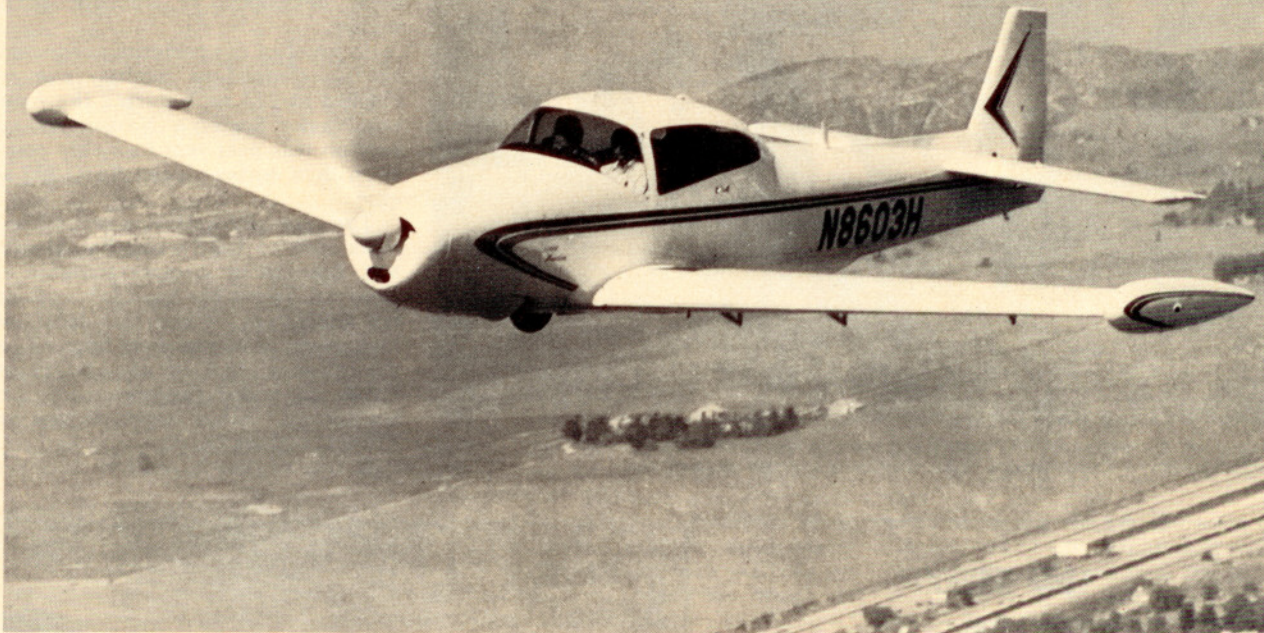


PILOT USED AIRCRAFT FLIGHT CHECK That Friendly Old Navion



The rugged, stable Navion, a descendant of the WW-II P-51 Mustang, is flown—and revered—by a host of faithful followers.

The post-WW II general aviation boom didn't — but some of its products are still flying; here's one

by DON DOWNIE / AOPA 188441

■ ■ The Navion was developed at the end of World War II by North American, using engineering skills and production techniques that built the P-51 Mustang. A family resemblance to this famed fighter still exists—a similarity that carries over into flight characteristics. Flying a Navion is the next best thing to climbing into a P-51.

Even though it dates back to World War II, the Navion still gives as comfortable and stable a ride as any other single-engine aircraft in the air. The Navion is big, rugged and docile in flight. It's so rugged, in fact, that the resultant weight penalty has fostered the addition of more horsepower and a long list of modifications to increase performance.

