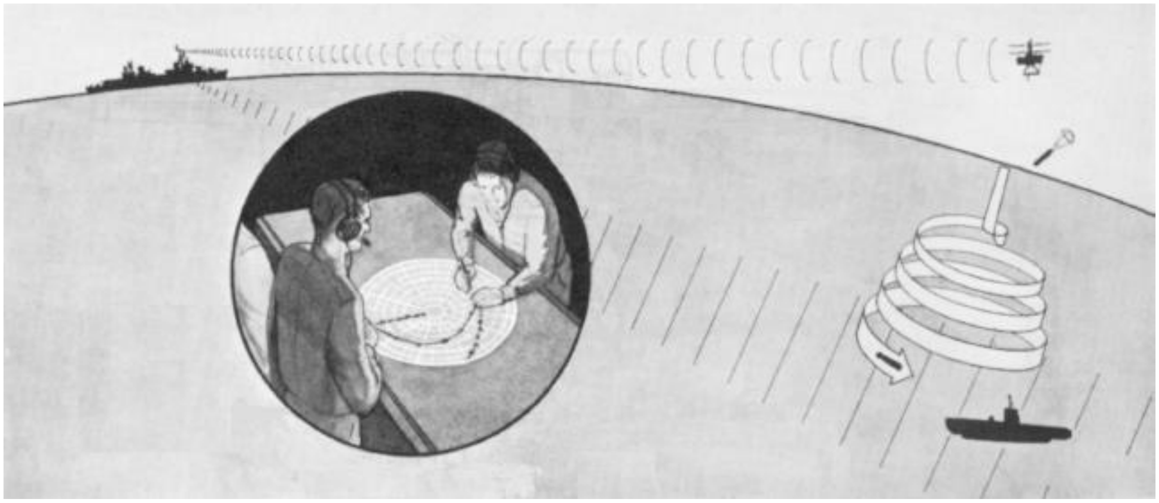
Once the engine was started and running, the power cables were removed. The DASH officer – located at a station at the side of the helicopter deck – did an initial checkout of the bird. The DASH officer was able to control the collective pitch by setting a wheel on the deck control. A large knob to the left of the indicator display controlled heading. A cyclic control stick commanded pitch, roll, and direction. When all was ready [about two minutes after startup], the DASH officer was ready to launch the little helicopter.

Above: The DASH officer's deck control station on the edge of the flight deck. A Gyrodyne tech rep is assisting the officers. (Photo: GHHF)

The DASH officer applied full power and set the altitude. He applied up collective on the rotors and released the hold-down cable that restrained the aircraft. At a pre-selected altitude set by the control station, the DASH leveled off and assumed a pre-determined heading towards the target at 92 mph. Operational radius of the QH-50C/D was between 28 and 40 nautical miles.

A controller in the Combat Information Center (CIC) observed the helicopter launch on the radar scope at his station. He set his dials to match the flight speed, heading, and altitude of the flying QH-50. On a signal, control was passed from the DASH officer to CIC.

The CIC controller operated a dual-purpose scope that followed the drone using the Mk 25 fire control radar. The underwater fire control plotting team relayed target submarine location determined by the ship's SQS-23 sonar. Progress of the drone was monitored using the ship's SPS-10 surface search radar. These three sources allowed the CIC controller to maneuver the drone towards the target.



