

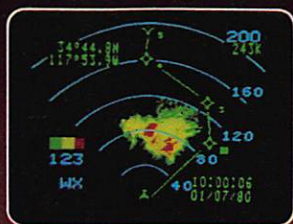
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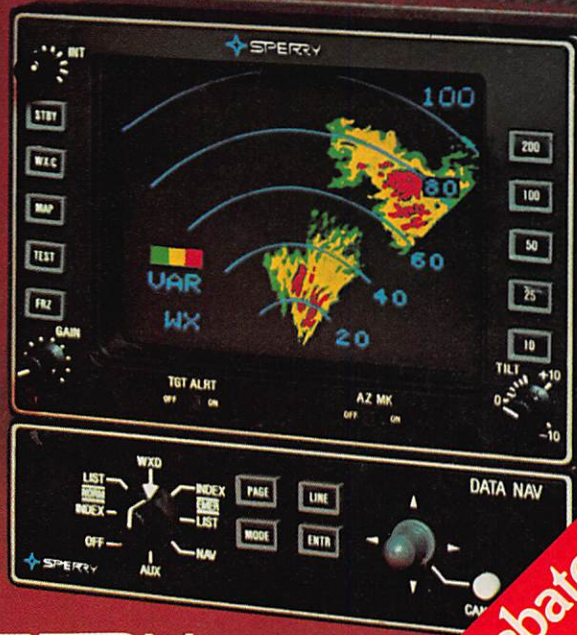
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There was scarce cause for celebration when Gulfstream American terminated production of its sporty little two-seaters in 1978. For a decade, the AA-1 series of airplanes—including the Yankee, Trainer, TR-2, T-Cat and Lynx—provided a rare touch of excitement in the lightplane market.

With rakish canopies and the snappy performance that draws out the fighter pilot in any airplane enthusiast, the AA-1s are a refreshing departure from the mundane. They appeal to the senses of spirited pilots in much the same manner as sports cars strike harmonious chords in driv-

ers who want a little more from their automobiles than, ugh, dependable transportation.

The accent is on agility and speed, with economy. A hearty thumb of the nose goes to practicality, luxury and embellishment.

For a partisan of the breed, possibly the only positive result of the airplanes' production demise was the end, once and for all, of a troublesome identity crisis. When James Bede began sketching the design of the BD-1, the precursor of the AA-1 series, he had a sportplane in mind—one that would be attractive to a pilot *after* he

had earned his license and become bored with his primary trainer.

But the people who eventually put Bede's design into production soon realized that there was not much of a market for an aerial sports car. They decided, instead, that they would promote the flashy little airplane as a macho trainer.

The airplane's suitability for this assigned role became a matter of great debate. Some pilots believed the AA-1 was not fit as a training platform because of its control sensitivity, skittery low-speed handling characteristics and potentially dangerous stall/spin

EVERYMAN'S FIGHTERS

*Practicality be damned.
These airplanes are for fun.*

BY MARK M. LACAGNINA



behavior. Others argued, with some merit, that, once a student learned how to fly the little fighter properly, he could fly *anything*.

The debate now is moot, since very few AA-1s currently are being used for primary training. Today, people buy used AA-1s for the reasons that Bede originally had envisioned: They want an economical airplane that is exciting to fly.

Bede, a former performance engineer for North American Aviation, began the design work on his sport-plane in 1960. However, the BD-1 project was put on the back burner for

a couple of years while Bede designed and built a twin-engine airplane with a single, shrouded, pusher propeller and a suction system for boundary layer control. Bede flew this revolutionary airplane, called the XBD-2, for about 50 hours, then he donated it to the Experimental Aircraft Association's museum.

Bede redirected his attention to the BD-1 project in 1963. He formed the Bede Aircraft Corporation in Springfield, Ohio, to build and certificate the airplane. But shortly after initial flight tests of the prototype were completed, the company ran out of money

and could not continue the project.

Bede Aircraft's assets then were acquired by a group of investors who formed American Aviation Corporation to finish the development and certification of the BD-1. Russell W. Meyer Jr., a corporate lawyer and a former Strategic Air Command pilot, was hired to run the firm. (Meyer now is chairman, president and chief executive officer of Cessna.)

The BD-1 underwent extensive modification by American's engineers. The dorsal fin was removed. The ailerons were made bigger, the flaps smaller. Bede's plans for



LITTLE GRUMMANS

The flaps are an enigma. Fully extended, they lower stall speed by only about two knots.

stowable and foldable wings were discarded. The final design, which incorporated a total of about 40 changes, was dubbed the AA-1 Yankee. The airplane received a type certificate in August 1967 and a production certificate in July 1968.

American Aviation began building the airplane at Cleveland's Cuyahoga County Airport in 1969. The Yankee was the first lightplane to be assembled through extensive use of bonding. In most airplanes, metal components are riveted together. In the Yankee and all of its successors, a high-strength epoxy adhesive is applied to metal surfaces, and the components are joined (bonded) under heat and pressure. The result is a smooth exterior surface that produces less parasitic drag.

