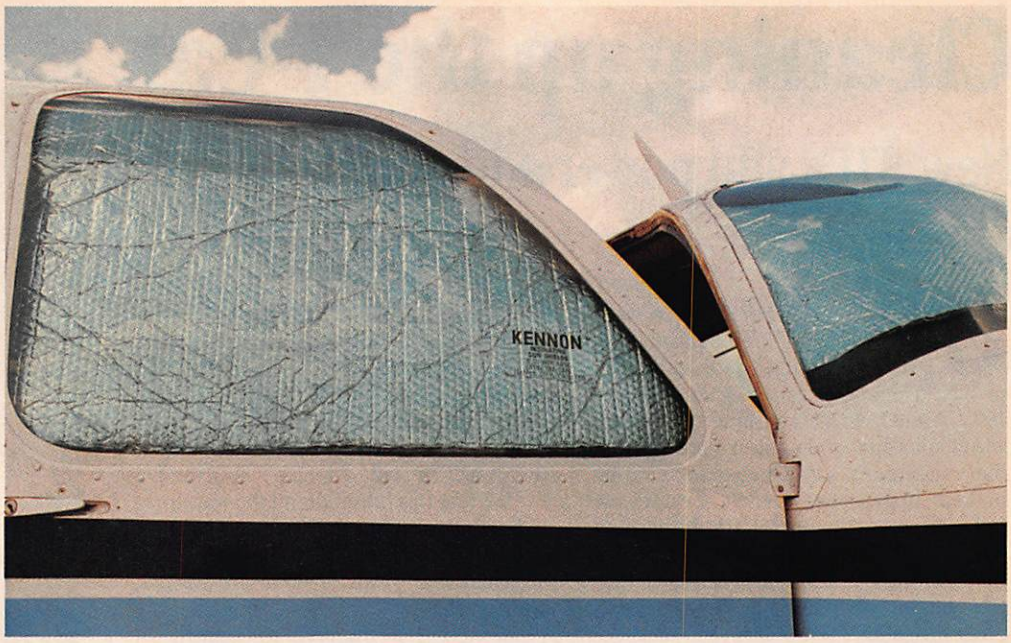



MARY F. SILITCH

**The commercially available Kennon shields are semistiff and require no fasteners.**

# Storebought Shades

I ALWAYS HAVE been a big booster of sun protection for an airplane, and the like-new condition of our 10-year-old interior is ample proof that it works. Like all things, there are some tradeoffs in choosing a cover or covers, so you have to decide what your needs are before deciding which of the three basic types you need—exterior, interior soft or interior stiff.

The exterior type offers weather protection in addition to solar protection, so if you have an airplane that leaks, you probably need this type. The drawbacks include difficulty of use and bulkiness (which makes them difficult to store in the airplane). They get dirty and transfer that dirt to the inside, particularly if they have straps that go around the fuselage to hold them on, picking up the engine dirt from the bottom of the fuselage.

Interior types come in two basic flavors: stiff and soft. The soft kind have been available longer and generally require an attachment system in the airplane. This usually means Velcro fasteners glued to the window frames, which if a bit unsightly certainly looks better than a sun-ravaged interior.

The soft shields are easy to store in the airplane because they fold up neatly and they are particularly easy to use. They are primarily reflectors rather than insulators, and all that folding eventually gets to them, and they come apart.

The stiff kind include the homemade sort described in the article, as well as the Kennon shield, which is made of a reflective mylar-covered bubble material and is semistiff. Stiff shields generally are more difficult to store in an airplane because they are bulkier and a bit more difficult to install, but they have an advantage over the soft kind: They generally will fit in the window without any fasteners. The Kennon shield offers insulation as well as reflection.

The stiff kind also have a tremendous advantage if you plan to make your own, as they don't require a binding sewn around the edges.

Insulation is not as important as stopping and reflecting the sun's rays—a screen's primary function. If you're making your own, whatever else you do, get the fit right to keep the sun away. Almost all the materials to make sunshields are generally available, in the form of space blankets, cardboard or whatever, so your imagination is the only limit if you are making your own.

We use sunscreens even at fuel stops, to keep the airplane's interior habitable, so we have found that ease of use is very high on our list. If sunshields are too difficult to use, they are used infrequently, which is not the point.

We currently use the Kennons, primarily because we have curtains (with their attendant rods) in our windows, and the sunscreen has to fit between the curtains and the window, which the stiff kind of shield does quite easily.

