

Arizona Airplane

Phoenix Composites lends builders a helping hand.

By Geoffrey P. Jones

As recently as 20 years ago, non-completion in the homebuilt industry was the result in nearly 70% of plansbuilt aircraft attempts. Builders began projects, but problems multiplied and enthusiasm evaporated. This increased the number of kit aircraft, the panacea for building ills. Any half-handry builder could have some of them flying after a few hundred hours.

Kits increased completion rates significantly, but they eventually became more sophisticated. Kit manufacturers still proclaimed stylish flying for the average handyman, but their definition of an average handyman assumed great advances in skill. Unfortunately, many modern kit aircraft—whose composite airframes can be put together reasonably—become complicated when systems, engine and avionics are considered.

Even with these challenges, there are thousands of successful kit aircraft flying whose builders have persevered to see their aircraft through to flight. We must take our hats off to these builders. The sleek lines of their finished aircraft hide the intricacies under the skin. At fly-ins and airshows, fas-

tidious judges often transform these planes from well-crafted kits into Grand Champions.

An Idea

It was this appreciation of the difficulty and the technical skills required to complete modern kits that inspired 45-year-old Dace Kirk back in 1988. Kirk has been involved in the homebuilt industry for more than 25 years. During the first few years of his flying career, he obtained his commercial license and worked as a flight instructor to build his hours. For the next 17 years he flew professionally as a Cessna Citation corporate jet pilot. During this time he started helping local homebuilders with the tedious and difficult

elements of their projects, and his reputation grew in Phoenix-area homebuilding circles.

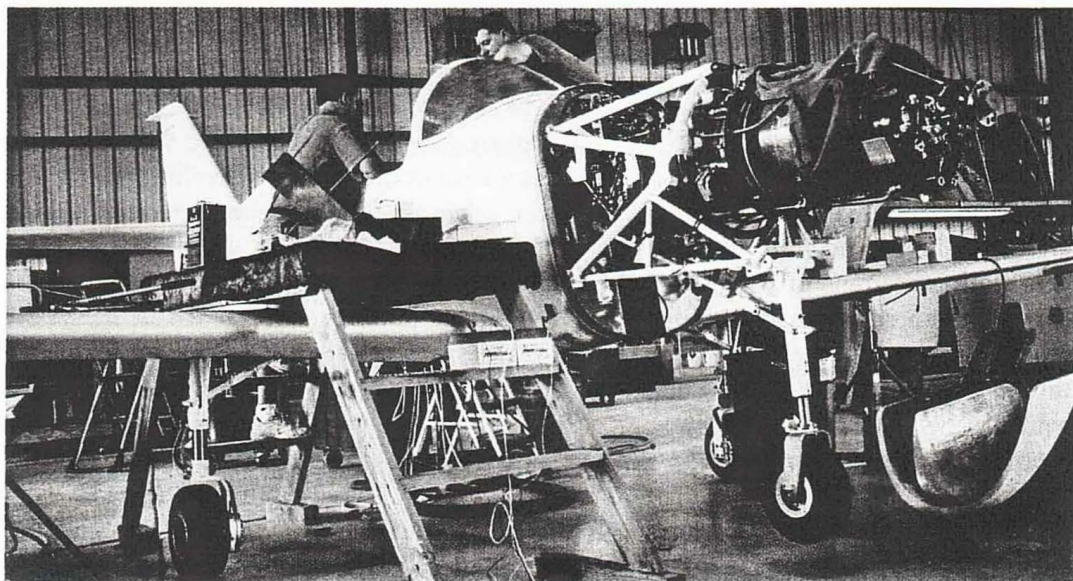
His corporate boss knew he was involved in builder-assistance work and asked him to help with construction of the Glasair project he was working on. One thing led to another, and eventually Kirk decided that a big enough market existed for him to set up a builder-assistance business for homebuilders. He established Phoenix Composites, Inc. in 1989 and built his own Glasair III, which he still flies, during the company's first years.

Kirk based the company at Falcon Field in Mesa, Arizona (east of Phoenix), and he still calls the facility home

