

Dennis Kenyon returns to see how the French two-seater is progressing

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R66

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Robinson show off its brand new R66

New five-seat turboshaft helicopter has debut at factory during Heli-Expo

ROBINSON Helicopters has finally given its new turbine-powered R66 helicopter its public debut, using the giant Heli Expo Show to display the long-awaited model.

The R66 is powered by the new lightweight RR300 turbine from Rolls-Royce. Take-off power is 270hp and max continuous power is 225hp. The R66 resembles the R44 in many ways although not many parts are interchangeable, said Frank Robinson, boss and founder of Robinson Helicopters. The R66 retains the Robinson teetering rotor head and a two-blade rotor.

However, the R66 is bigger all round, seating up to five and with a large baggage compartment behind the cabin.

Frank Robinson told BLADES that he knew exactly who the customers for the R66 would be. "I was convinced there was a need for the R66 as the Bell JetRanger has filled that market for many years. Those aircraft are getting old now, and we felt we could come out with an aircraft that could be a suitable replacement for all those ageing Bell JetRangers. That was the primary market we were shooting for.

"We also needed an aircraft that burned Jet A fuel. Our present helicopters use only Avgas 100LL fuel."

That's not so much for the USA but for the rest of the world where Avgas is not only prohibitively expensive but also becoming harder to source. Robinson had looked into a diesel engine, "which would have been the ideal solution," said Frank, "but they were all too heavy for a helicopter."

Robinson revealed that the FAA certification process has taken longer than expected, and said, "The FAA regulations have changed considerably and there have been a lot of additional requirements."

"Tests, analysis, reports - a lot of things that are very time-consuming for our engineers. It has made us a little slower than we would have liked."

Robinson's insight into the flight characteristics of the R66 will be good news for any pilot experienced in the firm's wide-selling R44, and he said, "I flew the aircraft a year ago and it flew very nicely then - I was impressed. I had no trouble starting it and once I took off and flew various manoeuvres, it felt just like an R44.

The FAA certification should be completed and the aircraft in production within about one year. No price has been set for the R66 yet. "It will be more than a R44 Raven 11 but less than a Bell JetRanger," was all Frank would confirm.

W: www.robinsonheli.com



* Doug Tompkins takes to the air in the latest addition to the Robinson helicopter portfolio.



Testing the R66

We interview Doug Tompkins, Chief test Pilot at Robinson Helicopters

ROBINSON Chief Test pilot Doug Tompkins has been at the firm for 18 years and flying in total for 25. He's clocked close to 18,000 hours, which includes 3,000 hours in turbine aircraft and the rest in Robinson's piston helicopters.

"The first project I did was the R44 Astro," Doug told BLADES. "After that the R22 Beta II project, Raven I and Raven II. Then when they added fixed floats, pop-up floats, ENG ship... I did all the testing on those as well."

Doug has been testing the R66 for over

a year, clocking 100 hours. "So far we've just been doing envelope expansion, so nothing is official company data as yet. Just trying to get a feel for it, get some of the bugs out, seeing what needs to be changed or improved. We're at the point now where we can do the conformity



* Chief test pilot
Doug Tompkins...
"The aircraft so far has
performed brilliantly."

on the aircraft, and start doing official company testing.

"The R66 feels very similar to the R44, but it's a lot faster, a lot quieter, there's less vibration and it's got all sorts of power. We're very pleased with the Rolls-Royce engine. It starts very easily, and we

haven't had anything close to getting hot on the turbine yet. So far it's been great."

The flight tests have included a few challenges for Doug. "They send me up to 12,000 feet - I don't really like going way up there. Tests have included engine failures with a one-second delay at gross

weight and bump manoeuvres - that stuff gets a little hairy once in a while. But the aircraft so far has performed brilliantly."

So was Doug nervous for the first flight in the R66?

"Of course, yes! "The first flight was just a hover. We had all the engineers out looking at me. With any new aircraft and the first flight, you just don't know what's going to happen. But we build up very slowly.

"After hovering we go to 40 knots, come back and look at the data, go 50-60 knots, come back and look at the data. We do this all the way to 140 knots, as well as some manoeuvres in the pattern. So everything is taken very slowly, all the data is looked before we proceed to the next step.

"The Vne will be 140 knots, the cruise speed, right now at gross weight, is 120-125 knots."

Tests have also included autorotations, confirmed Doug. "Yes, we've done some full-down autorotations. It's got quite a bit of inertia. I was out here [Torrance

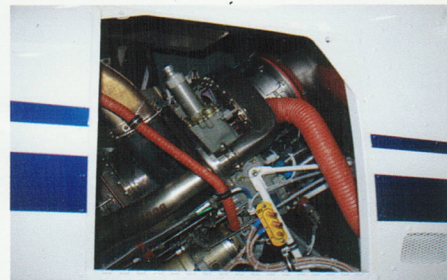
See
the Doug
Tompkins
interview at
[www.loop
tv.aero](http://www.loop.tv/aero)



* The turbine R66 is still traditional Robinson: two-blade with a teetering rotor head.



* Chief test pilot Tompkins had amassed over 100 hours in the R66 by the time of the demo.



* New lightweight Rolls-Royce RR300 turbine is proving a good match for the new helicopter.

Airport] at gross weight doing some hovering autos at 10 feet... doesn't seem like it's going to be a problem.

"Next will be the Strain Survey, where we measure all the loads on various components on the aircraft - main rotor blades, airframe, tail rotor blades, pitch control links.

"That's probably the most extensive and time-consuming part of all the tests but it also produces the highest loads so we can see what's going to be fatigued. They can then calculate the life limit parts of various components. I have to do it all twice!"

In Doug's 18,000 hours of test flying, it hasn't all gone completely to plan. There have been the odd frightening moments too, but he remains upbeat about his precarious career.

"I've had about five tail-rotor failures, several engine failures, and I stopped counting after ten birdstrikes. I've had more than my fair share so I figure I should be able to go the rest of my career with nothing else!"



* R66 is the first machine from Robinson to use Jet A fuel. It addresses Avgas sourcing issues.

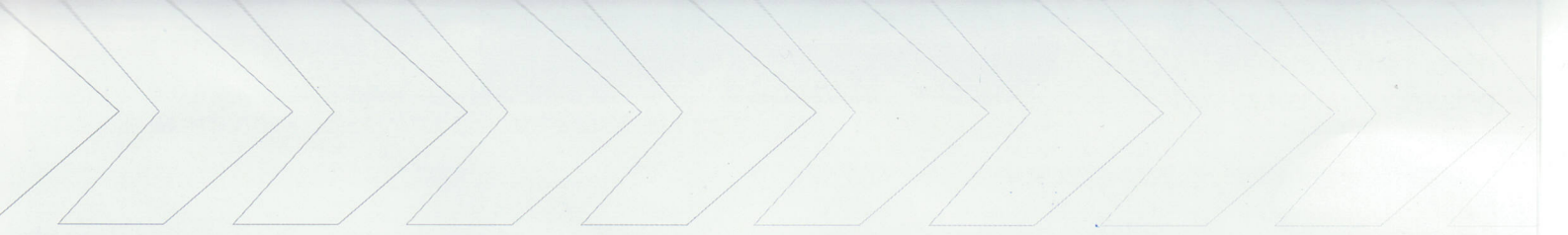


* Kurt (L) and Frank (R) Robinson are both delighted with the R66's progress.



* At gross weight, the new R66 will have a cruise speed of between 120 and 125kt.





* The new R66 looks very similar to the R44 but is slightly bigger all round.