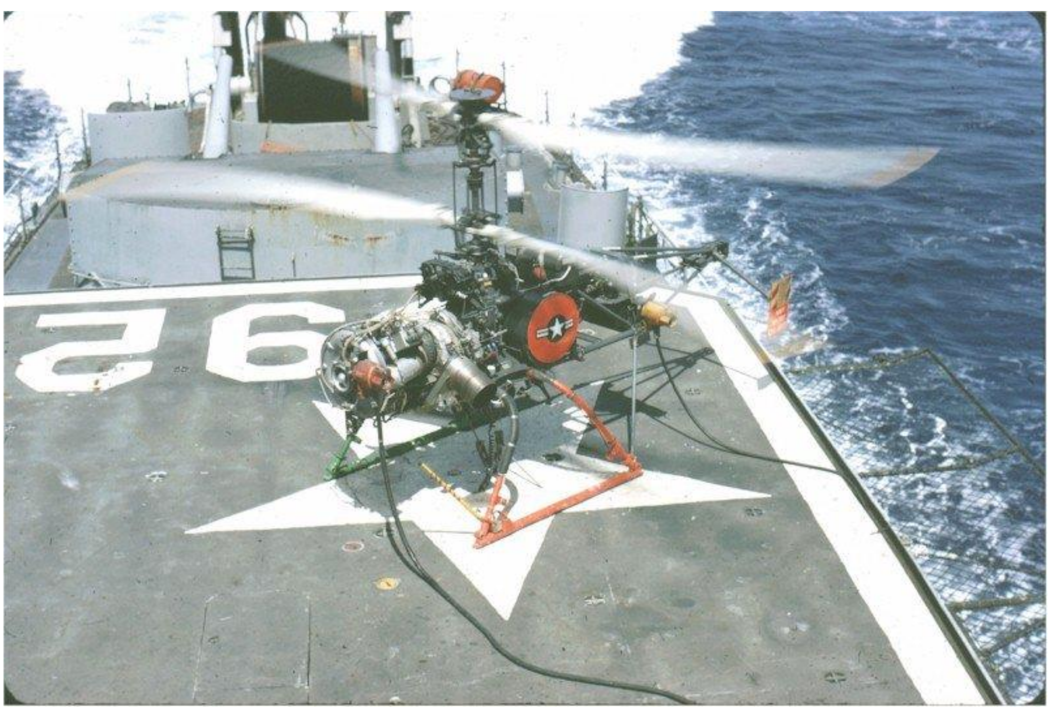
Above: The DASH attack on an enemy submarine is summarized in this Gyrodyne artwork. The circular inset is the underwater plot attack team plotting where the submarine is. The destroyer is tracking the QH-50 and vectoring it to the drop site; DASH drops the Mk 44 torpedo that acquires and attacks the submarine. (Art: GHHF)

When the sonar and radar positions of the drone agreed, the CIC controller enabled the arming and release switches for the Mk 44 torpedo or Mk 17 nuclear depth charge. After weapons release, the drone was returned the vicinity of the ship.

As soon as the drone was in sight, the DASH officer took over control from CIC and landed the drone on the flight deck. When the aircraft skids touched deck, a switch on the skids set the collective to 6 degrees to avoid possible bouncing. Conventional landings could be made up to Sea State 3. Landing DASH above Sea State 3 conditions produced mixed results. Ultimately, operation of DASH above Sea State 3 was abandoned due to impracticality.

Above: USS ALLEN M. SUMNER (DD-692) with a QH-50C DASH on the helo deck after being rolled out of its hangar. Both electrical cables are attached. (Photo: DD-692.com)

Below: A QH-50D aboard SUMNER just after startup and before the electrical cables were unplugged. (Photo: DD-692.com)



On landing, the engine was shutdown. As rotor speed decayed below 400 rpm, special gust locks activated to prevent the blades from contacting each other in heavy seas. When the rotors stopped, they were secured. As the gyroscopes spun down, a set of ground handling wheels were attached to the skids. These wheels made moving the drone a very easy chore in calm seas. In a Sea State 2 and 3, the DASH was connected to assist wires. After the gyros stopped, the aircraft was moved by a winch into the hangar and tied down. Once tie down was accomplished, a flight logbook entry was made and the drone was readied for its next mission.

The Japanese Navy (Japanese Maritime Self-Defense Force or JMSDF) had seven destroyers operating DASH from 1963 through January 1977. Japanese experience with the little helicopter was much happier than the USN. In all, three QH-50C, one QH-50D were purchased for trials, with 16 QH-50D purchased for service operations. Of the 20 DASH units put into service, only three were lost operationally.

What went wrong? Why was the JMSDF's experience better than the U.S. Navy? There were many reasons.

- The JMSDF had long-term assignment of personnel to the program. The USN had a "revolving door" personnel assignment. No sooner were skilled operators trained than they were transferred out. In the USN it was not uncommon for a DASH officer to be "in and out" during a six-month period. Operational skills that were acquired were lost. In the JMSDF, DASH operators and technicians worked with the system for years.
- The Japanese assigned DASH officers and enlisted as their primary duty and shipboard duty as secondary. The reverse was true in the USN. In the USN, of the one officer and four enlisted members in the DASH detachment, two were in aviation ratings, but all were assigned ship's duties as their primary jobs. In some DASH detachments, the senior enlisted was a Third Class Petty Officer.
- The JMSDF detachments flying DASH maintained their aircraft like treasured jewels. USN maintenance practices were very lax.
- Japanese DASH detachments were treated as aviation units. DASH detachments in the USN were not. Aviation personnel assigned to these detachments lost their flight pay bonuses.