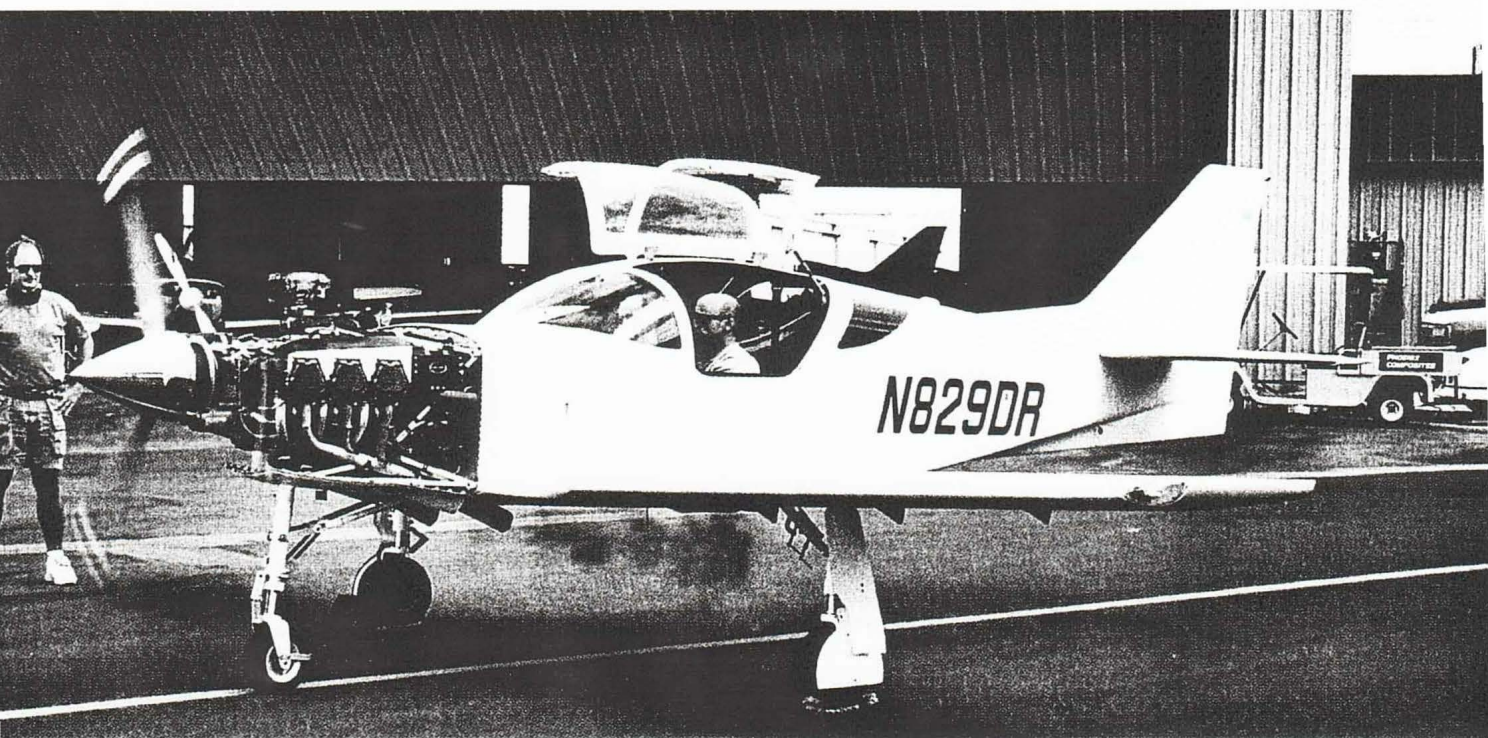


Phoenix Composites founder Dace Kirk (blue shirt) stands by as customer David Rakestraw fires up his Glasair III for the first time.

Two Phoenix engineers work on the cockpit of a Legend, which has already been fitted with a Walter turbine engine.



Assistance



Rakestraw spent seven years on his Glasair III before putting it in the Phoenix Composites shop for completion.

today. He spent the first six or seven years specializing in assist programs for Glasair builders. All of the Glasair models came through his shop, but the majority of his work comprised the trigear versions of the Glasair II and Glasair III.

Expansion

Around 1995, other builders started knocking on the company's door with aircraft such as Lancairs, KIS and Wheeler Express kits, requesting Kirk's help. He decided to try it, and now Phoenix provides builder assistance for most modern kit aircraft.

The other aspect of builder assistance that's evolved at the company is the provision of hangar space

and facilities. Builders can come to Falcon Field to work on their projects under the watchful eyes of the Phoenix staff. The degree of assistance for these projects depends on the builder. The company charges \$300 per month to rent a slot in the hangar and use its heavy machines. However, any staff assistance or materials used by a builder costs more.

"It works well," Kirk says. "But with the demand for completions, we sometimes struggle for space." The demand was obvious on my October 2001 visit to Arizona. More than 12 projects were underway, two of which included builders themselves working at the facility. One of these builders is John Cooke, a Lancair sales man-

ager for the Southwest U.S.

Cooke has already built a Glasair, and he was working on a Van's RV-8 in the Phoenix hangar. His words of wisdom on homebuilding are worth considering.

He says the homebuilding process is similar to a romance—all that most builders can see themselves doing is flying their completed aircraft. The tedium of the building process does not enter into the dream scenario. Anyone who has a job, a family and a social life won't realize the amount of commitment until the project is well underway.

