

Morley Mavrick Kit Review

By [Steve Engle](#)

I was asked by Galtech Models if I would be interested in building and reviewing a new helicopter kit for them. Initially, I was quite excited at the prospect of building and flying someone else's brand new helicopter with all new gear. However, when Galtech told me that it was a Morley brand, I shuddered and wondered what I had got myself into! I have only been flying helis for two years, and to be fair, Morley was not a well heard of and respected name within the industry. However, it's not everyday that you're given this opportunity, so I said I'd do it, and write a fair unbiased report on it.

Well here goes.....

The complete kit arrived, and to my surprise, it was a Morley Maverick XR. The XR version is a slightly upgraded version, featuring longer wider blades, extended tail boom, tail support kit, and carbon-fibre main frames. The XR is recommended to be used with at least a .46 size engine, whereas the standard kit will accept anything from a .40 to .53. I was also sent five new Hitec servos to critique as well.

On lifting the lid, the first thing that strikes you is how well laid out the main components are.

They have been placed on a sheet of cardboard, and plastic sealed so you can instantly identify each piece quickly. Under the top layer, are the various bags of fastenings, ball links, and the tailboom, canopy, undercarriage and main body pieces etc. Having laid out all of the bits, time to whip off a couple of photographs. Now to the manuals.....

My first impression of the quality of the documentation is very good. I sat down with just the instruction book and diagrams, and read through the building process. The text follows the photos accurately, and the diagrams are so clear, that I was able to see how everything went together without physically looking at the parts themselves. This is a credit to Morley, as they've obviously spent a lot of time in this area. The kit would appear to be aimed at the beginner to intermediate level, and most people in this category have had limited (or no) building experience, so an accurate easy to follow instruction manual is a big help (and it's not written in pigeon English either!)

The undercarriage is the first thing to be built, and it looks reasonably sturdy for those inevitable hard training landings. The main chassis base is attached to it and the model is then built "from the ground up". This is an unusual way of building, as most other models either start with building the head first, or building around the central side frames.

Engine and clutch:

Normally I like to run-in a new engine (both aeroplane and helicopter ones) on the bench, but as the engine assembly is used quite early in construction, I didn't get

a chance to run it in first.

The 1st stage and tail transfer gearing setup:

The motor is vertically mounted with the clutch near the top of the model. The 1st stage transfer gear comes off from here and its shaft goes back down to the chassis base. From here, it drives the main gear and mast, which goes back to the top of the model. (Seems like a bit of double handling to me!). One thing that didn't impress me were some of the moulding lines i.e. there was excess plastic which got in the way of things, which meant that the components didn't mesh and join properly, so spend a bit of time here getting everything in-line and free moving.

There are 2 metal pre-drilled angular brackets which basically hold all of the mechanics square. They seem good and sturdy, but you need little fingers to fit the washers and locknuts in behind the frame! Setting the gear mesh between the engine and the first stage gear was a bit of a pain, but it's worth spending a bit of time getting it just right. I like to loctite most bearings into their plastic recesses, so that they don't spin in their housings, but the instructions don't comment on this.

You have to be careful when screwing straight into the nylon plastic pieces, as it's easy to over tighten them and to strip the thread. One of the main things I didn't like about the whole model is the use of brass bushes instead of bearings in a lot of cases. I don't know how long they will last, and I'd be tempted to upgrade all of the bushes with bearings ASAP.

In all previous models I've seen, the steel feathering spindles/axles have all been 2 separate pieces i.e. one for each blade holder. The Maverick has a one piece shaft, so I'd expect to have to replace it almost every crash unfortunately. I would have thought that the head would come with thrust bearings, or at least the upgraded XR version would have them. Neither have, and with the weighted blades and higher head speeds associated with sport/intermediate flying, I would have hoped they'd be standard. Prior to fitting the flybar paddles, I slid a 5/32 wheel collar over the flybar to make balancing the head easier. The head rotates anticlockwise, which is not what most of us are used to seeing, so make sure you put the blades and flybar paddles on the right way!

I really don't like these brass bushes. The ones in the mixing arms have slop already, and if you tighten them to eliminate the slop, the linkages bind. I'd much prefer that they were ball raced.

The tail rotor needed a little bit of balancing too. The tail rotor pushrod and drive tubes are inside the boom and it gives the model a nice 'clean' appearance. However, you have to cyano the tubes inside the boom, so be careful or you'll stick the whole lot together if you are not careful! The t/r drive shaft is positioned along the left side of the boom, but I don't like the tubes crossing over each other in the boom as it's not a straight drive, so must surely cause some vibration/friction?