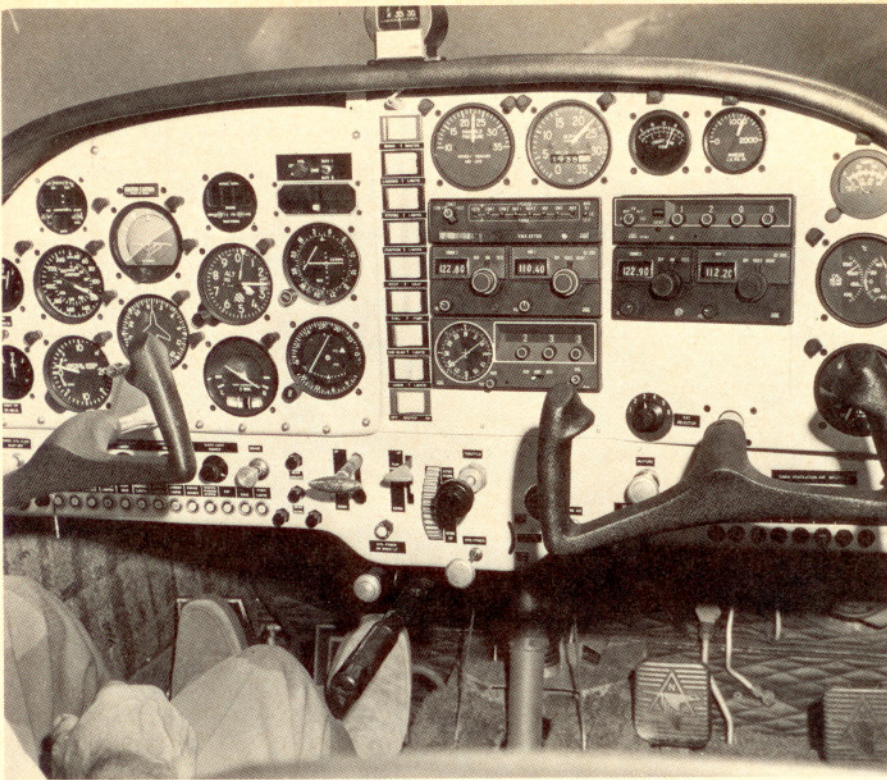
I've had a love affair with this durable aircraft that dates back over 30 years. So it was like a visit with an old friend to kick the tires and climb aboard Navion N8603H with former USAF pilot E. K. (Ed) Bashista,

(AOPA 322326) at Cable Airport in Southern California.

Zero Three Hotel was one of the original 1947 North American models, now fitted with a 240-hp Continental engine and a long series of airframe modifications.

The sixth "doggy" Navion that Bashista has reconditioned over the past four years, 03H was valued at \$38,000 when we flew it—and this same ship rolled off the North American assembly line nearly 32 years ago with a price tag of \$5,500 including primary instruments and a communications radio.

North American built some 1,270 units, including 400 L-17s for the military—all at a financial loss, since the ship cost up to \$11,000 to produce. The entire package was sold to Ryan in 1947, where 1,257 units were delivered before the tooling went to Galveston, then on to Seguin, and later Wharton (all in Texas). There the airplane



Up-to-date panel of revamped 1947 Navion is an example of the many modifications that have included aerodynamic clean-ups to boost cruise and range performance.

went out of production after some hundred more aircraft had been built as Rangemasters (fixed canopy with door, standard tip tanks and 260- to 285-horse-power engines).

There are Navions and Navions. Since the 185-hp Continental on the original model, at least a dozen more powerful units—up to 300 hp—have been certificated. From 10 to 15 major modifications on the airframe have been developed to improve performance.

As proof of the performance increase of the cleaned-up models, one was clocked at 224 mph during the American Navion Society's (Navioneers) convention this past year in a ship powered with a turbocharged TSIO-520 engine.

The very active owners group has its roots back to 1957 when Bob Douthitt and four other owners founded the Imperial Valley Navion Club in Southern California. When this local club had grown to 70 members from all over the country, Dan Brodie of Oakland, Calif., expanded the organization nationally and it has grown to just over 1,200 members today.

If the Navion appeals to you, send

1947 NAVION

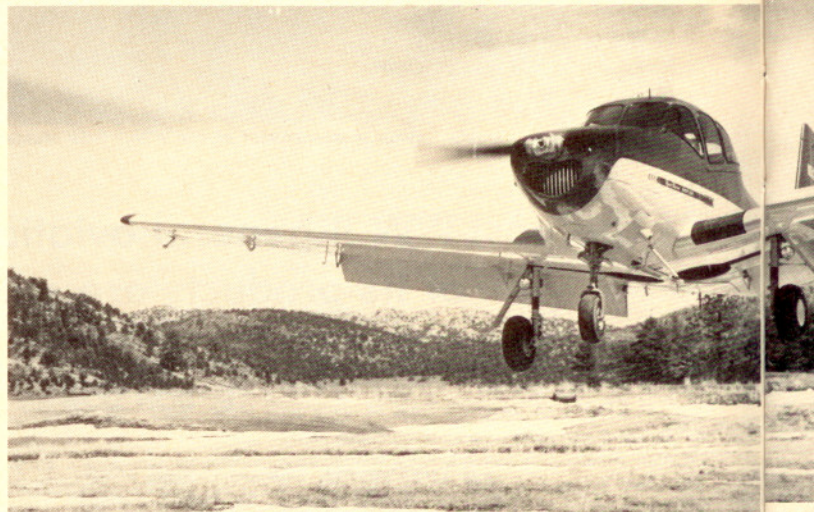
Basic Price: \$5,500 (in 1946)

