Pilot Flight Check: Beech's Trio Of Trainers

(5)

Sport, Sundowner, and Sierra (former Musketeers) get shakedown. Overall rating: good. But, basic white paint scheme, uncovered fuel selector handle, and visibility-obscuring panel instruments draw evaluator's ire

N9727L

by DON DOWNIE / AOPA 188441

Once upon a time, back in 1844, there were "Three Musketeers." Athos, Porthos and Aramis. They came from the imagination of writer Alexander Dumas. Once upon a later time, in 1966, there were three flying Musketeers, the 150, 165 and 200. They came from the imagination of drawing-board specialists at Beech Aircraft Company's plants in Wichita and Liberal, Kan.

The names of Beech's Musketeers, sometimes irreverently called "Mousketeers," are now history. Today we have the 150 hp "Sport," the 180 hp "Sundowner" and the 200 hp retractable-gear "Sierra." The new names may give control tower operators a minor problem for a couple of months, but there's much more than a name-change in Beech's new approach to the light aircraft market [Feb. PILOT, page 36]. The company's out to get more of the training aircraft market, among other things.

All three 1972 models have two doors,

Beech Aircraft's Sport, with the company's new Beech Aero Club markings, near Van Nuys, Calif. All photos by author unless otherwise noted

a change of paint with new striping, and aerobatic checkerboards. However, the paint jobs are still basically white and hard to see in snow and smog.

A new network of Beech Aero Clubs and Beech Aero Centers is aborning with the idea of putting pilots in Beech airplanes from the pilot's first training flight onward—and upward.

For a flight check of the three trainers, it probably would have been logical to fly the Beech "S" models in order of size and power. It just didn't work out that way, however. First we flew the aerobatic Sundowner; then took a brief checkride in the retractable 200 hp Sierra in Wichita and after a solo delivery flight to Southern California, we had a chance to fly the 150 hp Sport.

Our introduction to the "new" 180 hp fixed-gear Sundowner, was performed by Bob Buettgenbach, Beech's manager, Production and Light Aircraft Sales. He's a former U.S. Navy PB4Y-2 (B-24) driver who has spent the past 20 years at Beech, working his way up from a sheet metal mechanic to his present position. He has "about 8,000 hours" and still isn't so gray that he doesn't enjoy a good roll in the sky.



The new Sundowner, N9704L, was parked in front of the Wichita factory's brilliant blue flight-line office. As we walked around to kick the tires, Buettgenbach gave the conventional low-key sales pitch about Beech quality construction, the two full-sized doors, a left-side baggage door (with a latch that could be improved), and an aerobatic version with G-meter, shoulder harnesses, inertial reels and quick-release doors.

Besides the checkerboard paint job, the aerobatic versions differ from standard Sundowners in that: stringers in the top of the wings are of a thicker material; a doubler is added in the leading edge of each wing (in the first bay, outboard of the fuel cell); and, doublers are added to the cabin doorposts. These latter items are in addition to the FAArequired quick-release doors, shoulder harness, and G-meter for aerobatic aircraft.

We climbed aboard through the big doors and settled down in the cockpit. Several features are impressive, particularly the generous size of the cabin—44 inches wide and 95 inches long, from instrument panel to rear bulkhead. There's a generous 26 square feet of window space. Unusual and interesting was the vertical engine-instrument display. This type of power presentation does take a while to become accustomed to but, personally, I learned to like it. Most of the people with whom I talked at Beech, however, predicted the panel display would probably return to the conventional readout, primarily because the entire five-instrument unit must be removed to repair any single needle.

Flaps are manual, with 15°, 25° and 35° positions. They are extended merely by pulling up on the handle. A thumb button on the end of the flap handle must be used for retraction. Electric flaps are an option. Beech added an additional 144 square inches of wing area by extending the trailing edge of the flaps by 1.0 inches, providing a semi-Fowler-flap effect, as the flaps go down and aft. Thus, power-off, full-flap stalling speed is 56 mph for the Sport and 60 mph and 66 mph, respectively, for the Sundowner and Sierra.

