





## Cirrus SR22-GTS

# Fast company

Cirrus goes outside the norm to build its company

BY THOMAS B. HAINES

**U**nless you are brand-new to general aviation or have been under a rock for the past decade, you know by now the Cirrus Design story. Wisconsin brothers Dale and Alan Klapmeier started building kit airplanes, but soon recognized that the real market was for a new-generation mainstream-certificated airplane. In 1995, they announced—with much fanfare—that they were going to produce just such an airplane. The airframe would be composite and incorporate the latest thinking in aerodynamics and survivability, including (gasp) an all-airplane parachute system launched by a rocket. Unusual doors that lift upward and forward (actually, in the mock-up they were sliding doors like your minivan has), opening to a wide and comfortable cabin. The plan was to incorporate the latest avionics and engine management systems to reduce pilot workload and improve situational awareness. And deliver it all at a higher “value” than was then available in the market.

PHOTOGRAPHY BY MIKE FIZER



The black perforated leather interior, tinted windows, and black and chrome exterior graphics distinguish the top-of-the-line Cirrus SR22-GTS. New latches (right) bring carlike simplicity to the doors. Trim functions are controlled by a four-way switch on the top of the side yoke. The terrain-warning annunciators are next to the PFD. The Avidyne Entegra system shows everything from attitude to position, weather, terrain, and traffic—checklists too (far right). Cirrus announced in February that a flight director is a new option for the Avidyne system as it talks with the Meggitt S-Tec autopilot.



So, 10 years later, how'd they do in meeting their goals?

They did well, all in all. Typical of pioneers, they still spend a lot of time removing arrows from their backsides. Without a doubt, though, the company has captured the attention of not only the general aviation community, but to a certain extent, the public as well. The company and its airplanes with their unique features, especially the parachute, have been the subject of numerous in-depth television and radio interviews, books, and magazine articles.

And, oh yeah, the company makes money too. In 2004, Cirrus Design was for the first time profitable in every quar-

ter. Not bad for a startup that delivered its first airplane in July 1999 but didn't get into serious production until nearly three years later. The brothers and their team will tell you the process took longer, cost more, and was more challenging than they ever imagined. And you get the sense they'd do it all over again.

Today, three airplanes a day roll out of the enormous bright-white factory buildings on the Duluth International Airport in Minnesota. Some 6,000 parts a month are crafted in Grand Forks, North Dakota, at the largest composite lay-up facility in the industry.

And while the brothers Klapmeier are still very much the face of the company,

they are now supported by a remarkable team of enthusiastic, driven professionals who seem intent on assuring the company succeeds. Unlike more traditional companies, Cirrus has looked outside of the general aviation community to fill its top slots. David Coleal, executive vice president and chief operating officer, hails from a manufacturing background at Toyota and Caterpillar. Coleal came aboard in 2001 during the due-diligence phase of a financing deal that gave Crescent Capital Partners, an affiliate of the First National Investment Bank of Bahrain, 60 percent of the company in exchange for \$100 million. The infusion finally allowed the cash-



strapped Cirrus to increase production to a more efficient rate. Coleal was asked to stay and today oversees the manufacturing operation that has ramped up from building 183 airplanes in 2001 to more than 550 in 2004. Engaging all of the latest techniques from lean manufacturing to just-in-time inventory deliveries, Coleal says he enjoys being part of the company's dramatic growth. Cirrus now employs nearly 1,000 workers between its Duluth and Grand Forks factories.

As Wal-Mart does, Cirrus has become involved in helping its vendors drive down their own manufacturing costs in order to stave off price increas-

es. "We cannot just accept vendor price increases year after year. Our customers won't accept it either," says Coleal. Some of the more traditional vendors have resisted such changes, but ultimately they come around or they are replaced. Coleal has axed the number of vendors from 400 to about 100, giving the remaining companies more and more business from Cirrus.

