PROPWASH

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Welcome

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Upcoming Event

We will be having our biennial Free Fly-In & Pancake Breakfast on Saturday, June 18th, 2022 (Father's Day Weekend) from 8-10 a.m. Come and see many of the museum's airplanes roar to life and take to the air!

Next Issue

Beechcraft SNB-5 Navigator (Model 18 or "Twin Beech")

Grumman S-2 Tracker

The Grumman S-2 Tracker (previously S2F prior to 1962) was the first purpose-built, single airframe anti-submarine warfare (ASW) aircraft to enter service with the US Navy. First flown on December 4, 1952 it entered production in February 1954. It was nicknamed the "Stoof" (S-two-F).

It carried a crew of 4 and replaced the Grumman AF Guardian, which required two aircraft for ASW, one with the detection gear, and the other with the weapon systems. The Tracker combined both functions in one aircraft.

The Tracker was of conventional design with twin engines, a high wing and tricycle undercarriage. The S2F-1 is the initial production variant with two 1,525 HP Wright R-1820 Cyclone engines allowing a maximum speed of 250 knots (287 mph).

The aircraft was versatile enough to be developed into two additional variants, the C-1A Trader carrier onboard delivery (COD)

Resource

"This is How Grumman's S-2 Stoof Became The Ultimate Jack of All Navy Trades" by Bill Walton in the November 19, 2017 edition of AVGEEKERY.COM

Crew Member

Kevin Clark, a former Crewmember of b/n 136719, served while based at Sigonella Naval Air Station, Sicily, Italy. He traveled from Las Vegas with his wife to spend the weekend in Rexburg for the sole purpose of seeing his old plane at the Legacy Flight Museum. While here, he toured it extensively and told the volunteers on-hand about his time in the Navy while onboard. He gave some great insights into its mission and various roles it performed and shared some old photos as well.

Operating Hours

Labor Day to Memorial Day
Open Saturday
10:00 AM to 4:00 PM

Memorial Day to Labor Day
Open 6 days a week - Monday thru Saturday

Other days by Appointment Only
Contact: Joe Stephan
864.569.3986

To Schedule Events
Contact: Grant McClellan
208.690.0896

Location: 400 Airport Rd, Rexburg, Idaho 83440
Phone: 208.359.5905

transport aircraft and the W2F-1 (later E-1A) Tracer. The former was a relatively simple conversion that stripped out all ASW equipment for cargo space, while the latter was more comprehensive, removing the ASW gear in favor of radar equipment; the tail was completely redesigned and a fixed radar dome attached (i.e., "Stoof with a Roof").

There was a retractable radome for radar and a Magnetic Anomaly Detector (MAD) was mounted at the end of a retractable boom that extended from the extreme aft end of the fuselage below the rudder.

Sonar was facilitated by passive and active sonobuoys which were released from the rear of both engine nacelles. 60 explosive charges could be dispensed ventrally from the rear of the fuselage and were used for active sonar detection sets. Signals from the sonobuoys were received at the acoustic sensor operator's station on the starboard side of the crew

compartment. The non-acoustic sensor operator was seated on the port side of the crew compartment.

The Tracker carried an internal torpedo bay capable of carrying two lightweight torpedoes or one nuclear depth charge. There were six underwing hard points for rocket pods and conventional depth charges or up to four additional torpedoes.

As S2Fs served over the years they were upgraded and improved. The ESM ventral radome was removed and the sensors relocated in rounded wingtip housings. The engine nacelles were modified to allow carriage of additional sonobuoys (too many of which no sensor operator [or senso] could possibly have). As sonobuoys, their associated receivers, and other detection and localization equipment improved; those improvements were integrated into the Tracker fleet.