Some engineers claim bonded components have superior structural integrity because stress forces are spread along the bond lines, rather than being concentrated at individual rivet locations. During certification fatigue tests, American Aviation placed a Yankee in a "torture rack" designed to twist the wing back and forth. During 11 days of this torture, the Yankee's wing was twisted more than 240,000 times before something gave. But it was not the bond lines that gave. Rather, cracks appeared in the aircraft's aluminum wing skins outside the bond lines.

The forward fuselage also is unique. A cockpit box is formed by thick aluminum honeycomb sandwiched between sheet metal. The seats are located above a large, tubular steel spar, which runs almost the entire length between wing tips.

Fuel is carried inside the spar, which is sealed near the wing roots. Total fuel capacity is only 24 gallons, of which 22 gallons are usable. Fuel quantity is indicated by markings on vertical sight tubes located on both sides of the cockpit, and fuel management is accomplished by moving a simple Left, Right, Off selector valve at the top of the console between the seats. The operating manuals for the AA-1s advise that fuel-load balance should be maintained by switching tanks every 30 minutes; a maximum imbalance of seven gallons (42 pounds) is permitted.

The wings are interchangeable, as are the horizontal and vertical tail components. The ailerons and flaps

are activated by torsion rods, the elevators and rudders by cables. The pilot uses a knurled wheel on the center console to adjust the trim tab on the right elevator. The short-coupled airplane is very sensitive to pitch changes. During cruise flight, most AA-1 pilots keep one hand on the yoke, the other on the trim wheel. The ailerons and rudder also have trim tabs, but they must be adjusted on the ground.

The flaps are an enigma. The diminutive boards do very little, other than to lower the airplane's nose slightly during approach. Fully extended, they lower the stall speeds by only about two knots. In addition, an electric flap motor adds unnecessary complexity to an otherwise exquisitely simple airplane. The flap switch, also located on the center console, is depressed until the flaps lower to the desired angle and then is returned to its neutral position. If the pilot becomes sloppy and allows the switch to snap back, it easily can travel through the neutral position and into the retract position. It then does its own peculiar version

of a dance called the Funky Chicken.

While Jim Bede has praise for most of the modifications of the BD-1 performed by American Aviation, he thinks the company's engineers should have left the flaps and the ailerons alone. Decreasing the span of the flaps rendered them ineffective, he said, and increasing the size of the ailerons increased stick force without improving the airplane's already quick roll response. Bede grumbles that American modified the BD-1's wing control surfaces simply because "it did not think they looked right."

The AA-1 was subject to several modifications during its 10-year production life, but the changes were rather minor. American Aviation built about 430 Yankees in 1969 and 1970. During that time, the Yankee earned a reputation as a "hot" airplane. Impressed into duty as a trainer and forced into comparisons with the other popular trainers of the day, the Cessna 150 and the Piper Cherokee 140, the AA-1 is a hot airplane. It has a short, stubby wing that was designed for speed, not for docile low-speed handling. Thus, it has compara-

tively high stall and approach speeds, abrupt stall characteristics and very sensitive controls.

A pilot used to flying kites such as the 150 and the Cherokee will find the Yankee's sink rate rather alarming. The aircraft will descend at nearly 1,500 fpm with power at idle and at the recommended best glide speed of 74 knots.

The Yankee's growing reputation as too hot to handle was a cause of great concern for American Aviation. More AA-1s were being sold as trainers than as sportplanes. Fearing that the Yankee's reputation would cause it to lose its tenuous share of the trainer market, the company assigned its chief engineer, Richard Kemper, to cool the airplane off. Kemper added about 1.5 inches to the chord and designed a larger radius to the leading edge of the wing. The modification lowered stall speeds by about six knots and made the airplane's stall characteristics less breathtaking. American Aviation made no bones about the intended mission of the new airplane: It was dubbed the AA-1A Trainer. The company did not



LITTLE GRUMMANS

turn its back on the sportplane market, however. The AA-1A was given wheelpants, a cruise propeller, a few more instruments and interior trappings and was marketed as the TR-2.

Limited load-carrying capabilities require pilots to make careful weight and balance calculations. This is especially critical for the Yankees and early Trainers and TR-2s. In 1973, American Aviation provided some relief by incorporating a reinforced strut plate where the laminated fiberglass main gear attaches to the spar. This increased the certificated maximum gross weight from 1,500 pounds to 1,560. The modification changed the model designation from the AA-1A to the AA-1B.

In 1973, the certification rights and tooling for the Trainer and TR-2, as well as the four-place AA-5 Traveler, were acquired by the Grumman Corporation. The production facility was moved from Cleveland to Savannah, Georgia, and renamed Grumman American Aviation.

During the mid-1970s, the airplanes became embroiled in controversy, which focused in part on their construction processes and, also, on their safety record. Grumman used a different epoxy adhesive and primer combination in about 150 airplanes built in 1974 and 1975. The new compounds were not compatible, and the bond lines on several airplanes (mostly four-seat models) failed. A few of these separations occurred in flight, leading to fatal accidents.

Grumman American mounted an intensive attack on the problem. The company immediately switched back to the original adhesive/primer com-

bination and issued a service letter that outlined methods of detecting and repairing bond separations. Grumman American reimbursed owners for all expenses incurred in repairing bond-line separations and obliged several owners who returned their airplanes to the factory for complete reassembly. The service letter also recommended the installation of rivets at the trailing edges of control surfaces to prevent in-flight separation. In 1976, the inspection, repair and preventive maintenance procedures recommended in the service letter were made mandatory by an airworthiness directive issued by the Federal Aviation Administration.