Cooke believes that the best option in this situation is to let someone else help complete the project. He turned to Phoenix Compos-



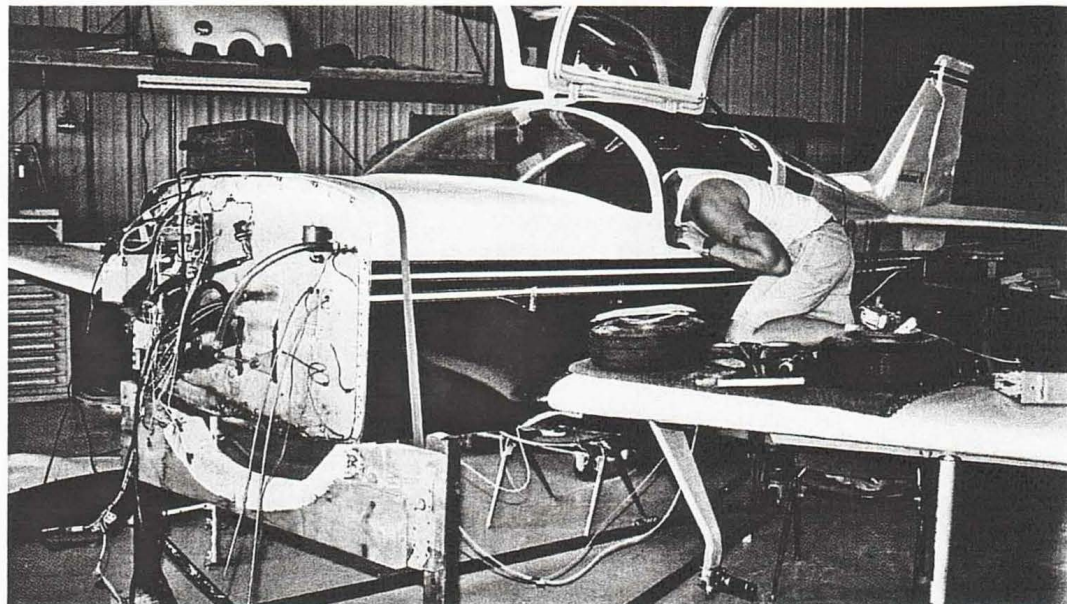
ites, which built part of his Glasair. Because he has more time now, he's building the RV-8 almost entirely by himself, but he's still happy to have the Phoenix staff nearby. He can tap their expertise when he needs it, and the excellent engineering facilities at Falcon Field make it worth it. And all this is for a metal aircraft, not a composite!

So, how does Phoenix Composites fit in with the 51% rule and the FAA? "The FAA doesn't mind our operation at all," Kirk says. "If the inspectors know an airplane has been through Phoenix Composites' workshop, they know it's a damn good job, and they don't concern themselves. We've worked closely with the FAA over the years and they've been tremendous. The bottom line in all aircraft construction is safety, and the FAA will bend over backward to assist."

FAA inspectors know that once they've made a recommendation to Phoenix, it will be acted upon. The FAA also hopes that recommendations to Phoenix will trickle down through the builder network to help every builder of a particular type.

Often, the kits that arrive at Phoenix are more than 51% complete. Everyone involved, including Kirk, believes that the 51% rule is a gray area anyway.

The company's full-time engineering staff numbers 15, and there are a few specialists in engines, airframes, avionics and systems. Kirk admits that it's difficult to recruit a quality staff, but he believes that his current crew includes some of



Glasair construction drives the business. Here, a Phoenix engineer works on the cockpit of a Glasair II.

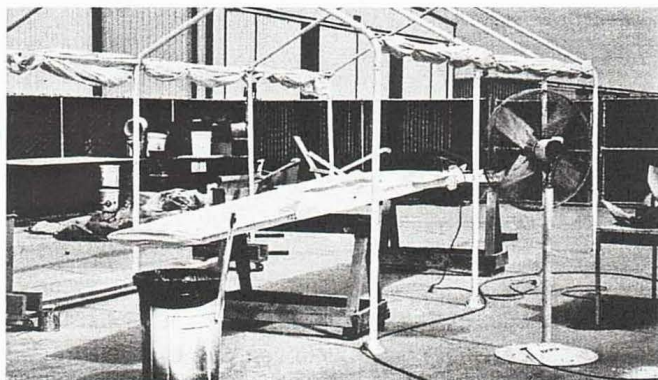
the best in the business.

In addition to the builder-assist projects, Phoenix also does a lot of work rebuilding airplanes. Even if a kit aircraft has crashed or been written off by an insurance company, Phoenix will take it on and rebuild it, not necessarily for the former owner, but for sale to a new owner.