Specifications

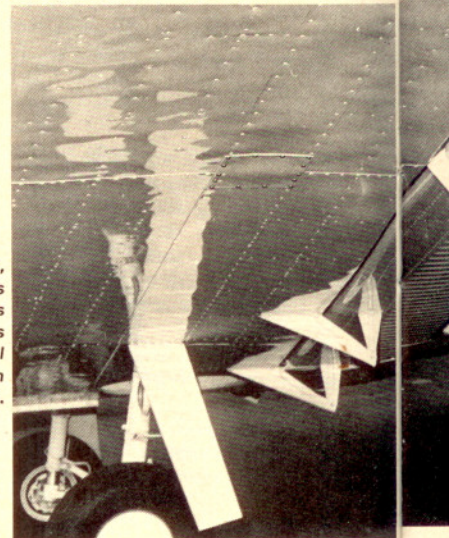
Engine	0-470, 240 hp. @ 2,700 rpm
Propeller	Hartzell constant speed
Wing span	33 ft 4 9/16 in
Length	27 ft 3 in
Height	8 ft 6 5/16 in
Wing area	155 sq ft
Wing loading	17.75 lb/sq ft
Passengers and crew	4
Cabin length	65 in
Cabin width	42 3/4 in
Cabin height	47 5/8 in
Empty weight	2,035 lb as equipped
Useful load	1,115 lb
Payload with full fuel (80 gal)	595 lb
Gross weight	3,150 lb
Power loading	13 lb/hp
Fuel capacity (standard)	39 1/2 gal (39 usable)
Fuel capacity with optional tanks	80 gal (78 usable)
Oil capacity	12 qt
Baggage capacity	180 lb (18 cu ft)

Performance

Takeoff distance (ground roll)	640 ft
Takeoff over 50 ft	980 ft
Rate of climb (initial)	1,500 fpm
Single-engine rate of climb	1,500 fpm
Maximum level speed	179 mph
Normal cruise speed (70% power, 6,000 ft)	160 mph
Economy cruise speed (40% power, 6,000 ft)	120 mph
Range at normal cruise (with 45-min reserve)	900 sm
Range at economy cruise (with 45-min reserve)	1,240 sm
Service ceiling	20,500 ft
Stall speed—CAS (clean)	55 mph
Stall speed—CAS (gear and flaps down)	45 mph
Landing distance (ground roll)	600 ft
Landing over 50 ft	980 ft



Company test pilot "Doc" Sloane rounds out a Ryan Navion at Big Bear City Airport, Calif., in this photo taken in 1954. Generous flaps, high power-off sink rate make landing overshoots a rare occurrence.



Owner of flight check airplane, Ed Bashista (AOPA 322326), shows one of the preflight items unique to Navions: tie-downs are frequently made to the steel aileron hinges rather than specific attach points.

\$2.50 for a copy of "What to Look For When Buying a Navion," to Navion-eers, Box 1175, Municipal Airport, Banning, Calif. 92220.

If you've never flown a Navion, you're in for a treat. The airplane is big and roomy with ample room in any seat for a basketball center. Interior of the cabin measures 65 inches from firewall to back seat, 42 $\frac{3}{4}$ inches wide and 47 inches high.

Preflight walk-around will show a number of unique items. Tiedowns are frequently made around the steel aileron hinges rather than by rings mounted near the wing root. Many Navions carry a tailskid to protect or replace the rear tiedown ring since it is possible to drag the tail with the wheel full back on rollout with appreciable weight in the rear seats and baggage compartment.

The Navion structure is skin-stressed throughout. Even the engine compartment loads are carried by keel- and skin-stressed lower panels.

With the exception of the limited production of the Rangemaster, all Navions are equipped with a sliding canopy and a climb-into cabin. Entrance is either via a step in front of the wing or a walkway up the trailing edge. N8603H has a wingwalk on the left side so that the pilot enters last.

Probably the most risky thing on a Navion flight is getting on and off the wingwalk. If the engine oozes a thimbleful of oil (N8603H didn't), it could be slippery, and it is wise to keep a hand on the edge of the canopy. Then, step into the cockpit carefully, either flip up the bottom of the pilot's seat or make a step to the floor between the backseats, and ease forward. From there on out, it gets easier!