The airplane's safety record was blemished by a rash of stall/spin and hard-landing accidents. In a study of single-engine accidents between 1972 and 1976, the National Transportation Safety Board found that the fatal accident rate for the AA-1 was more than twice that of the Cessna 150 and the Piper Cherokee 140.

The AA-1s are not certificated for spins. Accounts indicate that after one turn, the airplanes will become stabilized in a spin. The FAA issued an airworthiness directive in 1973 requiring the panels of all AA-1s to bear placards warning *Spins Prohibited*. There also was a flurry of service letters begging AA-1 owners not to be tempted to play test pilot.

In 1977, the AA-1B Trainer and TR-2 were transformed by Grumman American into the AA-1C T-Cat and Lynx. The engine was changed from the 108-hp Lycoming O-235-C2C to the 115-hp O-235-L2C. The basic difference was the ability of the new en-

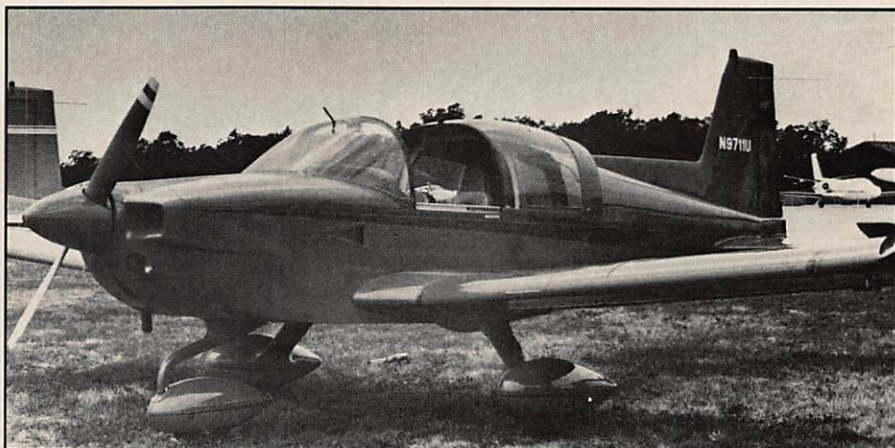
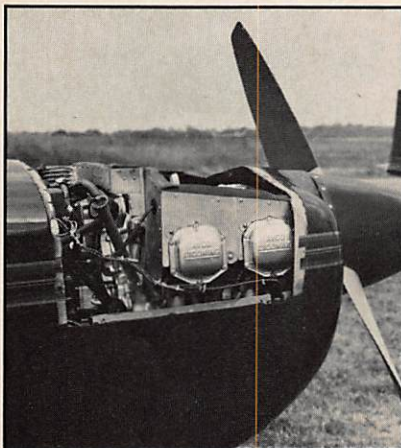
gine to burn 100-octane fuel, rather than 80 octane, which had become scarce in some parts of the country. The recommended time between major overhaul remained 2,000 hours, and performance improved only slightly.

The size of the horizontal tail was increased to provide more elevator authority at low speeds, and two shock absorbers were mounted on the tubular steel nose gear to prevent porpoising and propeller strikes during hard landings. Gross weight was increased to 1,600 pounds.

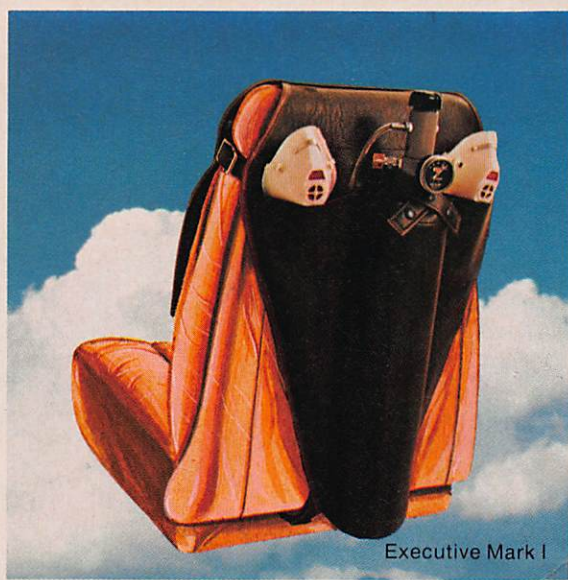
The engines in all members of the AA-1 series are tightly cowled. Cylinder head temperature can hit redline easily as the airplanes climb on warm days. To combat this problem, Grumman American installed oil coolers on the engines of the AA-1Cs and offered retrofit kits to owners of the earlier models.

Shortly after the T-Cat and Lynx were introduced, Grumman's commercial aircraft line was purchased by American Jet Industries. It is no secret that American Jet primarily was interested in acquiring Grumman's line of Gulfstream business jets and the facilities and technical know-how to proceed with the development of its turboprop/turboprop hybrid, the Hustler. A few months after moving to Savannah, the company, which renamed itself Gulfstream American, stopped building the two-seaters. Production of the four-place Cheetah and Tiger and the twin-engine Cougar was terminated shortly thereafter.