Radio installation:

Progress ground to a halt... I was missing 2 brass balls. and after double checking, they definitely were not with the kit. Luckily, I had a couple of spare Concept 60 balls and these seemed to fit alright. I suggest you operate all of the

radio gear and servos on the bench prior to installing it all into the model, as if the control arms aren't positioned properly, it's a real hassle to adjust once they are installed. The collective pitch mechanism is by means of a sliding swash plate. The 2 cyclic servos are mounted next to each other in a bracket, and the pitch servo moves this whole bracket (and the swash plate) up and down. Quite a simple system, but there are long lengths of pushrods trying to flex, and the linkages and system is not quite as 'tight' and slop free as I'd like.

One thing I didn't like, was there was quite a bit of endplay in the mast assembly- over 1mm (which doesn't sound much, but seems excessive). No where in the instructions does it say to fit a shim under the main gear to stop this end-float, and at this stage of construction, it's too late anyway as it's a major job to get to the base of the mast now!

The receiver fits nicely within the helis mechanics under the collective pitch assembly i.e. right inside the model. Normally, I like to wrap my receiver in foam and secure it to the model with rubber bands and tape. In the Morley, it is a bit cramped inside the mechanics, so I had no option but to mount it with a couple of layers of double sided servo tape. Not the ideal method, but that is what the instructions actually suggest.

The battery mounts underneath the front radio tray and the gyro fits on the top tray. The front tray looks a little flimsy and it would be an early casualty if you dig the nose in with any forward movement. The instructions make no mention of where to put the gyro gain adjustment box, but there is a little cutout for it directly under the motor, and it's secured there with double sided servo tape also. The fuel tank is rather an odd looking shape. This is because it fits just between the main mast and the first stage drive. It took a little bit of mucking around to squeeze it in, but it has to be right so that it clears the moving bits. Being so centrally located by the mast, the 'c of g' shouldn't be affected much as the tank drains during flight.

This kit came with a special muffler designed for the OS46, that fits through the frame. Surprisingly, the muffler wasn't supplied with any gaskets, so I just used silicone rtv. The exhaust has no other brackets supporting it. There are no suggestions on how to make up a bracket assembly to secure it, so I'll leave it as per the instructions and see what happens (with vibration, and lack of rear securing of it, the header pipe may be prone to cracking?).

The canopy halves are made of abs plastic, and they need a lot of trimming. The instructions recommend using a sharp knife to scour the canopy, then bending and breaking it, but I found that a pair of scissors used carefully could make quite a tidy job. The halves are joined together with slow cyano. There was still a lot of sanding and trimming required which was a real drag. I spent a lot of hours getting the canopy just right, cutting out cooling vents etc., more sanding etc. etc. (Being realistic, as this is a beginners / intermediate pilots model, it is bound to get knocked around a bit and I'm sure the canopy will get damaged. For the number of hours involved in making the canopy, and the fact it will probably get bent, I'd seriously consider buying the fibreglass alternative which comes prejoined and would be easier to repair.)

I rubbed the entire canopy down using a scotchbrite pad, some detergent and

water, and fitted the decals wet. The advantage of applying them wet is that you can slide them around for a while to position them in place accurately, without damaging them. I then sprayed the canopy with several light coats of Spraykote clear gloss to seal the stickers, and it makes it easier to wipe clean after a days flying.

Blade building:

Having had the luxury (laziness??) of always buying premade blades, building up a set was an interesting exercise. When finished, you have the satisfaction of knowing that you have a (pretty close to) perfectly balanced set, and you know that if the model vibrates, you can eliminate the blades as a cause. These blades are also cheaper than premade equivalents, which is a bonus as well!

Setting up and flying:

The instructions are not very explicit here, and only say basically "set the pitch curve up at 10 degrees top, 5 hover and 0 at low stick" and that's all! There's no mention of engine settings, head rpm, tail rotor mixing etc. As this could be a beginners model, I think Morley should've elaborated quite a bit here.

I ran the motor in and set the heli up on a test stand. The model is only slightly larger than a normal '30' size machine, so it seems to go really well with an OS46, 10% nitro and Klotz oil. After 4-5 tankfulls on the stand the motors loosened up and the mixture etc. is now about right (although still a bit rich to be on the safe side). Initial hovering in the back garden was incident free, but it takes a while to get used to the model hanging left-skid low due to the anti-clockwise head rotation. It looks like it's continually moving to the left by itself, but it's only an optical illusion! I like to have the engine at a continuous 2 stroke in the hover, but with the OS46 powering it, it's running quite a high head speed. This makes it a bit sensitive to controls, so I cut the control throws down a bit and 'softened' the response with quite a bit of exponential.

