**ROBBE Helicomand**

**The mixer unit**The second part of the Helicommand is a blueish box with lots of wires and inputs:

[2011-09-12 17.40.48.jpg](https://www.rcheliaddict.co.uk/filedata/fetch?id=1904691&d=1553527006&type=thumb)[helicommand3d.jpg](https://www.rcheliaddict.co.uk/filedata/fetch?id=1904697&d=1553527015&type=thumb)

I believe that this is the new style of mixer, and some Helicommand units may have a mixer like the one on the right (please note the right one is not my picture).

This mixer unit does all the swashplate mixing that would usually be done by the transmitter. That means that the transmitter should be set to a 90 degree mechanical swashplate. The reason for this is because the helicommand needs direct control over the servos for correcting and stabilising the heli; it also is able to add exponentials and other 'beginner friendy' features so that it is capable of dumbing down the learining curve between a coaxial and a CP Heli.

**Mechanical Setup**The best place to mount the Helicommand unit (I wil now refer to the CCD sensor as the Helicommand unit) is the tail boom on small 450 size helis such as mine. At first, I tried mounting it on the main frame, but the CCD sensor wasn't getting enough contrast, limiting the Helicommand's positional stabilisation feature. Below is a picture of the Helicommand mounted both on the main frame and then on the boom.

[2011-09-12 17.36.09.jpg](https://www.rcheliaddict.co.uk/filedata/fetch?id=1904695&d=1553527015&type=thumb)
[2011-09-17 16.03.27.jpg](https://www.rcheliaddict.co.uk/filedata/fetch?id=1904696&d=1553527015&type=thumb)
The blue mixer unit can be mounted in any position on the helicopter as long as all wires can reach - I chose to mount mine under the receiver. By mounting the Helicommand unit next to the tail servo, I think that I have got the best contrast for the CCD without affecting the COG (Center-of-gravity) too much.

**Wiring**For this section, I am assuming that the heli is correctly wired up for use without the Helicomand. Also, with a 6 channel system you have to use the internal tail gyro - however this shouldn't be a problem as it holds great and is perfectly capable for most things (its handled everything I've tried to throw at it perfectly  )

This wiring and setup will also allow you to switch between off, positional stabilisation and horizontal stabilisation using the gyro and stund mode switches.

This is by far the most complicated bit of setting up the Helicommand. First, let me explain what each of the wires and ports do:

Upmost on the Helicommand mixing unit, there are two wires with three wire bits to them. These are to be plugged into the receiver. The closest one to the top should be plugged into the aileron channel (socket) on the receiver, and the second from top to the elevator channel on the receiver. The aileron and elevator servos are the servos that were in the aileron and elevator ports in the receiver. Plug the aileron servo into the port parallel to the top wire, and the elevator servo into the port paralell to the second-from-top wire.

The other wires coming out from the mixing unit have only one individual wire to them.

The orange wire is the collective pirch wire. This should be plugged into the aux1 port on the receiver. The pitch servo (the one that used to be in the Aux1 channel) should be plugged into the parallel port on the mixing unit.

The Yellow wire is the tail/gyro wire, and should be plugged into the rudder channel on the receiver. The tail servo should be plugged into the parallel port on the mixing unit.

The green wire is the pilot wire, and should be plugged into the gear port on the receiver.

**The grey wire should not be plugged into a 6 channel receiver and its not needed.**That's all the wiring done  However, incase I haven't explained everything clearly, below is both a tabe of ports and a picture of my receiver with all the correct wiring.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Receiver port/channel** | **Servo to plug intoMixing unit port/socket** | **Function** |
| **Upmost wire with 3individual wires** | Aileron | Aileron servo | // |
| **Second to top wire(3 wires)** | Elevator | Elevator servo |  |
| **Orange wire** | AUX1 | Pitch Servo | Pitch |
| **Yellow wire** | Rudder | Tail servo | Tail servo |
| **Green wire** | Gain | none | Gain (?) |

Again - **Do not plug in the grey wire.**Below is a picture of my receiver with all the wiring (click to enlarge?):

[2011-09-13 20.27.55.jpg](https://www.rcheliaddict.co.uk/filedata/fetch?id=1904684&d=1553527015&type=thumb)

Finally, The long wire plugs into the Helicommand unit itself with the yellow 'wire strand' facing the led light.