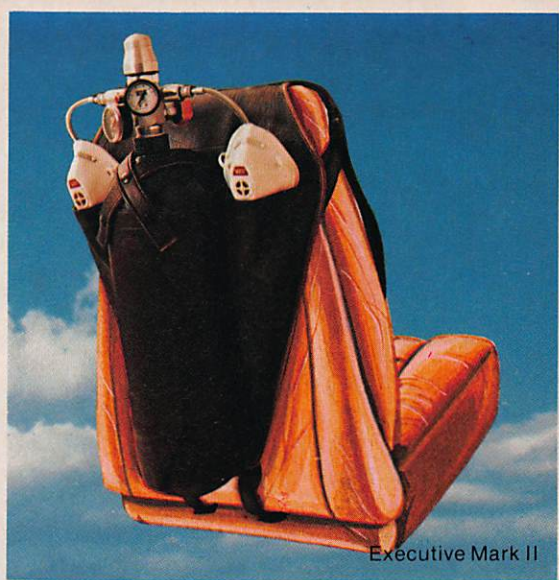
A spokesman for Gulfstream American affirmed that the company is continuing to support the orphaned lightplanes through authorized ser-



Maynard Crosby's Yankee, the last AA-1 built, was the prototype for several modifications developed by Ameromod Corporation. That is a 180-hp engine under his cowling (left). Ken Blackman's T-Cat (right), dubbed the "Snout," sports a Cheetah nose and a dorsal fin.



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LITTLE GRUMMANS

I found the transition to the little fighter to be easy once I learned its idiosyncrasies.

vice centers. Gulfstream maintains an inventory of spare parts for the airplanes, and owners report that they have had no problem in obtaining parts from the centers. "So far, I have been able to get everything I've needed," one owner said. "It just takes a little longer than it used to."

Two years ago, Gulfstream American came close to reaching an agreement with an international conglomerate to renew production of the lightplanes in Northern Ireland. However, the negotiations fell through, and Gulfstream recently hired a consulting firm to help look for a buyer for the lightplanes. "There has been some interest expressed," a spokesman said, "but we are still looking around."

More than 1,800 of the sprightly two-seaters were built, and there is a good selection to choose from in the used airplane market. Prices range from about \$4,000 for a basket case, to

nearly \$20,000 for a well-equipped and well-maintained cream puff. However, the typical price range for a good AA-1 is from \$6,000 to \$12,000.

For this report, I flew three excellent members of the breed: a Yankee owned by Roger Lide of Frederick, Maryland; a TR-2 owned by James Renshaw, AOPA 479762, of Columbia, Maryland; and a modified, 160-horsepower Yankee owned by Lauren Larsen, AOPA 524121, of Baltimore.

Lide bought his Yankee, N5701L, after a few hours of primary instruction in the airplane. He went on to earn his private license in the airplane and has since logged 200 hours in it; "mostly short hops, just for the fun of it," he said. I found the transition to the little fighter to be easy once I learned its idiosyncrasies. The most difficult thing to get used to was the free-castering nosewheel. Lide taught me a heel-and-toe technique of differential braking to ma-

neuver the airplane on the ground.

While taxiing out to the runway, the airplane made an impromptu 180-degree turn to the right, which caused me a bit of consternation. However, Lide immediately pinpointed the problem: The hydraulic line for the left brake needed to be replenished. After a five-minute ministrations by a friendly mechanic, we were back in action.

James Renshaw's pride and joy is a 1974 TR-2, N9981L, which started life as an instrument trainer. Renshaw has owned the airplane since 1976 and, like Lide, flies it mostly for fun on sunny afternoons.

The airplanes are a lot of fun. The controls are light and very responsive, and the plexiglass canopy offers a panoramic view. At 2,400 rpm, both airplanes indicated between 110 and 115 knots while burning less than six gallons of fuel per hour. The airplanes, however, are very noisy. I

could not hear radio transmissions in either aircraft with power above about 2,100 rpm. A headset is a must for the pilot, and passengers should be provided with earplugs.

Lauren Larsen's Yankee, N6214L, is a different airplane, altogether. He bought his airplane from the Navy, which had used it for primary training. When the original, 108-hp Lycoming reached TBO, Larsen removed and sold it. A local fixed-base operator then installed a 160-hp

Lycoming O-320-B2B engine and a 74-inch Sensenich propeller, according to a supplemental type certificate held by James E. Collier of Jefferson, Texas. An overhaul on the original engine would have cost about \$3,500, said Larson, and, although installation of the bigger engine cost more than twice that much, it was well worth it.

Stock AA-1s have relatively long takeoff runs and poor initial climb performance, especially in warm weather. The 160-hp engine consider-

ably improves the Yankee's climb performance. Stock AA-1s strain upward between 400 and 700 fpm, but the modified Yankee ascends effortlessly between 1,000 and 1,700 fpm. The extra horses also make a big difference in cruise speeds. Larsen's tachometer is redlined at 2,700 rpm. At 2,550 rpm, the airplane cruised at 135 knots indicated, while burning about eight gallons per hour. Throttled back to 2,300 rpm, the airplane indicated 115 knots and used about seven gallons an hour.