The atrocious Auckland weather meant that I couldn't test fly it for a month. Quite annoying as I was anxious to see how it performs. Finally, the weather improved (for about 2 hours!) and I managed to venture into forward flight. Rather nerve wracking as I was paranoid not to break it! It's definitely a lot quicker than a '30', and is no "slug" around the sky. It hasn't got the sheer vertical performance that I like (for 3D stuff) tho, but it moves along at a decent rate of knots all the same. With the head counter-rotating, all of the revo./torque mixing is backwards. It took a while to realise that, and made for some interesting manoeuvres in the meantime! The model had some strange characteristics though. As forward cyclic was applied, it also tilted the disk to the right (and vice-versa). For a novice, this could get you in a lot of trouble as it's doing things by itself that you didn't tell it to do.

This seems to be caused by the slop in the brass bushes in the mixing arms, as different cyclic commands were all getting mixed in together during a cycle and the flybar paddles were slopping around and doing their own thing also. This made for some hair raising moments as it didn't behave exactly as it should've.

It is possible to mix these characteristics out with a computer radio, but the Morley is advertised as being able to be flown with a basic 4 channel set with 5 servos, so a novice would be struggling to fly it. The solution is simple, just upgrade the brass bushes to bearings, but the point is, you shouldn't have to just to get it to

behave itself.

Pro's:

Fun (almost overpowered!), affordable, and cheap parts prices. Reasonably sturdy, easy to build (thanks to excellent diagrams), upgradable.

Con's: Canopy building is a hassle, brass bushes need upgrading, thrust bearings should be standard (in the XR at least), some cheap looking plastic parts, instructions for setting up and test flying are too brief.

Summary: The Morley is an affordable way to start out with rc helis. It is designed for the novice flier who doesn't want to spend too much money getting into the hobby, yet it is upgradable and (dare I say it) can perform 60 size manoeuvres cheaper (if you crash while practicing them!). It could save the cost of initially buying a 30 size machine, then having to step/trade up to a 60 when you want to try more adventurous manoeuvres which require more power. However, it is nowhere near as 'tight and crisp' as a good Concept30, and would require quite a few upgrade bits just to put it on a par with a Concept. Basically, it's the same as everythingyou get what you pay for. The Morleys only rivals in it's 46 size class would be the Schluter Mosquito and the TSK Five-Star. Having not built or flown either of those, I can't say how it would compare to them.

But, for what it is and the price, it's fun!

My thanks to [Galtech](#) for trusting me with their toy!

[Steve Engle](#)

**Comments from Morley Helicopters Ltd. From : Mr Bud Boulton
Director of Morley Helicopters Ltd.**

The test review is reasonably fair but I do have a few comments to add. Steve mentions on a number of occasions that he does not like "brass bushes" and would prefer bearings! The brass bushes are in fact phosphor bronze oil impregnated bearings and are very hard wearing and more importantly, inexpensive. It would be very nice to ballrace everything but then it would no longer be an affordable entry level machine. We have sold several thousand Mavericks and very few customers fit the ballrace upgrades!

The other point that is misleading is the problem of end float on the main mast and having to shim it.

The end float can be completely taken out by simply moving the mast stop collar up against the ballrace as intended! The canopy does require building and this can take some time, but then is probably a third of the price of a ready made Concept or similar.

Steve also mentions that the feathering spindle is one piece and that it will probably have to be changed after a crash. He does not mention that it is 8mm thick and is less likely to bend than the very thin ones used on Concepts, etc.!

I look forward to hearing some more on the flying side of the review and am generally happy with the review as long as people keep in mind the relative cost

of the machine when compared to machines with higher specification.

The opening paragraph does not exactly warm the reader to the Morley name but this aside the review should be of interest to the novice flier who is running on a low budget and wants to make some progress and have some fun.

Bud Boulton

("Note: the above "test" machine has now done a further 10 - 12 hours flying with no sign of bushing wear or borne out any other problems. I have looped, rolled and 540'd the Maverick which it handled well. We at present have a newcomer flying the machine, and due to its stable hover, the pilot is progressing rapidly."
Lew Woods of [Galtech](#) Models)