• The USN required the flying of DASH for only four hours per month. Some commanding officers would wait until the end of the month, fly the DASH for four hours on the last day of the month, and fly the DASH for four hours on the first day of the next month. This kind of cycle meant that there was nearly 60 days' gap between the next series of DASH flights. Such huge gaps between flights prevented the development proficiency in DASH flying skills. The JMSDF ships with DASH flew their aircraft on a daily basis.
• The USN under-funded the DASH program and did not setup a good training, maintenance, and logistics system.
• There was a general lack of training equipment and simulators so DASH detachments could maintain proficiency.
• There was no centralized responsible agency for DASH.
• There was a lack understanding of DASH's capabilities and limitations by those in authority.
• Program Management Systems were non-existent.
• To keep costs down, DASH was built with a non-redundant flight control system with "off the shelf" components.
• The feedback loop between the shipboard controller and drone prevented the controller from knowing the attitude of the drone.
• The drone's low radar signature and lack of transponder led to the loss of many drones because the controller did not know where the drone was in relation to the ship.
• All ship and airborne communications channels were non-redundant. If one channel was lost, the drone was lost. Of the QH-50 loses, 80 percent were due to shipboard or airborne electronics failures, 10 percent to operator error, 5 percent to enemy action over Vietnam, and 5 percent to airframe or engine failures.

Gyrodyne continued to support the remaining QH-50 helicopters in-service. After phase-out by the Navy, the surviving drone helicopters were transferred to the Army for use at the White Sands Missile Range and to Naval Ordnance Station, China Lake. At White Sands and China Lake, the surviving QH-50s were used to test new air defense systems. In 1996, the Navy transferred all surviving QH-50s to White Sands where they continued to fly for another ten years. The Army retired its last QH-50D on 9 May 2006.

The Gyrodyne Company moved from New York to Los Angeles in 1999. In California it was known as Aviodyne USA, doing business under the name of Gyrodyne-California Helicopter Co. From 1999 to 2004, the company partnered with several foreign manufacturers to market its manned and drone counter-rotating rotor helicopter. On 20 March 2004, after an unsuccessful five-year marketing attempt to bring back this unique helicopter design, Gyrodyne closed its doors and all assets were sold off or scrapped.

EPILOGUE: As the result of the 9/11/2001 attacks on the United States and the subsequent wars in Afghanistan and Iraq, the U.S. Navy is taking another look at the UAV. The current DASH replacement is the MQ-8B Fire Scout. Fire Scout is much more sophisticated than DASH at first pass, yet it reverts to the less satisfactory main rotor and tail rotor configuration. Fire Scout is being groomed to do many kinds of the things that DASH pioneered in the late 1950s and 1960s.