**Helicommand setup (software)**This section is largely dependant on your helicopter. However, setting up the helicommand without a PC is very straight forward to understand, so I will only be covering the PC setup.

Firstly, make sure that the swashplate is leveled before setting up. Then, plug it into the computer using the cable. Install the software that is on the disc. The software should detect the helicommand unit, give you a few tabs to play with.

The first editable tab is the RC and Trim tab. Here you set the stick reverses. Go to the diagnose page and observe the sliders as you move the sticks - they should all be going correctly (ie when forward cyclic is applied, the elevator slider should move up). If any of these are reversed, reverse the stick reverse for the appropriate channel.

Here were my settings:

[2011-09-13 20.18.51.jpg](https://www.rcheliaddict.co.uk/filedata/fetch?id=1904685&d=1553527015&type=thumb)

The second tab is the mixer setting. Firstly, choose the mounting orientation of the Helicommand unit - based on the curved outside edge.

Next, the main rotor direction. Then, the swashplate type - for most it's 120 degrees. You can always just observe the swashplate and see if when moving the cyclic stick the swashplate doesn't move up and down, and when increasing the pitch, all three servos work to move the swashplate up without tilting (or down in some cases). Usually you can google your helicopter and the swashplate type to find out.

Once that is sorted, you need to reverse any servos that are acting in the opposite direction. Do this on here instead of the transmitter. Viewing the helicopter from the back, the swashplate should move in the same direction as the direction of the cyclic stick.

The servo travels should be adjusted so that there isn't any binding. It should be set to the maximum value possible so long as there isn't any binding. The settings I used are again below:

[2011-09-13 20.19.07.jpg](https://www.rcheliaddict.co.uk/filedata/fetch?id=1904686&d=1553527015&type=thumb)

Next is the tail gyro tab. The gyro gain should be initially set to about 65%, and then increased if needed or until tail wag occurs. The yaw rate agility is how fast it spins - I set it to 6 initially and then increased it to 10. The yaw expo is how sensitive it is at mid stick. Again, my settings are below. These CAN be copied if needed:
[2011-09-13 20.19.19.jpg](https://www.rcheliaddict.co.uk/filedata/fetch?id=1904687&d=1553527015&type=thumb)

The last tab (hor+pos) is pretty straight forward so I won't go through it step by step.

Remember to click write whenever you change a value.

I think that's it for the software setup.

**Transmitter Setup**You should have already created a new model with a 90 degree swashplate and the correct reverses. I will now say how to setup the helicommand so that you can toggle between the helicommand modes - off, horizontal and position. I got these settings from 'Trooper' on HF. Go into the mix1 menu and choose:

GYRO - GYRO ACT
RATE D 0% U -99%
SW GYRO TRIM ACT

Then go into the gyro menu and set it as :

RATE SW-F.MODE
0: 18.5% NORM 0
1: 86.5% STUNT 1

Now, when the F.mode (stunt) switch is in the 0 position and the gyro switch at the 1 position then it should be in horizontal mode (orange LED)

When the F.mode is on 1 and the gyro switch at 0, then it should be in position mode (green)

When the F.mode is on 1 and the Gyro on 1 then the Helicommand is turned off.

I used a pitch curve of 40, 45, 50, 75, 100 (obviously for both normal and stunt), and a linear throttle curve from 0-100.

I would suggest not using any exponentials.

That is it - no more setting up - the helicopter is now ready to start flying!  Remember to set any trims via the software and not via the transmitter.

**Horizontal mode**Horizontal mode only uses the Helicommand's 3 axis gyro, and not the CCD sensor. This means that it will keep the helicopter level when the cyclic stick is centred, but it will not make any attempt to stop drift.

