

Manufacturers

Perfectly Frank

Above: R44s on floats used for fish spotting.
Below: R44 Police.

With the Raven II and all-digital cockpits, the Robinson Helicopter Co. consolidates its position at the top of the piston market.

by Mark Forror

FRANK ROBINSON WANTS TO make one thing very clear: he's not wedded to the piston engine. The undisputed champion of the piston helicopter market acknowledges that he may have cause one day to slip a turboshaft into one of his designs, but not in the immediate future.

For now, Robinson is content to build on its strengths—delivering the popular two-seat R22 and improving the four-seat R44.

Robinson seems mildly amused by persistent rumors in the industry that he may take on Bell Helicopter Textron, Enstrom and Schweizer on the light end of the turbine market, despite his many public statements to the contrary.

"We do not have anything on the drawing boards for a turbine," he declares. "We have always looked at that market, and looked at helicopter types we might want to go after. Turbine helicopters have always been a size thing. When you make helicopters larger, turbines are great, and when they get small, they get lousy."

In general, he says, engineers should consider turbine engines for helicopters with five or more seats and have power requirements above 400 horsepower. Below that threshold, piston engines are more reliable and fuel efficient, he says.

To survive in the rotorcraft business, Robinson contends, an airframe manufacturer must keep moving forward, producing new models with new capabilities to meet customers' evolving needs. Companies that are producing helicopters in the single digits are surviving by manufacturing replacement parts. Eventually, attrition will winnow them from the market.

Tough times

The R22 and R44 are the most popular helicopters in the world. However, Robinson Helicopter is hardly immune to the effects of a weak economy. Deliveries have steadily declined since 2000, from 390 in 2000 to 328 in 2001 to a projected 258 in 2002. The 2002 figures—108 R22s and 150 R44s—represent a 21% drop over 2001 deliveries. The privately held company's annual revenues are around \$100 million.

The rest of the helicopter industry is faring far worse. North American airframe manufacturers are expected to deliver a paltry 407 civil helicopters in 2002, according to calculations made by industry consultants and *Rotor & Wing*. (Delivery figures from European manufacturers generally are not available until February.) That figure reaffirms Robinson's dominant position in the marketplace, with 63% of the new helicopters delivered in the U.S. and North America.

Robinson blames the overall decline in production on two factors: the economic slowdown, which began in late 2000, and

the uncertainties caused by the terrorist attacks in 2001. Despite the downturn, the *Los Angeles Business Journal* named Robinson Helicopter Company one of the ten fastest growing companies in the Los Angeles area for the second year in a row.

When operators' profit margins slide, low acquisition costs become a major factor in purchasing decisions. All price increases for Robinson products are below the rate of inflation. The R22 Beta II starts at \$164,000 equipped; the R44 Raven's base price is \$307,000, with the high-performance Raven II starting at \$335,000. Turnkey systems, such as the R44 Police and R44 Newscopter, are \$485,000 and \$525,000, respectively.

The past 12 months have been eventful. In February, Russia granted type certification for the R44. Ten days later, the company doubled the warranty on new R22s and R44s, to 24 months.

In May, Robinson donated \$1 million to the American Helicopter Museum in West Chester, Pennsylvania. This summer, the company delivered the first R44 Police helicopter to China's Zheng Zhou Public Security Bureau while British pilots Steve Brooks and Quentin Smith became the first pilots to land an R44 at the North Pole. In late November, Japan also issued type certificates for the R22 and R44.

New Raven

Robinson engineers were equally busy in 2002. The company launched its latest helicopter, the Raven II, which began deliveries in November.

The company redesigned the Raven's main and tail rotors and added a new, fuel-injected Lycoming IO-540 powerplant. Robinson already has received 50 orders for the high-performance version of the hydraulically controlled Raven.

The new engine and rotor systems add 2,000 feet to the Raven's ceiling, about three knots to the 120-knot cruise speed, and reduce cabin noise by a full decibel. These changes also give the Raven II an additional payload of 50 pounds and a gross weight increase to 2,500 pounds. The company will continue to produce the original Raven.

