

# Robinson Helicopter Company



Photo courtesy of Robinson Helicopter Company

## Attending the Robinson Factory Safety Course

Way back in 1987, I attended the Robinson Factory Safety Course. This was when Robinson Helicopters was in a small building on Crenshaw Blvd. The purpose of the safety course is to increase safety by teaching pilots how to avoid the more common mistakes when flying a Robinson Helicopter. I went back for a refresher in 2006 and brought along my camera. I'd like to thank Frank and Kurt Robinson for allowing me to take pictures inside their factory, something that they seldom allow. I'd also like to thank Gavino Rivas for escorting me through the factory, and Judy Neily for helping to coordinate the visit. Gavino also provided me with the first two pictures you see on this page. The rest of the pictures I took while touring the factory with him.

Back in 1997 I helped my friend Anne bring her R22 back to Boston from the factory, and by then Robinson had moved into a wonderful new building on Airport Drive. In the picture at the top of this page, that is the section of the building to the upper right. The employees now call that the "old" building, and the portion to the lower left of the picture is called the "new building".

The entire safety course group was given a tour of the factory, and a lot of people in my group mentioned what an amazing factory it is. For one, it's huge. You can see that in the picture above. It's also amazingly clean and well lit. In the following picture you can see that there are many skylights built into the ceiling of the building. This allows the workplace to be lit by natural light, saving electricity. It also gives the inside of the building a really bright clean feeling. You can see in this picture that there are lights on the ceiling which are not turned on. They are only turned on when weather prevents sufficient sunlight from illuminating the factory floor.



## The Factory



Photo courtesy of Robinson Helicopter Company

During the class tour of the factory, we were able to see almost every part of the factory. Gavino explained that there would only be a few sections of the factory that I would be allowed to photograph. I'll try to explain what I was able to see on my tour, but not to photograph. First of all, unlike a company like Boeing that has many many subcontractors producing large portions of their aircraft, Robinson makes over 80% of their helicopters in this factory. We were able to see on the tour large stocks of steel and aluminium to be processed into all the different parts of the helicopters. The factory literally takes raw materials in one side, machines thousands of different parts, and then assembles those parts into a working helicopter. We were told that the reason Robinson does so much of the manufacturing themselves is so that they can maintain an extremely high level of quality.





All remaining pictures are Copyright(c) Paul Cantrell, 2006

Another thing that surprised me about the Robinson factory was the amount of high tech production machinery. I remember even in the old Crenshaw Blvd building that they had some high tech machines, but in the current factory there are row after row of them. In the above picture, you can see various parts that have been machined, and are waiting for the next step in the manufacturing process. The pointy objects approximately in the middle of the picture are part of the blade grip assembly. I can't identify the rest of the parts you can see, but the factory is filled with gleaming objects machined from steel and aluminium.



There is a fair amount of sheet metal in a helicopter, and during the tour we were able to see a water jet machine cutting sheets of aluminum into various shapes, including all the holes for screws, rivets, and accessories. The water jet produces a smooth cut that does not need to be deburred. We were able to touch a freshly cut sheet of aluminium, and the cuts were smooth to the touch. Really cool. The factory also has laser systems for cutting steel, as well as large hydraulic presses for cutting and shaping aluminium parts. Frankly, if you had told me they were building Space Stations, I would probably have believed you - it was that high tech.

[Part Two -- lots more pictures of the plant...](#)



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### **The USA by Helicopter**

First, you have to understand how overhauls work with Robinson Helicopters. Most helicopters get all their work done in the field, or at repair centers owned by various maintenance companies. Robinson does it differently. When a Robinson Helicopter needs to be overhauled, it goes back to the factory in California. The helicopter gets stripped down, inserted onto the assembly line, and gets built up as almost a new helicopter. Some helicopters get packed up in a crate and shipped to the factory, but it's common in the USA to fly the helicopter back to the factory, and then fly it home when the overhaul is done. All across the country I talked to airport managers who said they had a couple Robinson helicopters go through every week, either on their way to California, or back again. Sort of like a pilgrimage.

Anyway, the owner of the helicopter asked me whether I'd like to fly it back with her. I was excited to do this because I've been flying Robinsons for about 12 years and have had several friends do the trip, but never had the chance to do it before. My inlaws live in California, so I flew out the night before where Mike, my wife's nephew, picked me up at John Wayne airport. His family took me out to a wonderful dinner (thanks Mia & Shig!). Then Mike took me to my hotel in Torrance.

The next morning, I walked down the street to Robinson Helicopters. It was a little confusing for me, because the last time I had been at the factory was at the old tin building on Crenshaw. I remember from the last time I was there that it was just another industrial building, with no way to know that they were building aircraft inside. It was kind of a small, dark, factory floor there. The new building, on the other hand, is really beautiful. It's huge by comparison, and the factory floor is spacious, well lit, and very impressive.