	Yankee AA-1	Trainer AA-1B	TR-2 AA-1B	T-Cat AA-1C	Lynx AA-1C
Price new	\$9,495 to \$10,960	\$9,740 to \$15,780	\$12,450 to \$16,890	\$17,715 to \$19,880	\$18,750 to \$21,720
Current market value	\$4,000 to \$9,000	\$6,000 to \$10,000	\$6,000 to \$12,000	\$7,000 to \$16,000	\$8,000 to \$18,000
Specifications					
Powerplant	Lycoming O-235-C2C 108 hp @ 2,600 rpm	Lycoming O-235-C2C 108 hp @ 2,600 rpm	Lycoming O-235-C2C 108 hp @ 2,600 rpm	Lycoming O-235-L2C 115 hp @ 2,600 rpm	Lycoming O-235-L2C 115 hp @ 2,600 rpm
Recommended TBO	2,000 hr	2,000 hr	2,000 hr	2,000 hr	2,000 hr
Propeller	McCauley, fixed pitch, 2 blade, 71 in	McCauley, fixed pitch, 2 blade, 71 in	McCauley, fixed pitch, 2 blade, 71 in	Sensenich, fixed pitch, 2 blade, 72 in	Sensenich, fixed pitch, 2 blade, 72 in
Wingspan	24 ft 5.5 in	24 ft 5.5 in	24 ft 5.5 in	24 ft 5.5 in	24 ft 5.5 in
Length	19 ft 2.9 in	19 ft 2.9 in	19 ft 2.9 in	19 ft 2.9 in	19 ft 2.9 in
Height	7 ft 7.3 in	7 ft 7.3 in	7 ft 7.3 in	7 ft 7.3 in	7 ft 7.3 in
Wing area	98.04 sq ft	100.92 sq ft	100.92 sq ft	100.92 sq ft	100.92 sq ft
Wing loading	15.3 lb/sq ft	15.5 lb/sq ft	15.5 lb/sq ft	15.9 lb/sq ft	15.9 lb/sq ft
Power loading	13.9 lb/hp	14.4 lb/hp	14.4 lb/hp	13.9 lb/hp	13.9 lb/hp
Seats	2	2	2	2	2
Empty weight	1,007 lb	980 lb	1,040 lb	1,002 lb	1,066 lb
Useful load	493 lb	580 lb	520 lb	598 lb	534 lb
Payload w/full fuel	361 lb	448 lb	388 lb	466 lb	402 lb
Gross weight	1,500 lb	1,560 lb	1,560 lb	1,600 lb	1,600 lb
Fuel capacity	144 lb/24 gal	144 lb/24 gal	144 lb/24 gal	144 lb/24 gal	144 lb/24 gal
Oil capacity	6 qt	6 qt	6 qt	6 qt	6 qt
Baggage capacity	100 lb	100 lb	100 lb	100 lb	100 lb
Performance					
Takeoff distance (ground roll)	900 ft	810 ft	890 ft	840 ft	890 ft
Takeoff distance (over 50-ft obst)	1,615 ft	1,550 ft	1,590 ft	1,530 ft	1,590 ft
Rate of climb (sea level)	710 fpm	705 fpm	660 fpm	750 fpm	700 fpm
Max level speed	125 kt	120 kt	125 kt	118 kt	126 kt
Cruise speed/Range	112 kt/370 nm	108 kt/355 nm	112 kt/360 nm	109 kt/357 nm	113 kt/362 nm
Fuel consumption (@ 75% power, 4,500 ft)	37.2 pph/6.2 gph	37.2 pph/6.2 gph	37.8 pph/6.3 gph	37.8 pph/6.3 gph	38.4 pph/6.4 gph
Cruise speed/Range	108 kt/395 nm	101 kt/375 nm	104 kt/390 nm	102 kt/377 nm	105 kt/392 nm
Fuel consumption (@ 65% power, 8,500 ft)	33 pph/5.5 gph	33 pph/5.5 gph	33.6 pph/5.6 gph	33.6 pph/5.6 gph	34.2 pph/5.7 gph
Service ceiling	11,000 ft	12,750 ft	11,550 ft	11,900 ft	11,500 ft
Landing distance (over 50-ft obst)	1,240 ft	1,100 ft	1,100 ft	1,125 ft	1,125 ft
Landing distance (ground roll)	490 ft	410 ft	410 ft	425 ft	425 ft
Limiting and Recommended Airspeeds					
Vx (Best angle of climb)	68 kt	65 kt	65 kt	66 kt	66 kt
Vy (Best rate of climb)	77 kt	77 kt	77 kt	78 kt	78 kt
Vno (Max structural cruising)	125 kt	125 kt	125 kt	125 kt	125 kt
Vne (Never exceed)	170 kt	170 kt	170 kt	170 kt	170 kt
Vs1 (Stall clean)	60 kt	54 kt	54 kt	54 kt	54 kt
Vso (Stall in landing configuration)	58 kt	52 kt	52 kt	52 kt	52 kt
Vfe (Max flap extended)	87 kt	100 kt	100 kt	100 kt	100 kt
Va (Design maneuvering)	109 kt	117 kt	117 kt	117 kt	117 kt
Max canopy open	113 kt	113 kt	113 kt	113 kt	113 kt

All specifications are based on manufacturers' calculations. All performance figures are based on standard day, standard atmosphere, at sea level and gross weight, unless otherwise noted.