Robinson designed the Raven II to occupy a niche between piston helicopters and light turbines. The Raven II gives customers who want high performance the option of staying with a piston; before the Raven II, they would have been forced to make the quantum leap, both in performance and cost, to a JetRanger or other light turbine.

In June, the company delivered its first all-digital R44 Newscopter, capping an 18-month re-engineering program in which Robinson brought in an outside team of consultants who worked with company

engineers to develop a fully integrated and reconfigurable system. Robinson adds that any upgrades required to accommodate high-definition television (HDTV) broadcasts will be "very minor."

Robinson Helicopter is more vertically integrated than in the past. Most manufacturing is now done in-house. More than 90% of the parts are produced by the Robinson factory. The result has been better quality control and greater efficiency.

Although the work force still hovers around 610, the company broke ground on a new building in 2002 and plans to increase production capacity and employment by 50%. As Frank puts it, "Things are picking up again quite nicely."

Robinson's markets are extremely diverse, an indication of the versatility of its helicopters. Recent customers include Australian ranchers, the Chinese government and the Estonian Air Force. Sixty percent of all Robinsons are exported. The following are typical examples of Robinson customers in the company's key markets.

Flight training

Not long after the R22's introduction, Frank Robinson voiced dismay that an increasing number of flight schools were operating the R22 as trainers. The helicopter was originally designed as a "personal helicopter" for experienced pilots.

Predictably, a combination of inexperienced students and inexperienced flight instructors led to a number of accidents. In 1995, SFAR 73 went into effect, requiring additional awareness training on energy management, rotor RPM decay, advanced autorotations, and prevention of low-G rotor mast bumping and low-RPM rotor stalls.

The special regulation also required flight instructors to have a minimum of 200 hours total time, rather than the previous 150 hours, and at least 50 hours in type. At presstime, the regulation was due to expire at the end of 2002.

Since SFAR 73 was implemented, the R22's safety record has improved.

"When SFAR 73 came into effect, insurance rates were sky-high for [Robinsons]," says James Buffington, a broker with Sutton James aviation insurance, Hartford, Connecticut. "That was really because of the string of losses they suffered. After SFAR 73, the loss ratios dropped, and the insurance rates dropped commensurately."

An accident in a light helicopter often approaches a total loss, defined as damage totaling more than 50% of the value of the helicopter, and training operations tend to have more claims. "There are very few scratch-and-dent type losses" among helicopter operators, Buffington says.

Nonetheless, the low total hourly operating costs—\$71 for the R22 and \$121 for



the R44—make them attractive to flight training schools.

Guillaume Maillet, a CFI for Los Angeles Helicopters, Long Beach, California, says there are pros and cons to the R22 and its closest competitor, the Schweizer 300.

"I used to fly and teach on the 300," he says. "They're both good training aircraft. The 300 is a very stable platform, so it's easy for the students to get a handle on it. On the other side, the R22 is a bit more sensitive, but I think makes the student a better pilot. The Robinson training also makes it easier for students to transition to other helicopters."

Airborne Law Enforcement

An increasing number of small to medium-size cities with shoestring budgets are launching start-up operations with Robinsons. El Monte, California, started a police Air Unit in 1992 with a leased R22, one civilian pilot, a police observer and a budget for just 70 flight hours a month.

Today, the unit operates two R44s (the second acquired in 2002); employs four police pilots and three observers; and operates 160 hours per month. Four more cities have joined to share operating costs, two of them since October.

The unit's patrol radius, known collectively as "Region One," is a moderate crime zone in central Los Angeles County, an area plagued with gang activity, carjackings and stolen vehicles. The Air Unit averages 40 arrests per month.

Sgt. Gary Haidet is the man lucky enough to supervise this duty—all with an annual direct operating budget of just \$200,000 a year.

"With each city that comes on board, we increase the flight times," Haidet says. "We now run two aircraft four days a

week. On the other three days, we run one ship." Eventually, Region One will fly two aircraft seven nights a week with the addition of one more member city. Another R44 is expected within 24 months.

The unit calculates hourly costs at \$134, including built-in maintenance costs. Haidet says that because the R44 is so reliable, the unit has only one or two days of down time per month, most of it weather related.