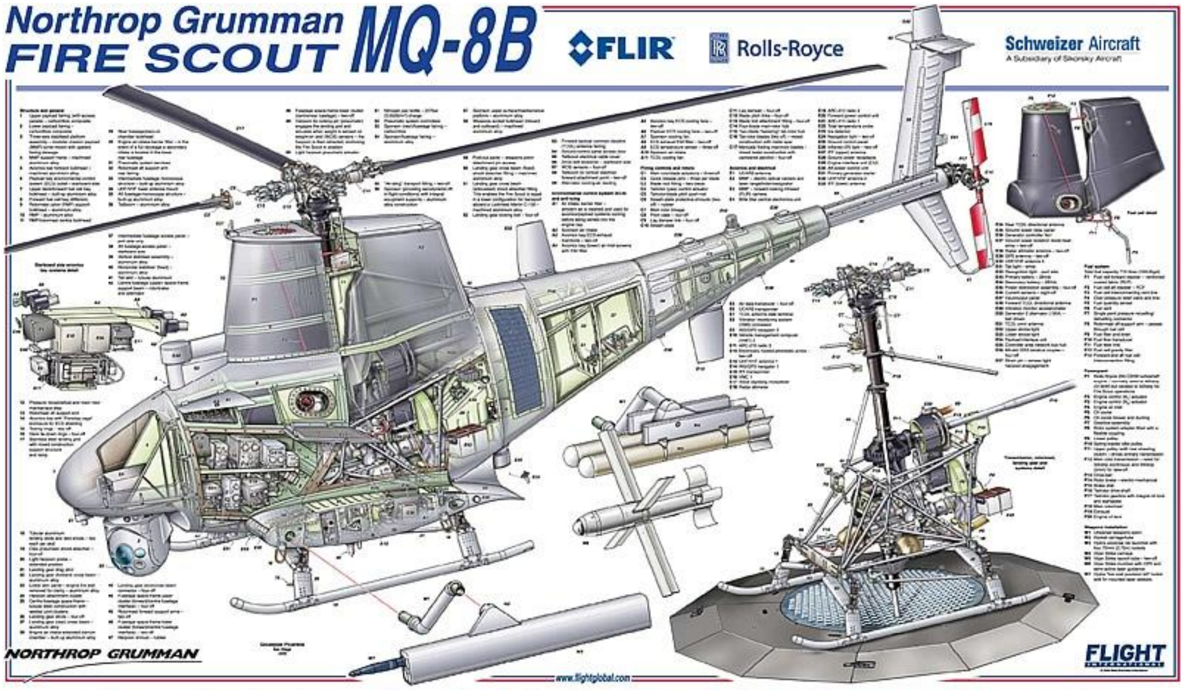
- Anti-Shipping Mine Detection (ASMD)
- Gunfire support (spotting)
- Psychological warfare
- Mapping
- Weapons delivery
- Electronic countermeasures (ECM)
- Electronic counter-countermeasures (ECCM)
- Underway replenishment (UNREP)
- Inshore undersea warfare
- Mine laying and mine sweeping
- Vertical replenishment (VERTREP)
- Sensor platform
- Surveillence
- Blockade
- Search and rescue (SAR)
- Communications relay
- Test and evaluation of other long-range systems

Sea trials of the MQ-8B have or are nearly concluded aboard USS McINERNEY (FFG-8). Full-scale deployment is being planned for Fire Scout.

Above: An MQ-8B Fire Scout on final approach to USS McINERNEY (FFG-8). (Photo: U.S. Navy)

Above: An MQ-8B with simulated stores. (Photo: Northrop-Grumman)

Below: An MQ-8B Fire Scout in cutaway showing the various modules that can be fitted. Fire Scout is built on a converted Schweizer Aircraft light helicopter airframe. With the exception of the engine and transmission location, the airframe of the Fire Scout is very reminiscent of the DASH. (Photo: Defense Industry Daily via Northrop-Grumman)



Defense Industry Daily subscribers can download the full bandwidth-intensive 655 kb picture; a link can be found near the beginning of the protected subscriber section. We regret the necessity, but bandwidth costs would be a problem otherwise. Interested individuals can also get this picture as an Acrobat file from Northrop Grumman:

http://www.is.northropgrumman.com/systems/system_pdfs/MQ-8B_FireScout_Cutaway_WEB.pdf

Why did DASH fail and what was learned? DASH did work, but the biggest problem was its lack of redundancy for its controlling electronics. DASH control circuits can be compared to those of your typical set of Christmas tree lights. The string is wired in series and so they ***all*** have to work for the lights to work. Lose one light and the string goes dead. Getting it to work again means testing each and every one of the lights in the string to find the bad one. In the case of DASH, losing one of its electronic data links usually resulted in the loss of the bird. Some 80 percent of the 411 DASH losses were due to electronic guidance failures aboard either the ship or the aircraft.

From my research, the accountants in the Navy decided that the Mk 17 depth charge's blast would destroy the little helicopter so they decided to make everything as cheap as possible -- figuring that it was on a kamikaze mission. But, during its entire service career, DASH never used the nuclear option.

The only time that the Mk 17 depth charge was tested (and it was never used in anger) was the Swordfish Test as part of OPERATION DOMINIC. In the Swordfish Test, the Mk 17 was the payload of an ASROC missile fired by USS AGERHOLM (DD-826) off San Diego on

11 May 1962 at North 31 degrees, 14 minutes; West 124 degrees, 13 minutes. The Mk 17 warhead detonated about 4,000 yards from the ship and was less than 2 kilotons' yield (official sources say less than 20 kilotons).