The wing skin is silky smooth because of its bonded structure. One-inch-wide honeycomb ribs are installed at six points on each wing panel for stiffness. We never noticed a wrinkle or "oil-can" in the Sundowner, despite some fairly extensive aerobatics.

Because of the 6.5 degrees of dihedral that help make the "three-S series" mighty stable flying platforms, the fuel gauges indicate full tanks until each 30-gallon tank is down to 20 gallons. All three models have a 60-gallon capacity, but there's a tab mounted in each fillerneck that indicates half-full. A slot in



the tab tells when you have 20 gallons aboard: With just the two of us in the cockpit, we were operating with full tanks.

Personally, I view with some suspicion an uncovered fuel selector valve mounted in the middle of the floor of the cabin. While it isn't easy to do, somewhere, sometime, someone will inadvertently kick that handle to a moreoff-than-on position and someone could have an engine misfire on takeoff. Either a plastic cover over the selector valve or possibly relocation of the unit to the left side-panel might solve this potential problem. During our flight with the Sundowner, however, we deliberately turned the valve most of the way toward the closed position and we didn't get any engine sputter.

Mixture control and carburetor heat handles are not consistent throughout the "three-S series," partially because the Sierra has an injected powerplant with no carb heat control. The Sport and Sundowner have the mixture control with its prominent clockwise-to-lock ring at the right of the throttle, while the carb heat is below the throttle on the far left. The Sierra has a vernier (screwin) controllable prop control at the right of the throttle with the mixture control where the carb heat is on the smaller models. For consistency's sake, the mixture control (with its idle cutoff capability) might have been placed at the far bottom right of the panel, and the not-so-essential cabin air control could have been relocated.

There are two latches on each door. One is the conventional pull-to-open handle. A second latch is provided at the top of each door and these three-inch knobs are marked with an arrow indicating "open," but there is no reference point to tell the pilot at a glance whether the latch is open or closed. Two quick sticky-tape or paint marks could solve this minor problem. If I owned any one of these aircraft, that's the first thing I'd add.

While we didn't deliberately unlatch a door in flight, "the book" advises that "the door will trail in a position two to four inches open. A buffet may be encountered with the door open in flight. Return to the field in a normal manner. If practical, during landing flare-out, the door should be held to prevent it from swinging open." Better yet, use your checklist and don't have that problem.

The Beech trio has beautiful, fullblown windshields but the view "up front" is currently marred by an outside air temperature gauge (OAT) that sticks out through the middle of the windshield and by a magnetic compass that has

Sport's instrument panel. Note compass and outside air temperature (OAT) gauge above panel, plus vertical read-out instruments.

been perched atop a pedestal to keep it away from the electrical influence of the ADF. Buettgenbach was quick to explain, however, that there was a "fix" in the works to relocate these two instruments.

It was a beautiful, clear, crisp afternoon as we took off from the Wichita factory strip heading north. Acceleration was good and rate of climb, with just two of us aboard, was well above the 820 fpm in the book. As we climbed out, we made a series of turns that improved in coordination as we gained altitude. Controls on the new Beech are robust but not heavy. The ship is completely stable and will fly hands-off almost indefinitely. The "ram's horn" control wheel is both comfortable and functional, since you can see all the instru-

> The Sundowner "peels off" near Agua Dulce Airport in Southern California.





Sierra's instrument panel, during flight check. Indicated airspeed shows 135 mph at 6,400 feet and 2,500 rpm at full throttle (19½ inches manifold pressure).

Sundowner checked out by PILOT Western Editor Downie boasts "full-house" instrument panel. Positions of compass and OAT gauge above panel partially spoil view. Beech reports a "fix" is in the mill to relocate the two instruments.

ments behind it without stretching your neck.