Kirk believes that there are more than 300 U.S. companies that claim to offer builder-assistance programs. However, only about six of these meet full aviation-construction criteria, and he considers Phoenix the industry leader. Most of these 300 companies are one-man operations working in T hangars.

How much does it cost to have Phoenix complete your aircraft? That's not easy to answer. The scope of each project is so different that it's hard to give a general estimate. Kirk provided some rough guidelines for the Glasair III: If the aircraft arrives at the facility with only the airframe complete, approximately 3500 more hours of work will be required to finish the job. About 40% of the cost of such a completion is labor, and the balance consists of the engine, instru-

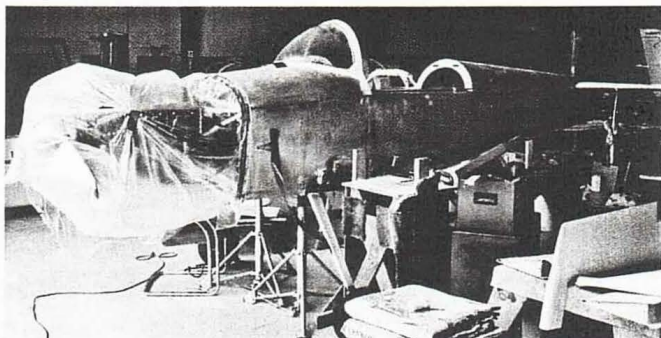
ments and avionics. The overall price is dependent on what the customer supplies to Phoenix and what the company has to purchase.



A Glasair wing cures outside, taking advantage of the hot, dry Arizona climate.

Kirk's not sure exactly how many aircraft have passed through the facility in its 13-year existence. "I quit counting at 50," he says, "but I think it's now well over 60. We generally complete two or three full projects in a year." That doesn't include the 30-40 self-build projects that have been completed over the last eight years.

Customer John Cooke is renting space in the Phoenix hangar so he can build his Van's RV-8 under the supervision of the company's engineers.



The Phoenix Philosophy

Kirk is critical of kit manufacturers who tell their customers how easy it is to build one of their kits—that it'll only take six months, and all you need is "a pair of scissors and a spoon." Many builders hit the wall after about six months. This is when they show up on Phoenix's doorstep.

Generally, most builders are able to complete the airframe. It's the systems, hydraulics and electronics that bog them down. After all, most builders are not certified A&Ps. "If you had a certificated aircraft," Kirk asks, "would you let anyone who wasn't a qualified A&P loose on its maintenance?"

A walk around the company's Mesa facility confirms that the Glasair, particularly the Glasair III, drives the business. A summary of Phoenix's specific areas of work covers seven categories.

Airframe: complete assemblies or components with specific assistance for Glasairs, Lancairs, Legend, Seawind, Thunder Mustang and several others.

Powerplant and prop: professional engine and prop installations by licensed A&Ps for both piston and turboprops (Allison and Walter) including electronic prop balancing.

Electrical systems: custom designed for easy maintenance and safety; installed using aircraft-quality components.

Avionics: custombuilt panels that are fully tested on the bench prior to installation; an understanding of structure-related composite considerations in wiring and ground plane performance areas.

Paint: a facility capable of handling an aircraft with up to a 60-foot wingspan; state-of-the-art design and paint shop; display board featuring award-winning aircraft painted by Phoenix.

Interiors: leather, cloth or a combination; custombuilt to each customer's design and tastes.

Inspections: for customers wanting to buy a secondhand kit aircraft; for annuals, training or insurance purposes.

On my recent visit to Phoenix Composites, a wide variety of aircraft types were being worked on. The day's highlight came when 46-year-old David Rakestraw's Glasair III was fired up for the first time, marking the conclusion of seven years of hard work. Rakestraw had Phoenix fit the engine and install the instruments and avionics. The project probably would have taken another three years had he not come to Phoenix. His father was on hand, proudly videotaping the event.

Other projects included two Legends, one of which was receiving modifications to the cockpit, canopy and tail and being fitted with a Czech-built Walter turboprop engine. An Express Aircraft kit was awaiting a slot so that Phoenix could complete its construction, and a GlaStar was in the shop for finishing work. Glasairs were everywhere, and a Lancair and KIS stood outside. However, no Europas have come to the facility yet.

Phoenix's international reputation has grown recently. Many foreign builders have come to Falcon Field to complete their projects. The list of countries includes several from South America, Germany, France and Australia. According to Kirk, it won't be long before that list grows.

Phoenix's main priority in all operations is maintaining high standards. The company's theory is that it's important to keep in mind that the finished aircraft will be responsible for transporting the builder and friends and family. Although it may be labeled Experimental, it should not be treated as a toy.

According to Kirk, "Anything short of full aviation standards in a kit aircraft is unacceptable." This attitude has served Phoenix Composites well for 13 years.

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