Trackers were also adapted for other roles. S2F-1T/TS-2A Trackers served as multi-engine trainers. S2F-1U/US-2A (and later US-2B, US-2C, and US-2F) Trackers had their ASW mission equipment removed and seats installed in their place. The Marines even operated a few US-2As and US-2Bs. The S2F-2P/RS-2C was a single photo reconnaissance version of the Tracker. Beginning with the S2F-3/S-2D the Tracker received a fuselage extension just aft of the cockpit, larger tail surfaces, increased fuel capacity, and those modified engine nacelles. The S2F-3S/S-2E received improved detection equipment. When the Navy needed an electronic warfare trainer aircraft, the WS-2D filled the role. The S-2G was the last ASW version of the Tracker, derived from improved previous-build S-2Es.

A highly successful design, the Tracker series of aircraft flew over 22 years in the active US Navy. Eight S-2 squadrons flew in the Vietnam War. As Trackers approached the twilight of their stellar operational service, they were replaced by Lockheed's S-3A Viking. The last deployment of Trackers aboard an aircraft carrier in an ASW role was in 1975.

VS-37 Sawbucks were the last active duty antisubmarine squadron to retire their S-2G Trackers, doing so during August of 1976. The Naval Air Training Command at Naval Air Station (NAS) Corpus Christi-based Training Squadron TWO EIGHT (VT-28) Rangers retired their last TS-2A Trackers in 1979, replacing them with the turbine-engine Beechcraft T-44A Pegasus.

The very last flight of an operational Tracker in US naval service was an ES-2D retired from the Pacific Missile Range Facility at Kwajalein in March of 1986.

Stoofs piled up over six million flight hours with an overall mishap rate of 0.69 per each 10,000 of those flight hours. They also made close to 750,000 arrested landings aboard USN aircraft carriers. A Tracker was the very first aircraft launched by steam catapult, shot from the deck of the Essex-class carrier USS Hancock (CVA-19). [Cmdr. Henry J. Jackson, in a Grumman S2F-1 Tracker, piloted the first aircraft to be launched by the C-11 steam catapult off the deck of the aircraft carrier USS Hancock (CVA-19) on 1 June 1954.]

Trackers flew thousands of sorties in support of the Navy's critical need to track the Soviet submarine menace during the Cuban Missile Crisis and around the world during 32 Cold War years. They also served as proficiency currency aircraft at Naval Reserve facilities and Air Stations worldwide, towed aerial targets, hauled 'trash", and in general worked hard to earn their keep.

Many retired Trackers became firefighting aircraft. Conair Aviation of Canada converted former USN and Canadian Trackers into piston engine Firecats beginning in 1978 and

turbine engine Turbo Firecats beginning in 1988. A total of 35 Conair Firecats were placed in service with aerial firefighting agencies. Marsh Aviation of Mesa in Arizona also converted Trackers to turbine power for both aerial firefighting and for the Argentinian Navy. The California Department of Forestry (CDF-now CalFire) and Aero Union also used piston engine and turbine engine Trackers for aerial firefighting. Some of the designations used for firefighting Trackers include S-2F3ATT, TS-2A(FF), and S-2A(FF). Many of these conversions resulted in single-seat aircraft. ✪

Towing Target Sleeve

NAF Sigonella had two US-2C Trackers for target towing missions. The US-2C are modified S-2F aircraft designed for towing a radar reflective target or sleeve 7000-10000 feet behind the aircraft.

The aircraft has a crew of two pilots and two flight crew plane captains. One crew member operated the armored cable reel and the other worked with the sleeve.

The lower hatch would be opened and the cable pulled into the aircraft. A sleeve would be attached to the cable. The sleeve would be Z-folded and held in place with masking tape.

The reel operator would pay out enough cable so when the other crew member threw the sleeve down and out of the aircraft's lower hatch, the sleeve would clear the tail before opening. The reel operator would then pay out the cable to a set distance.


Tow cable operator at winch

(cont'd next page)

Grumman Tracker US-2C

S/N 136719, N8115M

Built as an S2F-1 at Grumman's Bethpage, Long Island, New York factory, the famous "Bethpage Iron Works" with Construction Number C/N 628. Assigned USN Bureau Number (BuNo) 136719, it was accepted by the Navy May 31, 1956.