In an effort to make the original models, the 210-horsepower SR20 and 310-horsepower SR22, easier and more efficient to build, Coleal and his team launched a 14-month project that resulted in the new G2 models that debuted in 2003. "It was originally to lower cost, but

it turned into an opportunity to improve performance and maintainability," Coleal says. The result was a complete redesign of every airframe part and every interior piece. The company invested in new tooling that is capable of producing six fuselages a day. But the redesign also solved some issues customers were complaining about, especially the door latches—always a problem area for airplanes. The G2 latches are more carlike. From the outside, you push a button and the door unlatches; To close it from the inside, you simply slam it shut. The cowling was also reshaped, allowing the exhaust stacks on the bottom to be tucked tighter to the



Cirrus CFI demo pilot Justin Dillon with his current ride, N670CD, an equipped-to-the-max SR22-GTS. Like two other CFI demo pilots, Dillon lives a nomadic life educating CFIs around the country in an effort to build brand awareness. Are you a CFI who wants a ride? Contact the company through its Web site.

fuselage. The result was better cooling, easier construction, a more convenient oil access door, and about 5 knots in cruise, giving the SR22 a book speed of 185 knots. Another improvement out front: a six-point engine mount that results in less vibration than did the original four-point mount.

### Is it like a car?

At one point early on, placing an order for a Cirrus meant years of waiting. The backlog stretched hundreds of units. So Coleal and his team are successful at ramping up production and eating

away at that frustratingly long backlog. Great news, right? To a point. But what if you are delivering more than you are selling? Once that production pipeline opens up, you better have new orders coming in the back end at the same or better rate or things in that big white factory could get mighty quiet in a matter of months.

Where are you going to turn to make sure sales ramp up with production? Who sells a lot of units? Auto manufacturers. But airplanes aren't cars. For one thing, airplanes cost hundreds of thousands of dollars—the top-of-the-line

SR22 GTS commands more than \$445,000. Cars cost tens of thousands of dollars—mostly. But what about cars that cost hundreds of thousands of dollars? Can a guy who sells those sell airplanes?

Yes. John Bingham is living proof. The Cirrus executive vice president of sales and marketing joined the company after stints with Rolls-Royce and Bentley luxury autos. The price of a new Rolls-Royce isn't all that much less than a base-model SR22.

With deliveries outpacing sales, Bingham nearly doubled the number on the sales staff, establishing 12 sales

## Cirrus accident scenarios

Because of its unique Cirrus Airframe Parachute System (CAPS) and other features, when a Cirrus crashes it definitely makes the news. As we go to press, a few Cirrus pilots are just not having a great year. The AOPA Air Safety Foundation just completed a special report on technically advanced aircraft (TAA) that discusses the unique features of this new breed of aircraft. Last year we also looked at Cirrus (see "Safety Pilot: Cirrus Safety," February 2004 *Pilot*). At that time it was pretty much a statistical dead heat on fatal accidents per 1,000 aircraft comparing the Cirrus SR20/22 series and *new production* Cessna 182s equipped with advanced GPS avionics. It now stands at 5.7 accidents per 1,000 Cessna 182s and a bit higher for Cirrus at 7.1 per 1,000.

### To quickly recap:

*Cirrus production SR20/22 accidents through mid-February 2005 (excludes two foreign and one flight-test accident)*

• **26 total, 12 fatal (46 percent)**

Nonfatal Accidents (14 total, 4 preliminary)	Fatal Accidents (12 total, 5 preliminary)
Mechanical .....4	VFR in IMC .....3
Deer strike .....1	Spatial disorientation.....2
Fuel starvation .....1	Stall/spin .....1
Maneuvering .....2	Controlled flight into terrain..2
Landing .....4	Maneuvering .....2
Thunderstorms (CAPS deployed) .....1	Suspected icing .....1
Instrument failure (CAPS deployed) .....1	Unknown.....1

regions in the United States, each with a regional director. Ten of the regions also have a regional sales manager. In addition, three regional CFI demo pilots roam the country offering free rides to any flight instructor who bothers to ask. "We learned that CFIs didn't know anything about Cirrus, so when a student asked the CFI about a Cirrus, the CFI couldn't give any good information. We're out to fix that," explains Bingham. This year, the three CFI demo pilots will provide some 1,100 CFI demos.

All in all, Cirrus has 27 demo aircraft in the field to make sure that prospects who want a demo can get one.

The effort has paid off, assuring the order pipeline stays full. In fact, sales increased to 432 in 2003 while deliveries hit 473. In 2004, Cirrus enjoyed a record year for sales at 733, including 102 sales in December alone. Deliveries, meanwhile, topped 553—also a record. The company now carries about a three-month backlog, which Bingham believes is ideal. It usually takes customers about 90 days to get ready to accept an airplane and that's about how long it takes to get one.

