

Robinson R66 Flight Review

The first person to fly Heliflite Pacific's new Robinson R66 when it arrived in New Zealand a few months back was Simon Spencer-Bower of Wanaka Helicopters, who needs little by way of introduction to the New Zealand aviation community. Forming Canterbury Helicopters in 1980 and Wanaka Helicopters in the mid 1990s, Simon has won multiple aviation awards and in 2010 was honoured with a QSM for services to aviation. With almost 14000 hours in Robinson helicopters he is arguably the world's highest houred Robinson pilot and became one of the first Kiwi's to receive a rating in the new Robinson R66 after visiting the Robinson factory in California. KiwiFlyer asked Simon about his experiences in this very promising new helicopter and we were delighted to receive this article from him a short time later.

A visit to the Robinson Helicopter Company in California

Robinson wanted to make sure that all the first deliveries were accompanied by trained engineers and pilots and as such would not deliver an R66 until the dealership had sent their personnel to the factory for the appropriate training. As a pilot, regardless of experience, a Robinson Helicopter Company Safety Course and flight check in an R22 or R44 had to be carried out before conversion training in the R66 would be given. In my case I flew with the Chief Pilot, Doug Tomkins for 3 hours, performing all manner of procedures and emergencies, including flying to 11,000 feet and full touch down autorotations.

Expectations and first impressions

I expected it to be just a bigger version of the R44, which it sort of is, in that if you have flown a 44 then you would have no trouble converting to the R66. My first impression was that it was bigger than I expected. It looked nicer and had a more pleasing appearance about it than the R44. Initially I was disappointed to see the middle rear seat was slightly smaller than the other seats, indicating that it was more a seat for small people, but subsequent flights proved it was actually quite comfortable for any normal sized person.

Fuelling and Pre-flight

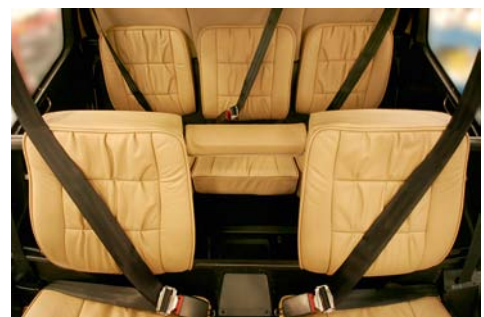
Fuel is located in one tank, so gone is the two tank system of the R22 and R44 and fuelling is now from a single point. Also gone is the fuel cap protruding out into the airstream as the cap is now located under a flap which closes flush with the fuselage. Pre-flight is entirely normal and straight forward, with built in steps enabling the pilot to climb up to inspect the main rotor hub and blades.



A single fuel filler for the bladder fuel tank is hidden behind a hinged panel out of the airstream.



The cabin is almost 8 inches wider than an R44.



Three seats in the back and a huge amount of space for pilot and passenger in the front.



An 18 cubic foot baggage locker will easily accommodate 300lb of suitcases, golf clubs, etc.

Contributed by Simon Spencer-Bower

Start up and Instrumentation

Start up is a joy. It is a 'semi automatic' system in that Robinson have taken away the 'scary bit' of starting a turbine by not having to hold one's finger on the start button during start, while modulating and monitoring the fuel flow. There are only two throttle positions; ground idle and flight idle (full throttle). The R66 start only requires the pilot to richen the mixture, and leaving the throttle closed, simply press the start button momentarily then release it, then monitor the gauges as it completes the start itself.

Instruments are standard except for the turbine related gauges. Robinson argues that even though modern 'glass cockpit' type instrumentation would be nice, it doesn't do anything more than the standard gauges, and costs a lot more!

Initial feel and Performance

The first surprising encounter was how light it felt on take-off, which is not unexpected when you consider that the empty weight of the R66 is 200 lbs lighter than an R44, due mainly to the fact that it doesn't have a huge six cylinder engine to carry around. It does take a pilot extra time to 'balance' before lift off as it wriggles more due to the light feel. Lightly loaded, performance is startling! If using max continuous power and climbing out at 60 knots, the VSI is pegged on the stops at over 2000 ft/min. Cruising speed is about 115 knots with Vne at 140 knots.