LITTLE GRUMMANS

The noise level at this power setting is reasonable.

Larsen is northeast regional director of the American Yankee Association, which has an international membership of about 350. The name is a bit misleading, since membership is open to owners of all American, Grumman and Gulfstream lightplanes. The association publishes a bimonthly newsletter and currently is putting together a group insurance policy for its members. Local get-togethers are held regularly in the association's seven regions, and an international convention is scheduled to be held in Delavan, Wisconsin, August 5 through 7. For more information, contact: David Gavey, Secretary/Treasurer, American Yankee Association, Post Office Box 3052, Everett, Washington 98203.

Ken Blackman, AOPA 482466, president of the association, is general manager of Ameromod Corporation, a Gulfstream American service center at Paine Field in Everett. Ameromod holds a number of supplemental type certificates for the AA-1 and AA-5 series airplanes. Most of the STCs held by the company were obtained either by Blackman or by Maynard Crosby, who operated one of the first AA-1 dealerships. Crosby is now an engineer for a company in California but continues to work with Ameromod on the development of a turbocharger STC for the Tiger.

Ameromod's STCs for the AA-1 series include 125- through 180-hp Lycoming engine conversions, a dorsal fin, main landing-gear leg fairings, NASA intake ducts, soundproofing packages, Sensenich propellers, AA-1C horizontal tails and 10- and 20-gallon auxiliary fuel tanks.

Modifications available from other companies include engine-oil coolers, autopilots, nose gear shock absorbers and main landing gear strut plates. Information can be obtained from the American Yankee Association.

Since most AA-1s available on the used airplane market were subject to the bumps and grinds of student training, prospective buyers should study carefully the airplane's engine and airframe maintenance logs. The airplanes have had relatively few airworthiness directives issued against

them. The major directives include: AD 70-5-5, which requires inspection of mufflers and muffler shrouds for cracks and broken welds every 50 hours until new assemblies are installed; AD 75-9-7, which calls for inspections of mixture-control wires for wear and improper rigging every 100 hours and replacement of the wires every 500 hours; AD 76-17-3, mentioned previously, which requires inspections for debonding and preventive measures to prevent bond-line separation; and AD 78-13-4, which requires red fuel floats to be installed in the vertical sight gauges to improve visibility.

Bond separations can be detected by tapping a coin along the bond lines. A hollow sound indicates possible separation and is cause for further inspection. Separations usually are repaired in the field with flush rivets.

The belly skin should be checked for quarter-size bubbles. In 1971, Gulfstream American issued a service letter advising that water can seep through the floorboards and honeycomb, freeze and cause blisters in the skin. The recommended fix is to drill holes in the belly skin to allow the water to escape.

Ken Blackman recommends that potential buyers remove access panels and use a flashlight to check the nooks and crannies for evidence of corrosion, which can cause bonded surfaces to separate.

As stated earlier, the tightly cowled engines are prone to run hot, especially during climb. Cylinder damage is a possibility, and potential owners should demand a compression check.

Despite these caveats, the AA-1 series airplanes are durable and economical. Owners report few maintenance problems. Annual inspections typically cost between \$300 and \$500.

The airplanes are not for everyone. They are noisy and difficult to scramble into and out gracefully. They cannot fly too far or carry a lot. They take up an astonishing amount of runway to get airborne on a warm day. They are not hands-off airplanes and demand their pilots' attention every inch of the way.

But they are exciting and economical to fly. And for many pilots, that is all that really matters. □

THE DREAMER

Jim Bede has never lacked for ideas.

Jim Bede was one of the first people I met in the aviation business. It was back in 1965, when he popped into New York to talk about his current projects. We walked up Park Avenue to the Wings Club for lunch, just Bede, my editor and me. No one else had a chance to get a word in edgewise as the ebullient Bede bubbled about his aircraft designs, about his upcoming long-distance record attempt and about flying in general.

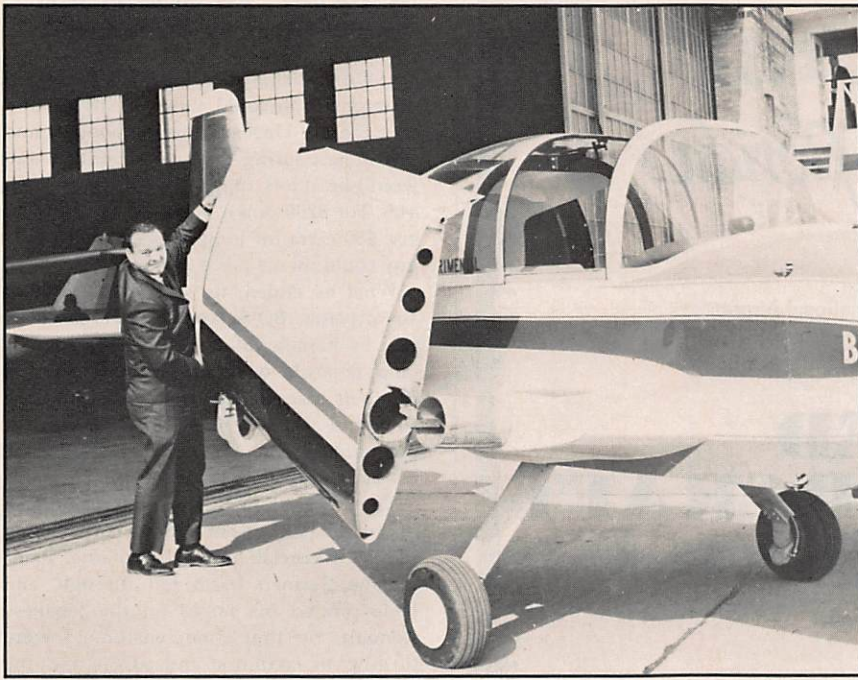
The details of the conversation have been long forgotten—by Bede as well as by me—but the memory of that enthusiasm lingers. Bede's enthusiasm remains high even today, I recently discovered, despite the tumultuous years in between.

