

Why We Choose Dymond Servos

If this were a larger airplane or a 3D airplane, or if we were using a high-end super fast radio, we would have considered digital servos. But in this airplane, and considering the radio we were using, we did not feel the need. So, we selected one of our favorite analog servos, the *D5000 MG BB* from the Dymond website.

Of course, we like the specs on the *D5000*, but specs don't tell it all. You can tell a lot about a product by looking at the quality of its physical construction. To do that you need to open a servo, and here at EFM, we open a lot of them. We're going to open some for you to illustrate just a few things we look for and compare them to the Dymond's.

In the photo below (A), note the metal gears and ball bearing on the Dymond 5000. Next to it is another well-known servo. It too has ball bearings. However, although its price is comparable to the *D5000* its gears are plastic.



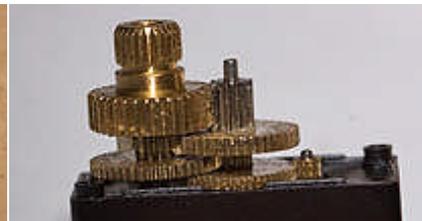
After only 15 flights, note the broken gear tooth. Yes, the servo will continue to function. And a lot of modelers are flying around with (unknowingly, of course) broken teeth on their plastic-gear servos and can't understand why their airplanes do not respond properly to their control inputs. **The message:** LOOK INSIDE YOUR SERVOS!



In another well-known brand servo (below B) the amplifier is soldered directly to the motor. Vibration from the rotating motor is transferred directly to the amplifier and the solder joint. We do not consider this a good thing. Note: later in the photos of the *Dymond 5000* that the motor is separated from the amplifier by wires so motor vibration is not transmitted to the amplifier.

A still different, but No Name servo below, is mounted using only two screws. Ok, so that's not too unusual with little servos intended for small foamies and such. But six of these came in a 59-inch 3D (RTF) ready-to-fly airplane. One of the two elevator servos failed to bench. We were doing a review of the model and frankly, it was a really nicely designed airplane. But we didn't dare fly it with those servos. We switched them out for *Dymond 5000*, and now the airplane responds perfectly to all stick inputs. By

the way, that is what we now do with most larger size RTFs that come with No Name servos. At first glance after pulling the top off (bottom photo), you might think: Hey, this is a quality servo. After all, it has metal gears. But look again and you see that it has no bearing. Ok, so a lot of servos do not have ball bearings. But this one does and does not even have a brushing. So what does that mean? It means that the output arm simply ride against the plastic case. Overtime the plastic case will wear and the result will be a wobbling output arm (photo below).



One of the most prevalent construction faults we find in servos is poor soldering and almost as bad, a lack of support where wires are soldered to the amplifier board and motor. In the photo below, look at the poor soldering and total lack of support where the wires are soldered to the amplifier board on this brand name servo.



Compare that to the excellent soldering and support for the wires on the *Dymond5000* (below). Quality soldering and wire support doesn't get any better than this, and we don't care what brand you are looking at.



In case you are curious as to why that No Name servo in the RTF failed, see below. We didn't even bother to solder the wire back. We just junked the servo.



The photo below, of another highly advertised brand servo, comes courtesy of Bruce Simpson. He found this frayed wire almost broken off on a brand new servo. By the way, if you really want to know how servos work visit Bruce's website at www.rcmodelreviews.com.

The D5000 Is Strong With a weak servo you can rotate the servo simply by moving a control surface by hand. Imagine then what air forces on the control surface can do. Try that with the *D5000* and you will bend or break something.

What About Over-Run? Over-run is when you move a transmitter stick, the servo arm moves past the position you requested and then backs up to it. Here is where digital servos show their superiority over analogs. However, with the analog Dymond 5000 we were unable to detect any over-run.

The Bottom Line As you have probably gathered now, we greatly admire this servo's quality construction. We admire the fact that the manufacturer's specifications can be proven on bench. But most of all, we admire the way it performs where it counts most—in the air! We fly it with confidence.



Courtesy of:
www.electricflyermagazine.com