We backed into the aerobatics after a full series of stalls that indicated the Sundowner was predictably stable and ran out of rudder in cross-controlled situations while the ailerons were still functioning. As I made a couple of clearing turns to assure there was no traffic underneath, Buettgenbach suggested using aileron against the spin to increase drag on the inside of the rotation and to protect against a spiral dive. A clean aircraft like the Sundowner would pick up speed quickly in a spiral dive and recovery should be made before two turns have been completed.

Since it's tough to teach old dogs, I tried a couple of nose-high accelerated turns and kicked in bottom rudder for an acceptable spin entry. The nose drops smoothly to a point just past vertical and you're on your way just as long as you hold full up-elevator and full rudder. Relax the least bit on either control and you stop spinning.

During one spin, I relaxed a bit on the rudder and rotation stopped while we were inverted with the nose down past 45 degrees. It was either roll out or split-S. Since the red line is 175 mph, I completed a split-S without going past the 153 mph caution arc.

Snap rolls are just horizontal spins; so I tried a couple without aileron. The Sundowner came around smartly from a nose-high entry at 100 mph indicated. My recoveries, however, were only within about 20 degrees of the horizon and I asked Bob to demonstrate a couple. His came out right on-the-money, but he instinctively used aileron during the re-



Retractable-gear Sierra, en route from Wichita to Southern California. Photo shows nose gear isn't fully retracted, "even though all the lights were out," author reported. Mechanics were later asked to check the gear problem. Photo by Robert Buettgenbach

covery phase. When I asked him to demonstrate one without recovery aileron, he still dropped back to old habit patterns.

The Sundowner does a nice slow-roll and a smooth aileron-roll, where no negative Gs are imposed and cameras don't float off the back seat. But unless you've taken your Wheaties, it's going to take both hands on the "ram's horn" to hold full aileron during the roll.

Spins, rolls and those other goodies are approved both for the Sundowner and the Sport in the aerobatic category of 2,030 pounds for either model. Spins are not approved for the heavier Sierra.

We shot an off-pavement landing on the half-mile-long Valley Center, Kan., sod flight strip where Buettgenbach hangars a mini-Mustang that he and two other enthusiasts built. The Valley Center "airport" is actually the back portion of a group of long residential lots, with the last 50 feet of the lots used as a runway. In all, 22 airplanes call Valley Center their home port.

High tension lines border the runway

on the south; so we had a chance to try the landing roll for "total over 50-foot obstacle." "The book" calls for 1,275 feet but we were light, the day was cool, and we were facing about 10 knots of wind. We went through one small mud puddle and turned around in considerably less than 1,000 feet. There's just no way other than lots of throttle—to keep the nose gear on each of the "three-S" models from making contact immediately following the main gear as long as there's no weight aft. A placard on the panel states "raise flaps to increase brake effectiveness" but we were on wet turf and had ample runway to spare.

Soft-field takeoffs call for 15° flaps with 25° recommended "from a soft or rough field, or any surface when clearing low obstacles." We used two notches of flaps (25°) and bounced into the air at just over 60 mph, building up speed close to the surface in ground effect.

Because of heavy approach traffic into McConnell AFB, near Wichita, the standard pattern at the Beech factory runway is 300 feet agl. This legal "buzz

	Sport	Sundowner	Sierra
Engine	150 hp Lyc.	180 hp Lyc.	200 hp Lyc.
Wingspan (ft)	32.75	32.75	32.75
Length (ft)	25.62	25.73	25.73
Height (ft)	8.2	8.2	8.4
Gross weight (lb)	2,250	2,450	2,750
Empty weight (lb)	1,374	1,416	1,610
Fuel capacity (gal)	60	60	60
Takeoff roll (ft, over			
50-ft obstacle)	1,320	1,380	1,630
Landing roll (ft, over			
50-ft obstacle)	1,220	1,275	1,380
Rate of climb (fpm, sea leve	I) 700	820	862
Stall speed (mph, gear-flaps			
down)	56	60	66
Top speed (mph)	140	151	170
Cruising speed (mph, 75%			
power @ 7,000 ft)	11,100	13,650	14,350
Service ceiling	131	143	162
Range (mi, 55% power @			
10,000 ft)	883	860	880
Base price	\$15,975	\$18,795	\$25,795

Beech's 'Three-S' Series SPECIFICATIONS AND PERFORMANCE



job" is interesting and gives you an opportunity to sharpen up on a low-power approach with a sweeping turn into the runway. Full flaps and power off are prescribed for normal landings, with 80 mph across the fence. With our light load, 75 mph proved to be ample and we rolled north on the runway to clear for landing traffic. Again, the nosewheel came down almost immediately after touchdown, despite full back-wheel.