If you are too lazy, inept or simply haven't got the time to make your own, all types are readily available from the manufacturers listed here.

*—Nicholas E. Silitch*

**Connecticut Aviation Products, Inc.**
East Glastonbury, CT 06025
203/633-5588
Interior, flexible.

**Ground Tech**
Rt. 11, Box 740
Salisbury, MD 21801
301/749-6693
Exterior reflective white canvas cabin cover straps, no snaps. A first-class product.

**J.P. Supply and Products**
P.O. Box 12721
New Iberia, LA 70562
318/364-6526
Interior, flexible.

**Kennon Products, Inc.**
P.O. Box 1668
Temple City, CA 91780
818/287-5379
Interior, semi-stiff insulating, new poly cover for longer wear. No attachment points needed. Snug fit.

**Morgan-Stanford Aviation**
1805 J Stanford St.
Berkeley, CA 94710
415/841-6642
Interior, flexible. Two qualities, two- or five-year warranty. The old name in this business.

**John Polcik Co.**
10949 Tuxford St.
Sun Valley, CA 91352
818/766-3684
Exterior fabric cabin cover, straps, no snaps. A first-class product.

# Cleaning up the T-Cat

## New STCs add power and speed.

By Don Downie

OUTSIDE IT LOOKS like a well-cared-for Grumman Yankee. Take a closer look and you'll see a series of STC'd modifications that update the 1978 AA-1C T-Cat airframe. There are wheelpants and landing-gear fairings, auxiliary fuel tanks, a larger elevator, a refurbished instrument panel, brand-new upholstery and a dorsal fin containing three buried antennas. Under the modified cowling is a 150-hp Lycoming O-320-E2G engine swinging a Sensenich fixed-pitch propeller.

The Hyper Cat is a packaged modernization developed by AirMods N.W., of Snohomish, Washington, for owner Kermit Thiele of Fredericksburg, Texas. The package went together so well that Ken Blackman, partner in AirMods, N.W., is considering setting up a mini modification line to work on four or five rebuildable aircraft. With original aircraft costing as little as $25,000, Blackman believes that the finished price, with 80% of the hardware new, would be about $45,000, plus avionics and options. "Every one is a completely individual case," Blackman noted. "You have to sort out what the customer wants and what he can afford."

The first Hyper Cat weighed 1217 pounds empty, up from the empty weight of 1060 for the stock Trainer. Blackman said that the wheelpants alone cost 30 pounds, but the gain in speed was more than 7 mph.

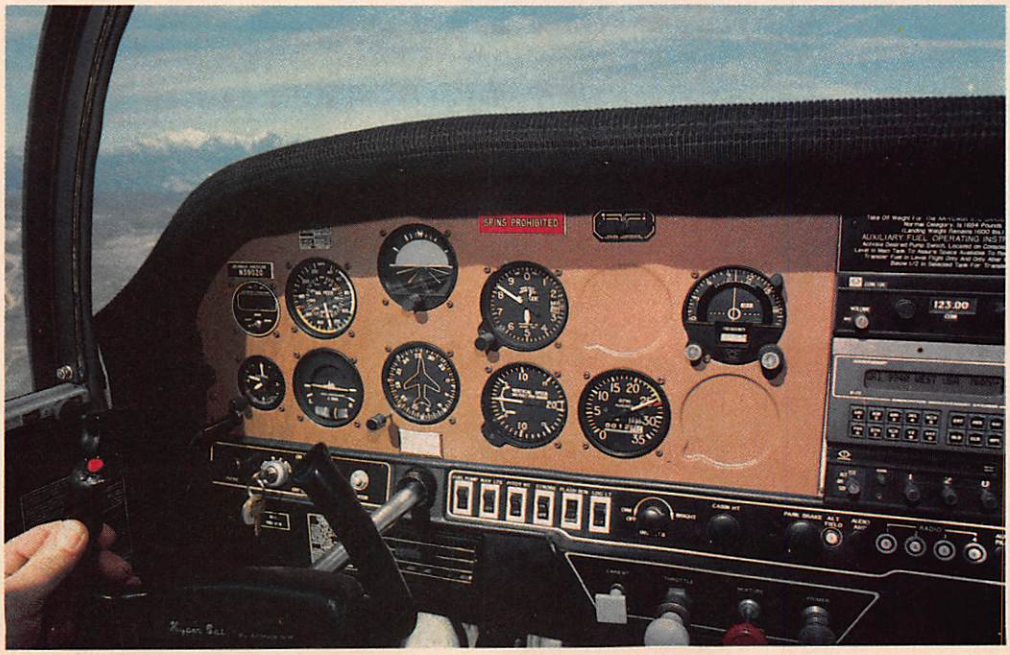
Blackman advised that a drop test is the only chore yet to be accomplished to get the gross weight of the Hyper Cat up to 1850 pounds. He noted that the structure is identical to that of the 2400-pound Tiger, up to the turtledeck extension. "All the metal is the same," he said.