#### But will it fly?

A cold wind cuts through my heavy winter coat as we approach the SR22-GTS on the ramp. It feels like Duluth in February. Instead it's Norfolk, Virginia, in February. Employing tactics from his days marketing cars, Bingham created the GTS package, which makes standard all of the options Cirrus offers. In addition to the passel of avionics, you get a chrome step and spinner, sporty

## Rate quote

When a new aircraft model comes to market, especially one as revolutionary as a Cirrus, it takes a while for the hull and liability insurance market to come to terms with the associated risk. One would think that with all of its safety features—from the Cirrus Airframe Parachute System (CAPS) to the 26-G seats and four-point harnesses, to the cabin crush zones—the Cirrus would have an easy time of it in the insurance market. But that's not been the case. A higher-than-expected accident rate and other factors have caused Cirrus rates to hover higher than those for similar, yet more traditional airplanes.

There's been a lot of hangar talk about the expense of Cirrus insurance. To find out the truth, we contacted three major underwriters and presented them with a hypothetical pilot profile, but one fairly typical for someone buying one of the airplanes outlined below. Here's our pilot: 50 years old with a private pilot certificate and instrument rating, 500 hours' total time, 100 hours in a retractable-gear airplane, and no time in make or model. The aircraft were assumed to be hangared and the liability coverage was \$1 million with \$100,000 sublimits, meaning the insurance company would pay no more than \$100,000 in liability coverage for each passenger—a fairly typical clause.

We averaged the three quotes to arrive at the annual premium.

Aircraft	Insured Value	Average Annual Premium
2004 Cirrus SR22-G2	\$380,000	\$10,800
2004 Cessna 182	\$330,000	\$3,700
2004 Mooney Ovation2 DX	\$390,000	\$6,400

As you can see, even compared with the Mooney Ovation2 DX, which has a similar hull value, the Cirrus average premium runs 70 percent higher. In all cases, as the pilot gains experience in make and model, one would expect the premiums to decline. Relative to the size of the overall purchase, the difference in premium between an Ovation and a Cirrus SR22-GTS, for example, is rather insignificant—only about 1 percent of the price of the Cirrus, but it shows an insurance industry still getting comfortable with the Cirrus brand. —TBH

In the special report, ASF was unable to make a solid statistical link between any particular aspect of TAA and accidents. We were able to identify that pilot experience and judgment continue to have a bearing on TAA accidents just as they do with classic designs. New technology, at least at this point, generally is not sufficient to overcome the usual fatal-accident scenarios where pilots significantly exceed their skill levels. There have been some dramatic saves with CAPS and some cases where the chute either possibly malfunctioned (that has not been confirmed) or the pilots never activated it because they were either oblivious to the hazard or waited too long.

At this point in the evolution of TAA, it is safe to say that high-performance TAA that fly through multiple weather systems provide their pilots with outstanding information in terms of location, terrain avoidance, datalink weather, traffic avoidance, and the latest in GPS navigation. However, cross-country flight still requires good judgment not to take on more than the aircraft or the pilot can handle. To view the full ASF TAA report, visit the Web site ([www.asf.org](http://www.asf.org)), click on Publications, and select TAA Special Report.

—Bruce Landsberg, executive director, AOPA Air Safety Foundation

Look good, go fast, attract a crowd on the ramp—such is the life of a Cirrus pilot. In case you're wondering, the fin just ahead of the wing root is a vortex generator to improve slow-speed handling.

## Price of progress

Cirrus President Alan Klapmeier would like to see the value of your three-year-old SR20 plummet; ditto for your old Cessna 172. "We want to drive down the value of used aircraft through innovation," says Klapmeier. In the end, it's good for the industry, he explains. "I would like to see the \$40,000 172 become the \$25,000 172 so more people can afford to buy it." Such a change will allow more people to come into the market and ultimately mean a healthier general aviation community, he believes.

To encourage buyers to upgrade to new models more often, Cirrus plans to continuously refine its models and introduce new ones. Already, the company sees some of its customers buying a new airplane as soon as the warranty runs out, as many people do with cars. "A lot of our customers are already on their second or third Cirrus, so we've become competition for our own used sales."

As for the ultimate in aircraft purchases, the much-talked-about very light jet, don't count Cirrus out just because it has so far only built propeller airplanes. "Cirrus will be there with an approach," comments Dale Klapmeier.