Built as a S2F-1, b/n 136719 was redesignated as a S-2A in 1962. With newer versions of the Tracker coming online, 136719 was converted from anti-submarine version to a US-2A utility aircraft, serving with two Naval Air Stations in Italy: NAF Naples (1963-64) and NAS Sigonella (as 719) after further conversion to US-2C utility variant. It would remain in the role from 1963 to 1981, when it was retired.

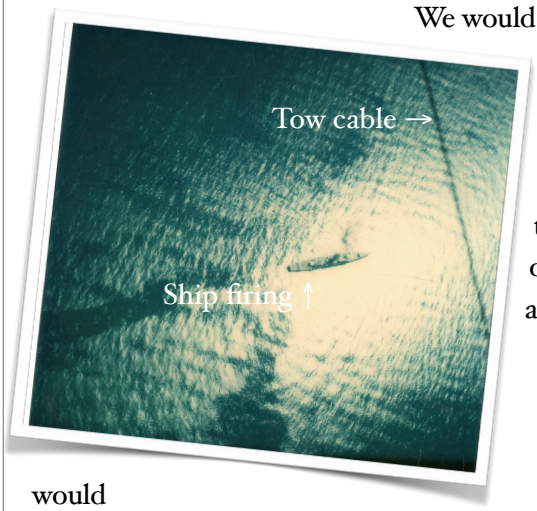
On April 16, 1981, b/n 136719 (MSN 628) was moved to the Military Aircraft Storage and Disposition Center (MASDC) as 1S0762. Pictured at 309th Aerospace Maintenance and Regeneration Group (AMARG) Davis-Monthan AFB "Boneyard" on August 10, 1983.

It would remain at AMARG for over a decade before being acquired by warbird collector Merle Maine in Ontario, Oregon in 1996. Maine restored it to flyable condition and registered it as N8115M.

While John Bagley was in town performing at the Ontario Air Faire airshow, Merle's wife Arleta ("Art" to her friends) told Merle and John that John should have the Tracker (719) so Merle gave it to him. John and Todd Therp flew it from Ontario Municipal (KONO), Oregon to its new home at Rexburg (KRXE), Idaho on November 20, 2012.

Merle Harold Maine passed away on March 20, 2013 at the age of 81. A few months after his passing, his extensive collection of aircraft, which he kept at the Ontario Airport, was put up for sale.✪

The pilots would calculate the altitude and airspeed based on what altitude the ship wanted the sleeve at. Once that was calculated, the US-2C and the ship would clear us to approach and we would fly directly over the ship observing that all the guns were pointing toward the sleeve and not at us! We would then inform the pilots and they would clear the ship to open fire.



We would know if there was a hit because the tail of the aircraft would shake and the pilots would notice an increase in airspeed. At the end of the exercise, we would then attach and send an "Iron Horse" cable cutter down the cable to cut off what was left of the sleeve.

The pilots would dump the nose of the aircraft to increase airspeed to help the iron horse cut the old sleeve off. We would then attach a new sleeve with a snarl catcher that would catch the snarl at the end of the armored cable since it would unravel after the iron horse would cut the old sleeve off.

Example of modern target sleeve.

Our missions would take us all over the Mediterranean. We would sometimes launch on the mission directly from NAF Sigonella but often we would need to preposition to another base to refuel before launching on the mission. The torpedo bay carried an 150 gal auxiliary fuel tank that was sometimes used to extend the mission time.

A typical mission would have us launch early in the morning to Decimomannu Airbase on the island of Sardinia where we could refuel and wait on the fleet to contact us; after which we would launch to the area requested and make contact.