Located only a 15-minute flight from Torrance, the Region One air support operation has a special rapport with the factory. "A lot of our maintenance issues are resolved quickly," he says. "We don't have to keep any parts here. We never have any mechanical down time."

Region One's R44s are equipped with Robinson's turnkey police package: a digital moving map, FLIR camera, video recorder, and high-intensity searchlight.

In June, El Monte police officer Robert Muse, chief pilot for the Air Unit, delivered a seminar on how Region One uses its R44s at the China Police Exposition in Beijing. The Zheng Zhou Public Security Bureau already has an R44 operating in He Nan province and is training more pilots.

Some countries use military units to provide police aviation services. In May, the Estonian Air Force acquired four



R44s: two Clippers with floats and two police helicopters.

Ensign Eve Vernik, a pilot and spokeswoman for the Estonian Air Force, says the missions of the two R44 Police helicopters will include area patrols; vehicle tracking; traffic control; pollution control; forest fire spotting; and support of police ground exercises.

Electronic newsgathering (ENG)

The network and cable companies' insatiable need for content and instant, on-the-spot coverage has created a great deal of work for ENG operators in large markets.

Ken Pyatt, president and chief pilot at SKY Helicopters, Garland, Texas, operates two R44s and will take delivery of a third in February. The company is under contract at WHO television, an NBC affiliate in Des Moines, Iowa, and another network affiliate in Houston. The company freelances for all four major networks—ABC,

NBC, CBS and Fox—in Dallas, the seventh largest television market in the country.

"In Dallas, we're a bit of an odd duck, because we have no contractual relationship with any of the stations, but we work for all of them," he says.

Television stations' frequencies and technical requirements are not standardized, so SKY Helicopters must constantly reconfigure the equipment. That would be a major chore, he says, were it not for Robinson's redesigned system.

"The beauty of the R44 ENG is the way that Robinson has configured it. Everything is programmable or user selectable," he says. "The thought process that went into this helicopter is really pretty good. It's versatile, high-quality stuff. They have the camera, transmitter, radio gear and cabling all ready to go. You fly the helicopter out of the factory, and one minute later, you're ready to go to work."

A producer at Good Morning America once called Pyatt to cover the aftermath of an F5 tornado that touched down in Oklahoma. He flew to the disaster site that night and was ready for broadcast early the following morning. "Because everything is configurable and programmable, we were ready," he says. "It's unusual for another helicopter to be as flexible."

Pyatt says that the entire industry will be all-digital within the next 24 months, so the digital R44 came at the right time.

"In our view, it's a growing market," he says. "The helicopters with the newer technology will eventually end up with a disproportionately large market share."

Powerline and pipeline patrols

Tom Passalacqua, chief pilot and director of flight operations at Liberty Aviation Services, West Chester, Pennsylvania, is a true believer. Passalacqua, 51, has operated R22s and R44s for 15 years in his powerline/pipeline patrol business, but he also personally owns one, operating it from a helipad he built at home.

As an A&P mechanic and pilot with 11,000 hours total flight time, 3,000 of them in helicopters, an ATP and every other possible rating, Passalacqua speaks from experience when he says that Robinson probably saved the market segment.

"Before the Robinsons, operators were having to squeeze every dime out of their operations," he says. "Maintenance costs were terrible, and the clients didn't like [the old helicopters]. I probably wouldn't be in the helicopter business if it weren't for them. The R22 has opened up an area of vertical flight that didn't exist before, and probably wouldn't have."

Liberty operates an R44 Raven, an R22, and will take delivery of a second R22 next month. The company introduced Robinson helicopters to West Chester in 1987.

One often-overlooked benefit of operating Robinsons is that they're among the most comfortable helicopters to fly, he says. This cuts down on pilot fatigue, allowing pilots to fly longer patrols.

"I've spent many hours, most of them three-hour flights, in a Robinson. You wouldn't dare do that in a 300 or an Enstrom," he says.

Passalacqua has one major beef with the manufacturer: The customer service department doesn't have a toll-free number, forcing him to spend upward of \$200 per month in phone calls to California.

"Put that in your story," he says emphatically. "You'll get a big response from a lot of Robbie operators."