"We tore this one apart all the way down to bare metal. The wings came off and we pulled the landing gear. The zero-time engine came from Ly-Con in Visalia, California."

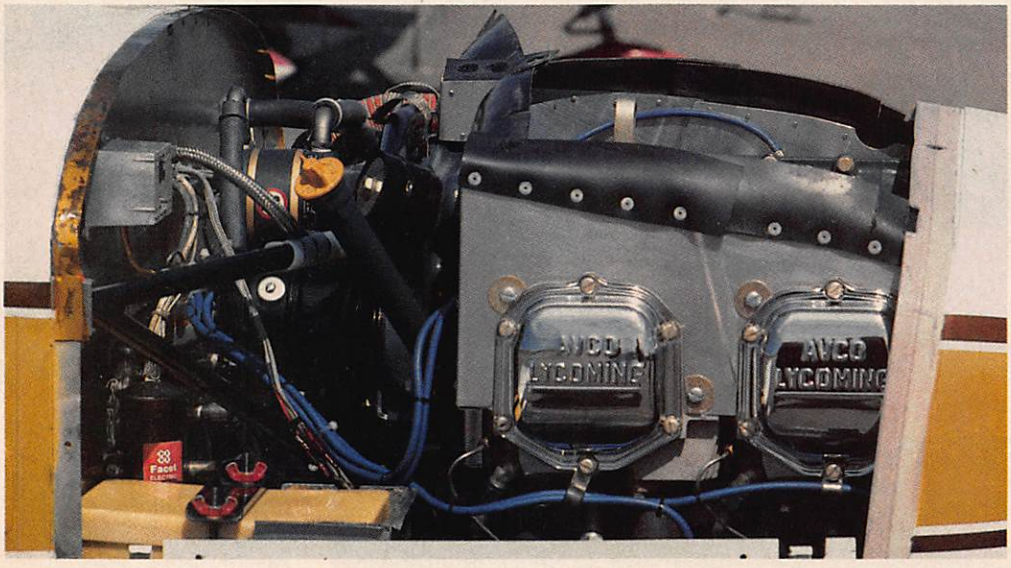
There are a number of significant changes on the "new" N39020 Yankee done under multiple STCs. Two five-gallon auxiliary fuel tanks have their own filler cap and electric transfer pump to the mains. (The aux tanks actually are one tube on each side running the full length of the outboard wing just behind the existing tubular wing spar and fuel tank.) The larger elevator came from the Grumman American Traveler, and the 150-hp engine is the same used in the 1972-79 Traveler/Cheetah. The changes included a beefup of the nosegear torque tube and yoke assembly. Blackman said that the assembly was designed by the factory to shear on impact, but sometimes it performed when it was not intended to. The STC adds six more bolts and eliminates the bonded shear joint. The wheelpants and fairings are stock Grumman parts from the four-place airplanes, with the strut cover made by AirMods.


PHOTOS: DON DOWNIE

**With the 150-hp engine used in the Traveler and Cheetah and other modifications, the two-place Grumman American AA-1C T-Cat becomes a Hyper Cat.**




**Not only was the Hyper Cat highly modified, it was highly rebuilt. One thing remained unchanged: the superb visibility from the sporty bubble canopy.**




Modifier Ken Blackman states the top speed with the new 150-hp engine is 155 knots, with a cruise of 143 knots at 8000 feet with 2700 rpm.

Blackman shows off the new interior that was part of Air-Mods N.W. modification package for the 1978 T-Cat.

## HYPER CAT

*continued*

Blackman explained that four models of the two-place Yankee trainer were built: the AA-1 with a full laminar wing, the AA-1A with a modified leading edge cuff; the -1B with a 60-pound gross weight increase; and the -1C with the larger Traveler tail (40% larger with trim tabs on both elevators). All had the 108-hp O-235-L2C engine similar to that used in the Piper PA-38-112 Tomahawk and Beech 77 Skipper.