"Someone will succeed in that market. VLJs are all offering a better value than currently exists. It will sell," continues Alan. But how will the Cirrus VLJ be different than those currently in development? "We're in the business of building personal transportation aircraft," reminds Alan. "So ours would be a turbine aircraft for the *owner* to fly—not a small business jet." —TBH



black and dark-gray stripes, tinted aft windows, and a rich-looking matte black leather interior. From a TKS anti-ice system to an XM WX Satellite Weather datalink system to the three-blade prop, the GTS package scoops up all the options, except air conditioning and the oxygen system, which are considered aftermarket options.

I push the button on the door and it pops open. Inside, I'm glad to be out of the wind. In the right seat beside me is Justin Dillon, one of those three CFI demo pilots. He's based at Norfolk, but flies throughout the East showing off the SR22 to flight instructors. He punches up the pretakeoff checklists on the big Avidyne Entegra multifunction display (MFD). All Cirrus models—the SRV-G2 VFR model, the SR20-G2/GTS, and the SR22-G2/GTS—include the two-display Entegra system

for displaying primary flight data and additional navigation and system data on the MFD. The EMax engine and fuel monitoring system, which displays on the MFD, is optional.

After takeoff, I follow Dillon's expert advice to pitch the nose up to 11 degrees. Magically, the airspeed settles on the 101-knot best-rate-of-climb speed. Eight degrees provides a comfortable 120-knot cruise climb. I find it not at all difficult to hold such precise attitudes thanks to the big attitude indicator on the primary flight display. "Works every time," Dillon remarks. Throughout the demo, Dillon shows how this is truly a numbers airplane. With high wing loading and the preciseness with which you fly it, the SR22 handles like a much larger airplane. Same thing on descent and landing. One degree nose down and 11 inches of manifold pressure provide a

## SPECSHEET

### Cirrus SR22-GTS Price as tested: \$445,100

#### Specifications

Powerplant	.....310-hp Teledyne Continental Motors Platinum IO-550-N
Recommended TBO	.....2,000 hr
Propeller	.....Hartzell PHC-J3YF-1RF, 3-blade 78 in
Length	.....26 ft 0 in
Height	.....8 ft 7 in
Wingspan	.....38 ft 6 in
Wing area	.....144.9 sq ft
Wing loading	.....23.5 lb/sq ft
Power loading	.....11.0 lb/hp
Seats	.....4
Cabin length	.....10 ft 10 in
Cabin width	.....4 ft 1 in
Cabin height	.....4 ft 2 in
Cabin cubic feet	.....137 cu ft
Empty weight	.....2,250 lb
Empty weight, as tested	.....2,323 lb
Maximum gross weight	.....3,400 lb
Useful load	.....1,150 lb
Useful load, as tested	.....1,077 lb
Payload w/full fuel	.....664 lb
Payload w/full fuel, as tested	.....591 lb
Maximum takeoff weight	.....3,400 lb
Fuel capacity, std	.....84 gal (81 gal usable) 504 lb (486 lb usable)
Oil capacity	.....8 qt
Baggage capacity	.....130 lb, 32 cu ft

#### Performance

Takeoff distance, ground roll	.....1,020 ft
Takeoff distance over 50-ft obstacle	.....1,575 ft
Max demonstrated crosswind component	.....20 kt
Rate of climb, sea level	.....1,400 fpm
Cruise speed/endurance w/45-min rsv, std fuel (fuel consumption)	

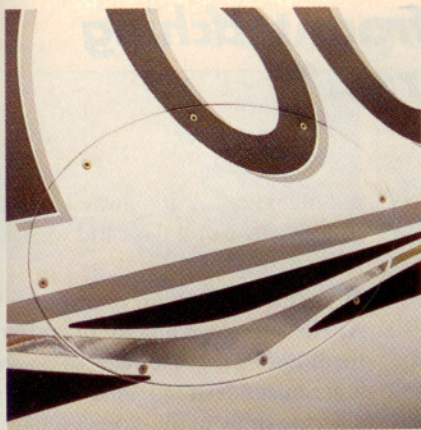
@ 75% power, best power, 8,000 ft	.....185 KTAS/3.8 hr (106.8 pph/17.8 gph)
@ 65% power, best power, 10,000 ft	.....174 KTAS/4.4 hr (92.4 pph/15.4 gph)
@ 55% power, best economy, 10,000 ft	.....166 KTAS/5.9 hr (67.8 pph/11.3 gph)
Max operating altitude	.....17,000 ft
Landing distance over 50-ft obstacle	.....2,325 ft
Landing distance, ground roll	.....1,140 ft