A couple of years after that lunch, when I flew the first production American Aviation Yankee (the outgrowth of the BD-1), Bede no longer had control of the company. He had designed the BD-1 in 1960, but before he built a prototype, he proceeded with the XBD-2, a twin that he used "to evaluate a number of things." One of the things was the honeycomb used in the fuselage; this construction was incorporated into the prototype BD-1 when he returned to that project in 1963.

"The only two-place aircraft available then," Bede recently said to me, "was the Piper Colt." [The Cessna 150 began production in 1958—Ed.] "I wanted to come up with a modern, metalized, two-place J-3 Cub to replace the existing fleet of two-placers. Then, there were 86,000 general aviation aircraft; 54 percent were more than 10 years old, and 95 percent of them were two-place."

Once the BD-1 prototype was flying, Bede said, "It looked so good that a couple of the directors wanted to take over. I had known all along that there would have to be more investment, more management control by others." Control eventually went to Russell W. Meyer Jr., then attorney for the fledgling American Aviation.

Bede was off working on other projects. He worked on his round-the-world, non-stop without refueling record flight in a modified Schweizer 2-32 sailplane. The



Jim Bede shows off the construction of the early experimental BD-1, precursor of the American Aviation Yankee, which went into production in 1969 after Bede left the project.

first attempt, in 1967, was aborted because a malfunctioning gyro made the autopilot useless for a man who needed a few winks of sleep during the long trip. Later, he managed to stay aloft for 70 hours, nine minutes before the loss of all electrical

power forced him down after flying 8,974 miles in a closed-circuit course. He ended up with a couple of distance records, even if he did not make it around the world.

By the early 1970s, the Bede enthusiasm was funneled into another trip—the BD-5,



At Oshkosh '81, a bearded Bede turned up with a vehicle of a different sort—the Autocycle, his latest design. He plans to provide kits to transform motorcycles into safe machines.



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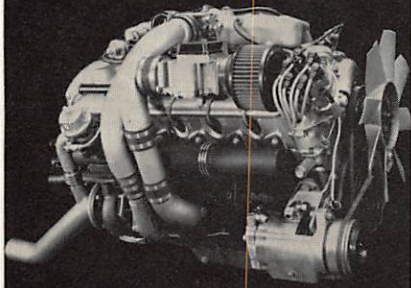
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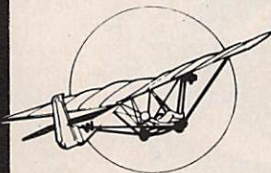
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the 40-hp, 200-mph bomb that would put everyone who could tinker a kit together into the air. Deposits for components and kits came pouring in as homebuilders and would-be pilots caught the Bede enthusiasm. For \$200 down, \$1,900 more at delivery, \$50 extra for long wings, the ordinary guy could own a piece of the sky.

What he ended up with was a piece of an airplane. BD-5s were under construction by homebuilders all over the country (and deposits were banked and position numbers assigned for the production version, and a hot jet BD-5 project was bursting through the air and enthusiasm for BD-6s and -7s and -8s was high).

There was, however, a remarkable lack of deliveries of essential BD-5 parts, one of the most crucial being the engine. Plans for the German Hirth fell through, and Bede pinned his hopes on the Japanese Xenoah. By that time, customers were turning to creditors, and AOPA and the Federal Trade Commission were looking after their interests. When word finally arrived from the Pacific-Asia Region that the FAA had certified the Xenoah engine in this country, the word came to me—the result of research for a story—not to Bede. I was the one who gave Bede the news, but it was too late.

The bankruptcy case is still in the courts in Kansas. Jim Bede took himself back to Cleveland, where he engaged in engineering consulting work. His design for an unusual automobile design caught the eye of his cousin, also named James Bede, who manufactures home energy products.

The Bede Car is a streamlined, all-fiberglass vehicle that closely resembles the Pininfarina wind-tunnel design of a few years back. "I felt that fairly significant improvements could be made if the same engineering technology that is applied to aircraft—aerodynamics, lightweight structures—were applied to a ground vehicle," said aviation's Jim Bede. The test vehicle is air driven by a huge ducted fan in the rear of the streamlined body. There are no gears, no transmission. (Imagine taxiing your Cessna 182 up to a stop light and trying to drag a VW Rabbit.)