A lot of people seem to think that flying with the helicommand is like flying a coaxial - and I can tell you this is definitely not the case - especially in horizontal mode. The cyclic is just as crisp and responsive as if there was no helicommand - my trex moved just as fast and was just as quick to react as with it off. Again, it is definitely not like a coaxial where you can push the cyclic all the way forward, keep it there, and the heli will move forward - the helicopter will tip over if you do this. The only difference between this mode and with it off is that if you let go of the stick, the Helicommand will level the helicopter so that it is easier to recover.

For example - if you are flying forward quite quickly, and the helicopter is at a 45 degree angle with the ground, and you let go of the cyclic stick, the Helicommand will instantly level the helicopter so that it is parallel with the ground. It will not stop the helicopter from drifting, freeze it, stop it completely or anything like that. In this mode it will just level it.

I found this mode the most enjoyable, as my trex felt extremely responsive and yet it would save it from tipping over from delayed reactions etc. I could still do everything with it that I can now do without it.

This mode also works very well - the helicommand kicks in very fast, and always manages to level it with the ground. It would be almost impossible to find a system that works better at doing this.

**Position mode**In this mode, the helicommand will not only level the helicopter so that it is paralell to the ground, but it will also attempt to eliminate any drift, and keep itself fixed in one position.

For example, let's imagine that the helicopter is flying forward, at about 2-3 metres high, tilted at 45 degrees towards the ground. This time, when you let go of the cyclic stick, not only will the helicommand level the helicopter to the ground, but it will within about 2-3 seconds draw the helicopter to a stop and hover it in a fixed postition. Again, it still does not feel like a coaxial - instead it just levels and stops the helicopter when he cyclic stick is released.

As long as the trim is set up correctly and the altitude is mentained, the helicopter should be able to 'hover itself'. However, at least on my trex, I found myself having to adjust the throttle a lot - although this may just be how I've set it up. Although it is very stable, you wouldn't be able to put the transmitter down for 3 minutes and expect the helicopter to be in exactly the same position - a small drift is of course to be expected.

Again, the helicopter will still tip over if the cyclic is applied for an extended period of time. However, if you apply cyclic so that it is almost vertical, and then let go, it levels itself and hovers very quickly which I find very satisfying

It is entirely possible for a complete beginner to hover and fly a helicopter with helicommand on it as long as they understand about the maintaining altitude and that it will tip over if too much cyclic is applied for too long. However, by no means will the Helicommand make the helicopter completely 'crash-proof'.

**Tail Gyro**I was very happy with the performance of the inbuilt tail gyro - the pirouette rate was fast and controlled, and it stopped instantly when I let go of the rudder. The tail held perfectly even when I was flying quite fast. I would give the gyro a 10/10 for what I need.

**Conclusion**My first helicopter was a Blade MCX. My second was this 450 SEv2 (with the exception of a 18 second flight with an incorrectly setup blade 400 that I crashed). The Helicommand has and is still helping me learn to fly CP helicopters, and after a month of using it I am managing to fly my beastx 500.

I think that it would be perfect for someone starting out or that is getting their first CP heli. I don't think it is cheating at all - the transition from the horizontal helicommand mode and a good FBL controller is very easy. The helicommand is also great fun to use - making you more confident with fast flight and small stall turns etc.

Yes it does cost quite a bit, however you can get one second hand relatively cheap. I really think that the helicommand has saved me from a lot of expensive repairs, and there is probably no way I would have been able to fly my 500 FBL if I hadn't had some time on the 450 with the Helicommand first. I had no sim time - just a few hours on an MCX. I really can't stand sims - they are so boring sometimes and personally I dont find phoenix very realistic.

Once you have progressed past the horizontal stabilisation stage, it is great to be be able to have a 'bail out system' for when things go a bit out of control, and the helicommand can do just that by just flicking a switch. I only wish that I could use it on my trex 500 - I am fed up of braking the TT gears, and would be much more confident with it if I knew that it would level if I flicked a switch

Finally, my experience with Robbe has been excellent. They have replied to my emails usually within a few hours, and I'm sure that if anything went wrong (if a wire starts to go on the mixing unit etc) they would happily fix it with no issues.