Above: The Swordfish Test of 11 May 1962 – a water plume from the explosion of the Mk 17 depth charge is seen to the left. The guide of the two-cell ASROC launcher (white rectangle) is still elevated after firing. So far is known, the Mk 17 fired from USS AGERHOLM (DD-826) is the only incident of the Mk 17 ever having been tested or used.

Research indicates all flights of DASH that carried live warheads were done with either the Mk 44 or Mk 46 torpedo. These torpedoes used conventional explosives. After the Navy figured it wasn't likely to use the Mk 17 nuclear depth charge, the only thing done was to cross-out the expendable part on the DASH specification. The Navy did *nothing* about the vulnerability of the DASH data links by making them more redundant.

The other source of failure for DASH was the convoluted control system and its lack of feedback to the operators of the helicopter. Especially critical (from an operator's view) is knowledge of where the UAV is relative to the ship and the attitude of the aircraft. The DASH system did not provide this feedback to its operators. These major deficiencies, combined with inadequate funding of the program, setup the entire DASH program for failure. When DASH did fail, those who predicted that it would fail were vindicated.

All of the new UAV systems that are under development or currently deployed use the Global Positioning System (GPS) to establish where they are on Earth. The GPS receiver on the UAV uses coded signals from three GPS satellites overhead to establish its position. Once the UAV knows its starting point, the entire mission progress is tracked by GPS and the UAV position is broadcast back to the controller in real time so there is no doubt where it is. Unfortunately, GPS did not exist when DASH was in-service.

The UAVs in-use also have a fail –safe system built into them. That is, if the UAV should lose its data link for a certain time, the UAV is programmed to return to base automatically using its initial GPS coordinates. Unlike the DASH that was sometimes difficult to track on radar, most of the larger UAVs have a radar transponder that transmits a coded pulse when it is swept by a radar signal of a certain frequency.

The biggest problems that must be reconciled within both the USAF and Navy are the attitudes concerning UAV roles and missions. Pilots and aviators view the UAV as a threat to them and to manned aircraft in general. The reasoning is simple: If you don't fly manned aircraft, you don't need pilots or aviators. An unappreciated factor that resulted in the ultimate failure of the DASH program was this very real, but unstated fear.

Now, fast forward to present times. Pilots and aircrew are very expensive to train and maintain their proficiency skills. Manned aircraft are very expensive and complex both to buy and to maintain over their lifetimes. The UAV is seen as an affordable answer to get large numbers of aircraft into the air – a task that is no longer possible with today’s manned platforms.

The biggest growth market in aviation today (and the armed forces in general) is the UAV. The UAV, whether it flies or moves about on the ground or on the water or under the water, allows for a more compact tool to do dangerous jobs. Human lives are not placed at risk. If the drone is destroyed, you buy another one. You don't have to risk more human lives in rescue attempts.

The new UAVs are easy to control. The USAF has resisted letting non-pilots control its drones citing Rules of Engagement (ROE) and weapons’ release authority. The USAF also appears to be resisting letting enlisted personnel control its drones for similar reasons. The USN hasn't got that many aviators relative to the Air Force and they've let non-pilots control its UAVs. In recent months, the Navy is testing UAV use with senior enlisted controllers. The Army and Marines don't seem to care about the ranks and specialties of their controllers.

The Navy has been very slow to move Fire Scout into full-scale deployment. At present, Fire Scout is being restricted to a passive, "eyes in the sky" kind of role. Although Fire Scout has been tested with weapons systems, there appears to be resistance to hang weapons on the little helicopter.

Why? An armed Fire Scout cuts into the manned aircraft turf of delivering ordnance on target. This attitude cannot be sustained over time; the parochial manned platform interest in keeping weapons delivery a monopoly won't work. Like its DASH predecessor, Fire Scout is going to get weapons hung on it sooner or later. Foot-dragging can only delay the inevitable.

Latest reports indicate a renewed push to get Fire Scout into service and aboard ships. Hopefully, this time the USN will not make the same kinds of mistakes that were made with the DASH program so long ago.

Author's note: Special thanks to the Gyrodyne Helicopter Historical Foundation and USS ALLEN M. SUMNER websites for assistance in the preparation of this briefing.

R2