I wandered around a bit, and even got lost a couple of times. You find rooms like this:



Here are a couple of R44s I found out on the back ramp:



I talked a little bit with the guys working on this R44. Robinson was having an open-house that day, and they were preparing to show this R44 in action. It's outfit as an ENG (Electronic News Gathering) aircraft. It has a gyro-stabilized camera in the nose, plus a lipstick camera pointed at the pilot, plus a lipstick camera mounted back on the horizontal stabilizer looking forward along the aircraft. In flight, a small antenna is rotated down from the right skid to act as a microwave antenna. A guy on the ground keeps a directional antenna pointed in the direction of the aircraft.



The pictures were very stable, even when zoomed in all the way at an altitude of 500 feet.

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Okay, you actually wanted to see the helicopter! Here are some shots:

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## About the Author (Paul)

### ***Biography***

Hi, my name is Paul Cantrell. I'm a software engineer specializing in operating system design and development. For the last 29 years, I've worked on operating systems, including TOPS-10, VMS, Unix (about 20 flavors) Linux, and several embedded real time systems.

When I'm not working on computers, I'm usually riding motorcycles, shooting competitive NRA High Power Rifle, [taking pictures](#), or flying. I learned to fly at Aviation Training Academy in Sterling, Massachusetts, and instructed there part time until they closed. At that point a friend named Ray Lange, who had trained for his commercial helicopter pilot license with me, asked whether I'd like to help him start a new school. With the help of his partner, Barry Coldwell, the three of us started Langwell Helicopters with a single R22 at the Minute Man Air Field in Stow Massachusetts. That was in January of 1991. At first, I was the only instructor which was pretty crazy trying to work 2 full time jobs. Ray got his CFI rating (Certified Flying Instructor) so he could take over the bulk of the instructing work.

Eventually, Ray asked me to start a branch of the school at the Lawrence Municipal Airport, in North Andover, Massachusetts. We had a single Robinson R22 based there. After about a year and a half, Langwell decided they were not making enough money to justify the extra aircraft, and pulled out of Lawrence. I made a lot of friends there, plus I remain convinced that the location is a good one for a helicopter school, so I leased an R22 and started my own school, "All Star Helicopters".

I ran All Star for a year which was a very interesting time. What I learned from it was that I like flying a lot more than paying bills, dealing with insurance companies, and worrying about how to get the helicopter repaired in time for the next flight! In short I learned that I'm more interested in the flying than running a business. So I closed All Star in the fall of '96 and started flying for Ivan at Boston Helicopters. I'll try to get a few pictures scanned in so you can see what it's like...

If you need an instructor / instrument instructor in the Boston area, feel free to email me. I'm current in both Robinson and Bell helicopters, and am available for instrument instruction / competency checks, as well as limited primary VFR instruction (I simply don't have the time to be doing much primary instruction these days).

### ***About the home page***

This home page was one of the first on the Internet. I don't even remember exactly when I wrote it, but it was probably 1994. When I wrote it, there were few tools for producing web sites, so all the html was written by hand. That explains why the site does not have a lot of the fancier html features that people are used to today. However, the site is functional, so I plan to not substantially change the formatting in the near future. If you have design/layout issues with the site, I'd be happy to hear about them.

I wanted to provide a fairly complete html resource on helicopters. So far, helicopter aerodynamics (which borrows very heavily from a government textbook) is about 75% complete. I'll fill in other sections of the home page before I go back to complete aerodynamics.

The textual description of piloting is about 50% complete, but almost no pictures have been taken yet.

The mechanical description of helicopter components hasn't been written, but pictures have been taken of some components. I've thrown some pictures of tail rotors in as a teaser..



A short section is complete on what to look for in a school and an instructor. The FAQ (0% written) is expected to mention some common questions such as how much will it cost, and how long will it take.

The start on helicopter operating handbooks has been made with some interesting scans of Height Velocity curves, plus an exploded view of a Boeing Vertol CH-47 Chinook tandem rotor helicopter. I've also included the complete R22 pilot operating handbook. This was later removed at the request of Robinson Helicopters, because it is their copyrighted material. You can order a Pilot Operating Handbook from them at [the Robinson web site](#)

I've come to realize that I'm working on something that's **very** extensive. I just keep plugging away at it, adding to it in little spurts.

I'd appreciate any comments or suggestions or corrections. You can email me at [paul at copters.com](mailto:paul@copters.com)

### ***I got help from...***

my friend Kent Blackett. Besides owning his own scanner, Kent was an excellent amateur photographer. He helped me take the pictures in the "mechanical" section, as well as scanning in a lot of material for me. Kent was an airplane pilot, having owned at one point 3 different Cessna airplanes at the same time: a 172, a 182RG, and a 310 twin, all of them in gorgeous condition. He flew out of Marlboro Airport which is 1680 feet long, with high obstacles at both ends. Kent died a few years ago, but I'll always be grateful to him for (re)introducing me to aviation in general, and specifically helicopters.

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