Cattle ranching

More than half the helicopters in Australia's civil registry are Robinsons, and a majority of those are employed in "cattle mustering," or herding.

Australian range lands are vast; a majority of the cattle paddocks are 50,000 to 60,000 acres.

Kevin Clark, 33, owner and chief pilot of M.I. Helicopters in Quilpie, Queensland, has nearly 5,000 hours in R22s. He says his largest paddock is 400,000 acres, but he's worked paddocks as large as one million acres. Even with the helicopter, it takes up to 10 days for one R22 to muster cattle in a paddock that large.

The chief enemies in this rugged country are heat and sand. He says he tried flying a Schweizer 300, but the harsh environment was too much for the helicopter's open engine compartment. The R22's rotor-head bearings are sealed, and the engine compartment enclosed, making it much harder for dust to grind up the engine and rotatables.

Reliability is important, because out there, a pilot's life literally depends on it, he says. He supplements his income with gas pipeline patrols, which takes him through unforgiving country.

"If you break down out there in the Simpson Desert, you can dehydrate very quickly, and people have died," he says. "The Robinson is one of the most reliable helicopters around, if you treat it right. I've never had any maintenance problems with them."

While most commercial operators fly their R22s and R44s for a year and then resell them, Clark prefers to fly the hours out of them, overhaul them at the 2,200-hour TBO, then sell them after the 4,400-

hour overhaul. His oldest R22 is now on its third TBO.

His only complaint, he says, is the high built-in shipping costs for helicopters and parts. "I bought a brand-new Beta II at the beginning of 2002, and it was A\$340,000 (US\$190,712). It was bloody expensive."

Fish spotting

Aerotech International of Panama maintains one of the largest commercial fish-spotting fleets in Central and South America. The operation's parent company, Ocean Trading International South America, hauls half a million tons of tuna a year.

In 2002, the company took delivery of a thirteenth R44 Clipper to replace a damaged aircraft. The company purchased a fourteenth ship (which happened to be Frank Robinson's personal helicopter) in early December. The helicopters operate from the decks of 15 large fishing boats.

Pesca Azteca, an Aerotech competitor based in Mazatlan, Mexico, purchased two R44s in May to spot yellow fin tuna in the Southeastern Pacific.

E&B Helicopters, Ltd., Campbell River, British Columbia, began operations 13 years ago spotting herring and supporting logging operations with an R22. The company now operates R44s and spots salmon under contract with Canada's provincial



Estonian Air Force R44

and federal Fish & Wildlife agencies.

"The R44 is faster to get you where you're going, and you can carry four people," says E&B owner Ed Wilcock, who also operates five Bell 206s, a 206L-3 and an MD 500D in addition to two R22s.

An authorized Robinson dealer and repair shop, E&B opened an expanded R&O shop December 2 and imported Canada's first Raven II at the end of November, he says.

Air Tour/Air Charter

When you think of air tour operations, the R44 is usually the last helicopter that comes to mind. Sam Groome thought so, too—until he looked at the numbers.



Groome is the vice president of Air Florida Helicopters, with air tour/air charter operations in Orlando and Daytona. A former operator of Bell Helicopter products, he found that he could make 40% more money flying the Robinsons.

Air Florida Helicopters began flying the R44 Raven in 2000, and now flies the model exclusively.

"We found that if two people wanted to go on a tour, we could take them without losing money," he says. With the JetRanger, he had to fly three passengers just to break even.

Groome claims that he can perform a 100-hour inspection in two nights, one for the airframe and one for the engine. Since they don't fly air tours at night, they can perform the inspection without taking the helicopter out of service.

He does, however, have a couple of criticisms: the \$500 difference in cost of the high skid versus the low skid for the Raven, and he doesn't like Robinson's rule that prohibits trailering its helicopters.

Still, he concedes, the lower acquisition, maintenance and operating costs far outweigh the few disadvantages. For the price of a used JetRanger, you can buy a new Raven with today's technology. The bottom line, he says, is that his business now has more money coming in than going out. For small operators, who often contend with poor cash flow, that's no mean feat.

"My pocketbook looks a whole lot better than it did before," says. "A whole lot better." **RAW**