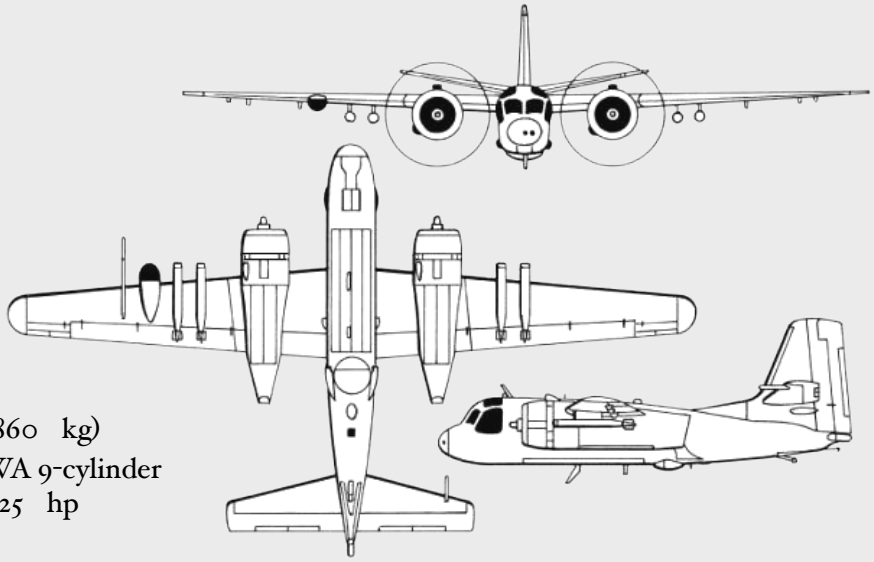
It was only then that we would find out what they would be firing at us! Usually it was CWIS, 3" or 5" guns that they were using in the live fire exercise.

We knew we would be busy if CIWS was used [Phalanx CIWS Caliber: 20×102 mm, Rate of fire: 3,000 rounds/minute]. All it took was one burst and our sleeve would be shredded. The 3" and 5" guns had direct-hits less often.

We learned to carry over night bags because sometimes the mission would be so delayed that we did not have enough fuel to make to the scheduled airport and would have to divert to an alternate airfield. We ended up at Torrejon AFB in Madrid Spain after a mission once. We had fun trying to use the 1 qt cans of 120 weight oil they carried to put several gallons in each engine after a long mission. With the strong winds and no funnel available we have more on our flight suits and the skin of the aircraft than in the oil tanks. That's when we learned to carry an over night bag with a change of clothes on every tow mission. ✪

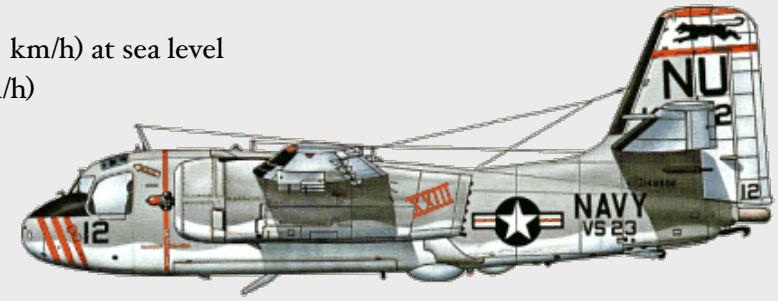
ADC Kevin Clark, USN (Ret.)

General characteristics



Crew: 4
Length: 43 ft 6 in (13.26 m)
Wingspan: 72 ft 7 in (22.12 m)
Height: 17 ft 6 in (5.33 m)
Wing area: 485 sq ft (45.1 m2)
Empty weight: 18,315 lb (8,308 kg)
Gross weight: 23,435 lb (10,630 kg)
Max takeoff weight: 26,147 lb (11,860 kg)
Powerplant: 2 × Wright R-1820-82WA 9-cylinder air-cooled radial piston engines, 1,525 hp (1,137 kW) each

Performance



Maximum speed: 243 kn (280 mph, 450 km/h) at sea level
Cruise speed: 130 kn (150 mph, 240 km/h)
Range: 1,173 nmi (1,350 mi, 2,172 km)
Endurance: 9 hours endurance
Service ceiling: 22,000 ft (6,700 m)
Wing loading: 48.3 lb/sq ft (236 kg/m2)
Armament
4,800 lb (2,200 kg) of payload could be carried in the internal bomb bay and on 6× under-wing hardpoints
Torpedoes: Mk. 41, Mk. 43, Mk. 34, Mk. 44, or Mk. 46
Depth charges: Mk. 54 or naval mines


NAVY
719
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