Blackman said that 1938 two-place Yankees were built and that some 1550 were flying two years ago. The original AA-1C aircraft used for the initial Hyper Cat was one of a group purchased from the Hawaii Country Club of the Air and shipped back to the mainland, two aircraft in a 40-foot container. Blackman advised that the first rebuilt airplane had 3500 hours total time, but it had no damage history.

Blackman got into aviation in an unusual way. He was a nightclub entertainer who learned to fly in a Yankee. After obtaining his private certificate in 2½ weeks, he promptly purchased a Cessna 310, which he placed on leaseback. Then he became an FBO and a Grumman American dealer.

Thiele, the new owner of the completely refurbished Hyper Cat, was once commander of a military aero club that had a Yankee on the flight line. He later purchased a Grumman American.

After a walkaround, we had a chance to fly with Blackman. With its 24.5-foot wing and 19.4-foot length, the Hyper Cat is small enough to be called cute. But don't read that as a putdown. It performs—as we were soon to find out.

The cockpit is big when compared with the outside dimensions. Flip up the seat bottom, step on the tubular wing carry-through structure and then onto the floor, flip the seat down and slide into the pit. With the seat full aft, there is ample room for long-legged pilots like me. Etched on the control wheels is the name Hyper Cat.

The Hyper Cat and its predecessors have visual fuel gauges—plastic tubes with the fuel level showing down each side of the cockpit. "They work just the way your coffee pot does," Blackman said. Auxiliary fuel tanks pump into the mains with a Bendix (Facet) fuel pump that is identical to the one used to go from firewall to engine. Auxiliary fuel is pumped into the mains after its fuel is partially burned down.

Startup is normal, but taxiing with the Hyper Cat's full-swivel nosegear takes a bit of remembering. It has been nearly a quarter of a century since I ferried a Grumman AA-1 from Cleveland, Ohio, to California, and one tends to forget that ground handling is a bit different. It takes a considerable blast of power to start the Hyper Cat moving if the nosewheel has been cocked. We finally worried it out of the parking spot on the ramp and headed for the runup area. Once the nosewheel is straightened out, it reacts fairly normally. And when one wants to make a very short turn on the ground, just hold in one brake and it will make a very tight circle.

The high end of the airport was 3350 feet and the day was a few degrees warmer than standard, so we took just a bit more than the book takeoff roll of 700 feet. However, climb was positive as we broke ground at 55 knots. Almost immediately, we established a solid rate of climb of 900 fpm, give or take a little for the usual choppy desert air. Over-the-nose visibility is better than most because the cowling is relatively stubby. Control touch is super smooth and extremely responsive. When you roll into a turn, there's a temptation to just keep on going into a roll, but we resisted.

One way to appreciate the rate of roll is to establish a steep, 45-50° bank and then whip the ship over the top into a similar bank going the other way. With a little top rudder to keep things smooth, this change of direction maneuver is slick and swift.

In slow flight, a clean stall is listed at 57 knots and it's down to 53 knots with full flaps. As we tried the flaps, Blackman said candidly, "They don't do very much good." The flap switch is between the seats and extension can be stopped at any point by centering the tab.

With the attention to detail, it was predictable that the Hyper Cat would live up to its name and go! Top speed at sea level is 155 knots, while a more realistic cruise is 143 knots at 8000 feet, with 2700 rpm. With that power setting, the range is 500 n.m. in 3½ hours. (After owning the aircraft for a couple of months, Thiele reported that he regularly flight plans for 130 knots).

*The package went together so well that AirMods, N.W., is considering setting up a mini modification line.*

Personally, I prefer to run an engine at something under redline rpm, so we came back on the power to 2500 and cruised right along indicating about 132 knots. It felt very comfortable.

I tried a couple of stalls to check out the numbers: 57 knots power off, clean, and somewhere around 53 with the flaps down. After sitting through my mild stalls, Blackman said, "Here, let me show you what will happen in a stall with full power." The nose came up, and up, and up some more. A look out the wing showed an angle of at least 50° to the horizon. With the wheel held back, the ship oscillated in a rather rapid mode but did not drop off appreciably on a wing. Blackman used just a little rudder application to keep things almost

## HYPER CAT

*continued*

level. It is certainly forgiving in a stall. If anything, there is a tad more elevator authority than is absolutely necessary.