Achieving a low coefficient of drag, or reducing resistance as the ads put it, is how the fuel consumption was reduced. (Yes, the car was advertised at \$8,000, but the project is on hold now, said Bede). Bede tried several engines. He performed fuel consumption tests at a transportation research facility in Ohio, renting the fuel-measuring equipment. He got up to 128 mpg on the straightaway, using readouts from the fuel flow meter, not overall fuel consumption. (Such an average, Bede said, does not really help from the engineering standpoint, but he finally estimated the figure that would be useful from the con-

sumer standpoint: 70 mpg in city driving).
There was talk of kits.

But the Bede enthusiasm now is not for the Bede Car, but the newer Autocycle. He took a 1975 Honda motorcycle, put in new plugs, made a "few other modifications" to the engine, "stretched out the front wheel and the back a few feet" and built a body around it, with two seats in tandem. The purpose? To reduce drag; to operate better in crosswinds, in gusts, around 18-wheelers on the highway; to provide better crash protection for safer motorcycling.

Bede said that he has licensed a firm in St. Louis, Tomorrow Corporation, to produce the Autocycle in complete form or as a kit to convert your own motorcycle. The company will offer four different engine sizes; a 250 cc Autocycle will be \$3,995 base, Bede said, with prices ranging up to \$6,500 for more powerful versions. Kits are \$2,195, for any size motorcycle, with at least a 250 cc engine or larger. "It gets good mileage too," said Bede. "Cleveland to Washington, D.C., at 98 mpg, even with the hills in Pennsylvania."

Just another Bede enthusiasm? This one is different, he thinks. "I hope to get my rewards through royalties. The goal is to take a portion of this return and put it into personally repaying BD-5 customers for money they put up. It's a corporate responsibility, still in the courts in Wichita; there's some money there, but no doubt it will be used up in legal costs. But I hope to gradually pay back from a personal standpoint. Ninety-eight percent of the customers are nice people who ordered the airplane with a sincere desire to have the airplane. We tried to give them the airplane, in all sincerity.

"People think that Bede customers hate me, but they are more sad [at not getting the airplane] than angry," Bede told me. I remembered sitting on the grass at Oshkosh at the last convention where Bede appeared (before he brought the Autocycle over last year). The BD-5 dream was collapsing, but it was hard to get a word in edgewise here too, as would-be builders kept interrupting us to take photographs, to offer encouragement. "I'm number five on the production list, and I still believe in you," one smiling man said.

Bede said that he has a list of all the Bede customers, but he is sure it is getting out of date. "I've never had an unlisted phone number," he said. "Customers can call me anytime. If they are sincere, I'll be sincere," he barely paused, "if they aren't sincere, I'll still be."

So, he invited, keep in touch. Write, or call. Post Office Box 54, Vernon Hills, Illinois 60061; 312/367-8111.

"I haven't done everything right," Bede added in conclusion. "But I thought I was at the time."
—MFS



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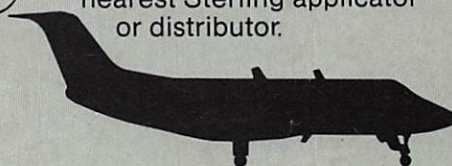
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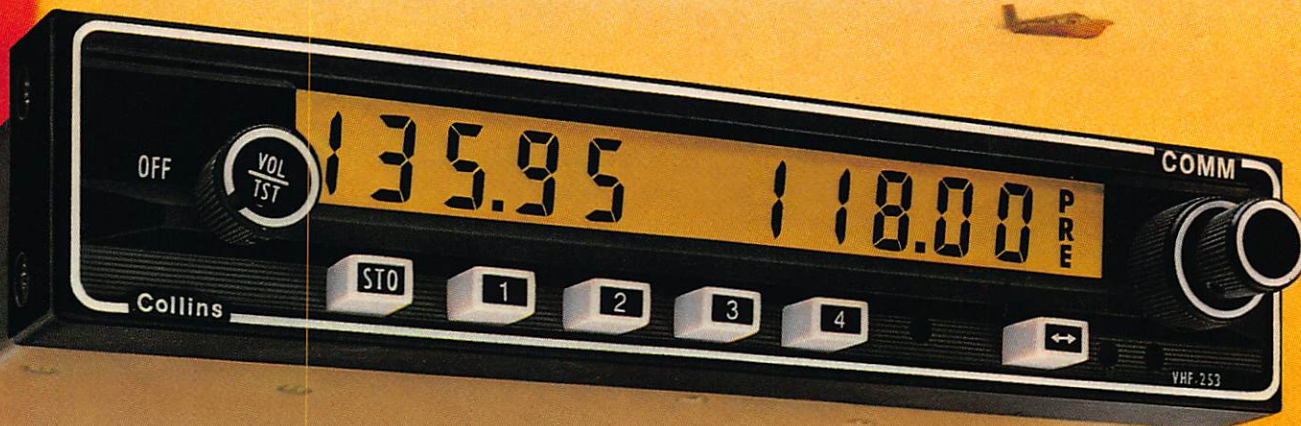
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