An unexpected opportunity came up to ferry a brand-new Sierra to Beechcraft West, Beech's outlet in Southern California at Van Nuys Airport. Thus, Buettgenbach and I went around the field just at dusk for a checkout ride in N9727Q. The 200 hp retractable-gear Sierra handles just like the Sundowner, except for the retractable gear and a controllable prop. The wheel-shaped gear handle is located just to the left of the throttle. There's a red warning light for unlocked, or "in transit," and three greens for "down and locked." All the lights go out when you have "three in the wells." An airspeed safety switch opens the hydraulic pressure pump when impact air reaches 68 to 72 mph. Manual extension is with a small handle (inserted in a receptacle on the floor) to release hydraulic pressure. As the pressure is released, the gear falls "down and locked" by itself. I did note that there are no specifications in the owner's manual on aircraft performance when the gear might drop due to an unlikely hydraulic malfunction. A warning horn blasts when the manifold pressure goes below 12 inches to remind the forgetful pilot that his gear is still up.

There's really nothing like a ferry flight to get to know a new airplane. N9727Q had 4.49 hours on its recording tach when Bob Buettgenbach and I took off at about 10 a.m. on a sunny, chilly Saturday. Bob was ferrying a new twinengine Baron to Albuquerque and took my $2!/4 \times 2!/4$ Rollieflex camera for some air-to-air pictures on the first short leg to Liberal, Kan., where the three new Beechcrafts are spawned.

The day was crystal clear and the air above 4,500 feet was calm. Buettgenbach dropped one-quarter-flaps on the twin he was flying and held 140 mph indicated while I eased in off his wingtip for pictures. The vernier throttle is fine for most types of flying, but I have yet to master it for close formation and there was some little profanity in the new Sierra's cockpit. Buettgenbach shot up all the film aboard the Baron and we landed at Liberal so I could top offmy fuel and get back my camera.

After takeoff, Buettgenbach pulled the Baron in alongside my Sierra and I slipped into the right seat to shoot a couple of rolls of film. After a wave-off, he climbed the Baron on up and headed directly toward Albuquerque, while I

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stayed on the deck to reduce my headwind component.

The weather-guessers had forecast a severe clear all the way to the West Coast, but when I contacted Dalhart (Tex.) FSS to file a flight plan, Albuquerque was forecasting freezing rain and snow showers by the time I'd arrive there. Roswell, N.M., and El Paso, Tex., were clear, but weathermen there were forecasting conditions similar to Albuquerque's in a couple of hours. After flipping a couple of coins in the cockpit, I filed down the highway to Tucumcari, N.M., and then over Highway 66 to Albuquerque. There was moderate turbulence, with winds increasing in altitude, so I remained below 1,000 feet agl. Even then, one leg of the flight checked out at 114 mph groundspeed. If I'd been flying anything slower, I'd have turned back to Tucumcari and put the ship in the hangar for the night. As it was, I was so low over the highway that I never could raise one specific FSS.

After landing at Albuquerque, I taxied through snow and slush to the big Cutter Flying Service hangar and noted that Buettgenbach's Baron was safely on the line. I'd fully expected to spend the night there, but a call to the FSS disclosed a number of light aircraft were coming in VFR from the west where conditions reportedly were: 10,000-foot ragged ceilings, scattered snow showers and scattered, freezing rain. Grants and Zuni, in New Mexico, and Winslow and Flagstaff, in Arizona, were well above minimums and supposed to improve.