At Maximum All Up Weight, most helicopters have little reserve power. The R66 however has been well designed in that at MAUW power reserves are in the 15 to 20% region. Most hovers at MAUW are using approximately 85% torque (100% being maximum).

The R66 can carry its own weight (1300 lbs) plus another 400 lbs to bring it up to MAUW (2700 lbs) which is amazing for a light helicopter. With 5 average weight People On Board, almost full fuel (3 hours) can still be carried. The luggage locker is huge, with a maximum load of 300 lbs.

Wind and Turbulence - Hot and High

Being a two bladed system, the R66 behaves in the same manner as the R44. A fully articulated rotor system will always handle wind and turbulence better than a two bladed rotor system but if you are flying in such extreme conditions that you need a fully articulated

system, then you should be at home in bed! At higher altitudes or in high and hot conditions, older jet engines would usually 'temp' out before 'torquing' out, but the 21st century Rolls Royce turbine engine doesn't appear to have any problems with temperature. I have flown to 11,000 feet and pulled maximum power and still the Rolls Royce was getting to the torque limit first.

Autorotations

Having one of the lowest drag coefficients of any helicopter, the R66 seems to go on forever in an autorotation, and it is quite hard to judge where it is actually going to end up. Normal procedure for practice autorotations is to close the throttle to ground idle before lowering the collective, then rolling it on again during the flare. Two things that are really impressive are firstly that the throttle can be snapped open quickly during the flare rather than the slow method used in older turbines, and secondly when flying low level, downwind at ground level, a full 180 degree auto can be accomplished with relative ease, thanks to the R66's high inertia rotor system.

Shut down

A two minute cool down is standard procedure, and stopping is accomplished by simply leaning the mixture.

Comfort and Practicality

The front seats are spacious as the cabin is almost 8 inches wider than the R44. Robinson have gone to great lengths to listen to any complaints or suggestions and have incorporated them into the R66. For example, the latest doors have a three pin locking system as opposed to the two pin door in the R44 and the one pin door in the R22, which ensures a waterproof snug fit. Air conditioning is available if required. Lights on the annunciation panel will come on if the luggage door, external power or fuel flaps are open.

The 5th seat is 'cosy' but is located slightly forward of the other

two rear seats which cleverly puts the middle seat passenger's shoulders in front of the other two passengers, thereby giving the feel of more space. However it is definitely more suitable for a smaller, rather than a larger person. The latest FAA rules require seats to meet new crashworthiness standards, and as such the seats now have more 'crushable area' under them which protrudes into the under-seat baggage area. While this restricts the amount of

'baggage' that can be stored, it isn't a problem because the R66 has a beautiful, big, 300 lbs capacity luggage locker behind the rear seats and under the main rotor gearbox which is accessible through a large door on the right hand side.

Application and Value

The area in which the R66 will really shine is when cargo, or luggage is needed to be carried in addition to the passengers on board. In a number of helicopters, cargo pods are used to carry cargo and baggage, which ultimately slow the helicopter down and offset the C of G. Having all the cargo and baggage internal and right under the mast, makes a lot more sense and provides more peace of mind for the pilot.

In my experience so far, the R66 seems to out perform the EC120 and the Jet Ranger. Priced near to the NZ\$1m mark depending on options and the exchange rate, the R66 is a good deal less expensive than the EC120 which it will likely be compared to.

The more I fly it, the more amazed I am at its performance and ability. From a training point of view it will be a great helicopter for turbine ratings.

Enquiries and more information

To learn more about the R66, contact Brett Sanders at Heliflite Pacific on 09 299 9442 or 021 748 984, or email: brett@heliflitepacific.com Heliflite are specialists in Robinson sales, service and maintenance in NZ, and General Manager Brett is a Licenced Aircraft Maintenance Engineer as well as an experienced helicopter pilot himself. www.heliflitepacific.com



Heliflite Pacific's first R66 (now sold) cruising up Auckland's East Coast north of Ardmore.