Visibility was excellent during letdown. Blackman recommended against using carburetor heat with this engine installation without moisture present in the air because intake air is drawn in around the warm oil tank.

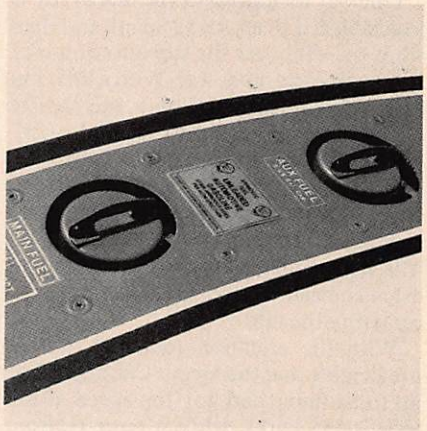
Seventy-five knots seemed like a good approach speed, but I'm sure that Blackman would have been comfortable at a slower speed. The handy elevator trim tab is between the seats next to the flap switch, and it is almost second nature to trim out elevator forces coming across the fence.

With a wing area of just 102 square feet, there's not a great deal of float left. The maingear is positioned far enough forward so that you can come back on the wheel after the mains are on the runway and let the drag of the lower wing surface take care of deceleration.

We rolled to the end of the runway, turned off and picked an open parking spot for shutdown.

The Hyper Cat is a fully professional rebuild of a well-proven design. In today's marketplace, the investment in a virtually zero-time reworked airplane is becoming an increasingly practical way to purchase near-new quality and dependability.

**The Hyper Cat has two new auxiliary fuel tanks with their own filler cap and a pump to transfer fuel to the main tanks.**



***FOR MORE INFORMATION,** contact: AirMods N.W., P.O. Box 8, Snohomish, WA 98290 (shipping address: 11009 Burn Rd., Granite Falls, WA 98252); telephone 206/334-3030; FAX 206/334-3031. For information about the American Yankee Association, contact: Stew Wilson, Secretary, AYA, P.O. Box 1531, Cameron Park, CA 95682; telephone 916/676-4AYA. David Neumeister, 5650 S. Washington, Lansing, MI 48910, produces an AA-1/AA-5 Newsletter.*

## Hyper Cat Modification of Grumman American AA-1C T-Cat

**Price**
As flown ..... $43,000

**Specifications**
Wingspan ..... 24.5 ft.
Wing area ..... 102 sq. ft.
Wing chord ..... 4 ft.
Overall length ..... 19.3 ft.
Overall height ..... 8.65 ft.
Wheel track ..... 8.5 ft.
Landing gear type ..... tricycle
Tire size, mains ..... 600×6
Tire size, nose or tail ..... 500×5
Seats ..... 2

**Weights and loadings**
Gross weight ..... 1684 lb.
Empty weight ..... 1217 lb.
Useful load ..... 467 lb.
Wing loading ..... 16.51 lb./sq. ft.
Power loading ..... 11.23 lb./hp
Payload, full fuel and oil ..... 283 lb.
Fuel capacity ..24 gal. main tanks, 10 aux.
Baggage capacity ..... 100 lb.

**Engine**
Lycoming O-320-E2G four-cylinder, carbureted, air-cooled. TBO, 2000 hours.

**Propeller**
Sensenich 74DM7-0-64 fixed pitch.

**Performance**
Maximum speed, sea level ..... 155 kt.
Cruise speed, 75% power ..... 143 kt.
Cruise speed, 65% power ..approx. 135 kt.
Cruise speed, 55% power ..approx. 127 kt.
Range, 75% power ..... 500 n.m.
Range, 65% power ..... 513 n.m.
Range, 55% power ..... 559 n.m.
Rate of climb, sea level ..... 1000 fpm
Glide ratio ..... 8.3:1
Service ceiling ..... 16,800 ft.
Stall speed, clean ..... 57 kt.
Stall speed, flaps ..... 53 kt.
Approach speed ..... 69 kt.
Takeoff ground roll ..... 700 ft.
Takeoff over 50-ft. obstacle ..... 1100 ft.
Landing over 50-ft. obstacle ..... 1500 ft.
Landing ground roll ..... 500 ft.

**Manufacturer**
Grumman American