The Navion cockpit differs from newer high-performance aircraft in several respects. There's a hydraulic emergency shutoff push-pull knob to the left of the pilot's control wheel, which will shut off the entire system in event of a line break or engine fire.

The flap handle is located just to the right of the gear handle—a location not followed in most newer aircraft. The flaps are multi-position in all but the first 100 aircraft. To obtain the half flaps (20 degrees) for best takeoff, flaps should go down to match full aileron-down deflection and then the handle is placed in the midpoint position. Frequently, as in N9603H, this hydraulic valve will creep, and we did wind up with full flaps while starting a takeoff roll. However, they will blow back to the original setting.

Both throttle and prop have vernier controls and are located within four inches of each other on 03H. However, the manifold pressure gauge is above the throttle, over the radio deck, while the prop control is below the tachometer. There were no vernier controls on the original Navion. Mixture control is a simple push-pull knob.

Visibility is excellent on the ground and throughout the flight regime except for initial best angle of climb, 90 mph, as used until gear and flaps are up and power is reduced to 25 inches and 2,500 rpm.

Takeoff was rapid with ground roll under 500 feet. A firm right rudder was needed to counteract those 240 horsepower, particularly during initial climb. Initial rate of climb was 1,500 fpm at 31°C (88°F), with the density altitude 3,500 feet at Cable (1,450 msl). We had three aboard and 60 gallons of fuel, or about 150 pounds under gross weight. With wheels in the wells and flaps up, we lowered the nose to 120 mph and still maintained about 700 fpm.

Cowl flaps come closed during cruise and clean the airplane up by two miles per hour. Unless air temperatures are on the very cool side, these cowl flaps should go open again on the ground.

We cruised above the inversion layer with its smog and showed a corrected airspeed of 160 mph at 6,000 feet on 23 square (23 inches and 2,300 rpm) or 70% power. The cockpit is extremely quiet and all controls are responsive to firm control. The Navion has a bungee interconnection between aileron and rudder. Medium turns can be made with the feet on the floor. For best straight and level performance, use rudder only.

In level flight, the Navion flies with the nose low enough so that rear-seat

passengers can see what's going on. The nose pitches down as flaps are extended and some aft trim is required as power reductions are made.

Slow flight with gear and flaps down shows off the fine handling of the Navion. All controls require just a little more force with a strong aft-wheel pressure required for flareout if the Navion is not trimmed so nose-up that application of the go-around power would cause a considerable pitch-up. A "dirty" stall at altitude showed that Zero Three Hotel would remain airborne at an indicated 45 mph. Pilots new to the Navion are cautioned against long, dragged-in approaches because it is a fairly easy matter to get back of the power curve with full flaps.

We cruised locally and shot landings at Banning, Corona and Chino before returning to Cable Airport. Gear and flap speed is only 100 mph, primarily because of gear-door vibration. However, with gear down, full flaps and power off, the Navion will drop a full 2,000 fpm. It's a rare landing that a Navion overshoots.

A brisk right crosswind at Corona called for a crabbing approach with strong downwind rudder during flare-out. This configuration meant that the nosewheel was cocked at touchdown, but there was little or no tendency for the big Navion to swerve on the runway.

Landing into the 20-knot wind down Runway 21 at Chino indicated that the Navion could be planted and stopped in 400 feet by a pilot at all familiar with the airplane. Since a few years had elapsed since I had flown a Navion, we were just a little hot-and-high over the numbers and decided to forego a very shortfield landing to save tires and brakes.

Visibility on final approach is excellent, with the nose well below the horizon. Even with the wheel well back at touchdown, all the runway is in plain sight. Holding the nosewheel off with full aft elevator control makes an effortless, brake-saving deceleration. Once the nose gear settles, braking brings the ship to an easy turnoff.

With the extended range of 80 gallons, Bashista's Navion would make an excellent cross-country chariot. With full tanks and a 45-minute reserve, range calculates over 900 statute miles in 5 $\frac{1}{2}$ hours (2,300 rpm and 23 inches) at 70% power. Economy cruise should produce 1,240 statute miles at 40% power (2,200 rpm and 18 inches at about 120 mph). The Navion is so comfortable that long-range cruise is not too tedious.

This classic design is still sufficiently competitive so that several groups, including Bashista and some associates, are looking at the Navion tooling and the type certificate. They see a profitable market in updating older aircraft with a long-range goal of another Navion production with a modern powerplant in the 300-hp range. So don't count this venerable craft a has-been. Twelve hundred active Navioners can't be wrong. □