#### Limiting and Recommended Airspeeds

V <sub>X</sub> (best angle of climb)	.....78 KIAS
V <sub>Y</sub> (best rate of climb)	.....101 KIAS
V <sub>A</sub> (design maneuvering)	.....133 KIAS
V <sub>FE</sub> (max flap extended)	.....119 KIAS
V <sub>NO</sub> (max structural cruising)	.....178 KIAS
V <sub>NE</sub> (never exceed)	.....201 KIAS
V <sub>R</sub> (rotation)	.....70 KIAS
V <sub>S1</sub> (stall, clean)	.....70 KIAS
V <sub>SO</sub> (stall, in landing configuration)	.....59 KIAS
V <sub>PD</sub> (parachute deployment)	.....133 KIAS

For more information, contact Cirrus Design, 4515 Taylor Circle, Duluth, Minnesota 55811; telephone 218/727-2737; fax 218/727-2148; or visit the Web site ([www.cirrusdesign.com](http://www.cirrusdesign.com)).

All specifications are based on manufacturer's calculations. All performance figures are based on standard day, standard atmosphere, sea level, gross weight conditions unless otherwise noted.



convenient 500-fpm descent. Manage the airspeed precisely over the numbers, resist the urge to flare too high, and just as you think the nosewheel is going to touch down before the mains, you urge the nose up just a little for a satisfying squeak of the mains.

Especially in the landing, one notices that the Cirrus airplanes are just a little different than the airplanes that most people learn to fly in. But like a Mooney, manage the speed and energy right just over the runway and a Cirrus will land nicely every time.

My flight with Dillon came just days to weeks after a spate of three fatal Cirrus accidents. This new design bristling with safety enhancements has suffered an unusually high number of accidents—a surprisingly large number of them fatal. (See “Cirrus Accident Scenarios,” page 72.) Yet there is no indication of a problem with the airplane itself. To probe the airplane's habits a bit, Dillon and I stall the airplane repeatedly. There's plenty of warning of a stall. Force it to break and it does so smartly, but not dangerously so. We fly around in 45- to even 60-degree banks with the stall horn blaring with still plenty of aileron authority, thanks to the cuffed leading edge. An airplane this docile is not going to cause a pilot problems unless purposefully aggravated, which is a possible cause of one of the accidents.

Alan Klapmeier acknowledges that the safety enhancements do provide comfort to pilots, encouraging them to utilize their airplanes. “And that's not a bad thing,” he says. “People fly in a Cirrus and they believe ‘I can do that.’” Part of the company's mission is to bring new people into aviation who wouldn't consider it when the alternative was flying more conventional airplanes. Bingham estimates a third of the company's customers are people who hadn't purchased an airplane before.

Klapmeier agrees. “The people we're talking to now were not in the market for an aircraft 10 years ago. They simply were not looking. Cirrus' arrival and other forces are causing people to get into aviation. We have zero-time people showing up and wanting to learn to fly.”

Dillon has delivered several SR22s to nonpilots who used the airplane to get their pilot certificates.

The Klapmeiers are big believers in specialized training. To support its burgeoning customer base, Cirrus contracted with University of North Dakota Aerospace to develop a comprehensive training system. Customers get two days to a week of training at the factory. CFIs who elect to participate in the Cirrus Standardized Instructor Program (CSIP) receive special training online and at the factory in order to learn how to instruct in Cirrus airplanes. More than 150 have taken the training so far. Thirteen FBOs and flight schools have been anointed as Cirrus Training Centers, meaning their in-

**i** Links to additional information about Cirrus may be found on AOPA Online ([www.aopa.org/pilot/links.shtml](http://www.aopa.org/pilot/links.shtml)).

structors have been through the CSIP and they have a Cirrus available for training and they also maintain currency in Cirrus aircraft. More

than 100 FBOs around the country are authorized service centers.

All in all, it's a remarkable infrastructure built from the ground up in only about five years.

While the road to being the second largest producer of piston airplanes has not been without its potholes, roadblocks, and detours, it has been a short trip for a company that barely existed a decade ago and delivered its first airplane less than six years ago. With the enthusiastic and driven team at Cirrus, you can bet there are plenty more things to come.

ACPA

E-mail the author at [thomas.haines@aopa.org](mailto:thomas.haines@aopa.org).