

## Designed as a nuclear-capable, carrier-based attack aircraft, the versatile Vigilante transitioned into a premier high-speed reconnaissance platform

By ERIK SIMONSEN

**F**ifty years ago, on Aug. 31, 1958, a sleek, futuristic-looking aircraft swept over the Ohio terrain. Riding on twin glowing afterburners, Dick Wenzel, chief test pilot of North American Aviation's Columbus Division, gently guided the control stick of the impressive YA3J Vigilante. The first flight of the prototype of this aircraft, considered advanced for its time, would mark the prelude of a new era in aerial reconnaissance.

The program was initiated two years earlier, on Aug. 29, 1956, when NAA was awarded a U.S. Navy contract to produce two YA3J all-weather attack systems. After successfully completing flight testing, several A3Js were transferred from Columbus to NAA's Palmdale, Calif., facility and Naval Air Station China Lake, Calif., to begin weapons certification. The team knew from prior experience that releasing weapons at high airspeeds resulted in extensive separation problems. To negate this, the Mach 2-capable A3J incorporated a unique linear bomb bay between the engines that ejected ordnance rearward. The Vigilante was equipped with the new Low Altitude Bombing System to execute this attack maneuver.

Carrier qualifications commenced during July 1960 aboard the USS Saratoga.

Meanwhile, at Edwards Air Force Base, Calif., a glimpse of the Vigilante's future performance was revealed on Dec. 13, 1960, when the second prototype achieved a new world record with a zoom-climb to an altitude of 91,451 feet (27,874 meters) carrying a payload of 2,402.62 pounds (1,000 kilograms).

Shortly after operational deployment to the USS Enterprise Carrier Strike Group in August 1962, the U.S. Department of Defense established new standardized tri-service military aircraft designations, and subsequently the A3J became the A-5. Concurrently, as dictated by a new Pentagon strategy, the Navy was shifting its strategic nuclear-deterrent role to submarine-launched ballistic missiles. With the A-5's nuclear attack mission ebbing away, NAA began accelerating the development of its photo reconnaissance, or "recce," variant. NAA management had anticipated a possible mission shift and was flight testing the YA-5C prototype, which evolved into the RA-5C.

With its potent airframe now sporting a new "canoe" fairing attached to the underside of the fuselage, the revamped RA-5C made its first flight on June 30, 1962. The fairing housed photo-optical and infrared cameras, Electronic Intelligence (ELINT) and Side-Looking Airborne Radar systems that included the capability to transmit real-time secure mission telemetry to the carrier for immediate interpretation. Another noticeable modification, running nearly the length of the upper fuselage, was an added "humpback" that contained extra fuel tanks to improve range. Along with drop tanks on the wing, the Vigilante now had a range of 2,000 miles (3,300 kilometers).

### COMBAT SERVICE

Operating with the 7th Fleet Carrier Air Wing from June 1964 through January 1973, the RA-5C served with distinction in Southeast Asia. Its mission was to carry out the airborne segment of the fleetwide Inte-

An airborne



During December 1975 this RA-5C from Fleet Squadron RVAH-6 was on temporary assignment at Naval Air Station Key West, Fla. The Vigilante evolved from an attack aircraft to a reconnaissance platform. ERIK SIMONSEN

grated Operational Intelligence Systems. Although combat losses were considered high, it was not due to aircraft performance. The all-weather “recce” mission was extremely hazardous; it included predictable post-strike photo-reconnaissance missions when the aircraft and its crews were vulnerable to opposing anti-aircraft artillery and surface-to-air missiles. Vigilantes also conducted ELINT missions.

A total of 156 Vigilantes, including two prototypes, were produced at the Columbus Division, and 122 of these were either manufactured as RA-5Cs or A-5s rebuilt to that standard. The production line was briefly reopened in 1968 and produced 36 units. The aircraft remained in service for 21 years before its retirement in 1979.

The Vigilante stands as a tribute to the Boeing heritage company of Rockwell International and its people. Throughout its evolution from North American Aviation to Rockwell International, the company’s operating standards remained intact. These included setting a course to exceed the customer’s requirements; not cutting corners; engineering with agility; adjusting for changing mission requirements; and building a platform with the ability to assimilate new technology as it evolved. ■

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## RA-5C Vigilante: Tale of the tape

<b>Crew:</b> 2 (pilot, navigator)	<b>Wingspan:</b> 53 feet (16.15 meters)
<b>Maximum speed:</b> 1,385 mph (2,230 km/h)	<b>Height:</b> 19 feet (5.79 meters)
<b>Service ceiling:</b> 52,100 feet (15,900 meters)	<b>Empty weight:</b> 37,500 pounds (17,009 kilograms)
<b>Range:</b> 2,000 miles (3,300 km)	<b>Maximum weight:</b> 79,588 pounds (36,094 kilograms)
<b>Length:</b> 76.6 feet (23.32 meters)	

the eye

# for detail

## Ahead of its time

Here’s a list of “firsts” and advanced features of the Vigilante.

- First production use of HUD (Heads-Up Display) in cockpit
- First production use of fly-by-wire control system
- First variable engine air inlet using horizontal ramp geometry
- First multimode monopulse radar with terrain avoidance (to 100 feet/30.48 meters altitude)
- First Navigation/Bombing system (an automatic “hands-off” system for locating and attacking targets) with inertial auto-navigator coupled to the radar
- Production use of aluminum lithium alloy in aircraft construction
- Single-piece wing skins machined from aluminum-lithium alloy
- One-piece, bird-proof, Mach 2 capable windscreen, made of stretched acrylic
- Slot-deflector spoilers for roll control, eliminating conventional ailerons
- Application of H-11 hot work tool steel in machined fuselage frames
- Enhanced reinforced steel in the landing gear, for extra strength and anti-corrosive properties