There was ample daylight remaining; so, I filed VFR to Flagstaff, where the 7,000-foot-high airport makes an excellent stop (you're at cruising altitude almost as soon as you get out of the traffic pattern). It's about 286 sm to Flagstaff and the flight was into headwinds forecast at 25-plus knots. I filed for two hours even, at altitudes of 8,500 feet and 10,500 feet, with the higher altitude required to clear the peaks of the El Morro National Monument.

The lights were shining brightly and the sun was nosediving into the Colorado River as I closed my flight plan (just one minute under two hours) and touched down in the snow and pine-tree surroundings at Flagstaff. Beech's Sierra took on \$13.16 in 100 octane for the two-hour flight, which worked out to some 13 gph at 2,500 rpm and full throttle. Naturally, with someone else's new airplane, I was operating on the rich side of the most economical mixsetting. Temperatures were 32°F ture and lower at cruising altitudes and ideal for all kinds of airframe icing. I had picked my way around the minor snow squalls and was, for once, thankful to have a fuel-injected powerplant up front.

The new Sierra, I can assure you, has an excellent cabin heating system. In fact, you can ingest enough heat to keep your feet comfortably warm and then pull in enough cold air from the individual airline-type vent to keep a clear, cool head. I'm sure the line attendants at Flagstaff silently questioned what sort of a screwball I was when I discarded my topcoat, suit coat, sweater and stocking cap before climbing back into N9727Q. The cabin, however, was comfortable by the time I'd taxied to the north end of the runway, made an engine runup, and leaned the mixture to full power for a 7,000-foot-high takeoff.

The flight to Southern California was clear, calm, and with subsiding winds that put me 20 minutes ahead of my ETA. If Beech had retained the name Musketeer, I'd have called the Sierra "the mouse that roared."

Shortly after I had returned to California and turned in the Sierra, Mike Woodward of Beechcraft West and executive pilot Denny Pierce, with me along, took a Sundowner and a Sport up over the snowcapped San Gabriel Mountains for air-to-air photos. We landed at the hillside Agua Dulce (Calif.) Airpark in Mint Canyon and I finally flew the 150 hp Sport, N9727L. Takeoff roll for the Sport, listed at 885 feet in the book (1,320 feet over 50-foot obstacle), is 65 feet shorter than that of a fully grossed Sundowner, while the Sport's 700 fpm rate of climb is 120 feet under that of its 180 hp "big brother." The deep instrument panel of all models is perhaps more noticeable in the Sport than the others since the best rate-of-climb speed (83 mph at 5,000 feet) is 6 mph slower than the Sundowner's. There is more than enough panel space on each of the "three-S" models to install all the instrumentation and avionics that anyone might want. After having spent more than 15 hours in the three new Beechcrafts (within a period of four days), I found the company's high instrument panel to be no problem. There's so much space and so little noise in all three cockpits that student (and instructor) fatigue should be minimal. Pilots who check out in the Sport should be able to go right into the Sundowner without any problems, then move on up to the Sierra, following a minimum of transition to its retractable gear and controllable prop.

It is fairly general knowledge in Wichita that Beech has been experimenting with the two-place Model 16 for more than a year. No details have been released on this new two-placer other than that it is a 115 hp trainer with a completely different design (not a scaleddown Musketeer). At press time, no decision had been reached on the future of the Model 16. In the interim, the Sport makes a fine, roomy trainer with a fuel consumption that ranges between 6.1 and 9.0 gph, leaned at cruise.

With Beech's avowed intention to push its Beech Aero Club concept (where the "chief pilot" will be the 'Club Pro" and the club's atmosphere will be similar to a yacht club or country club), there will be an ever-increasing opportunity to fly the new "three-S' models. They're all roomy, comfortable and solid. I enjoyed flying each of the three models, with the cross-country delivery flight of the Sierra being pure frosting on the cake. If you haven't put your hands to the controls of Beech's 'lightplanes" before (or if you have, and it's been a long time since), go and see what I mean.