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What About Rod "Spine?"

New to the craft? Well, relax and enjoy building your custom rod. Rod "Spine" is really much ado about nothing. It's a myth, plain and simple. Here's why...

By the time a new rod builder buys his or her first rod blank, he has no doubt heard about something called "rod spine." In many cases, he's also heard that if he doesn't find and orient this thing in a certain way that all sorts of bad things are going to happen to his rod. Is it going to twist? Will it explode? Will it cast around corners? Relax, the whole issue of rod spine is built upon a bit of a myth. If you had never heard about it nor bothered with it, your new rod would still work just fine. Don't believe me? Well read on.

The Spine Effect

To begin, there is no physical thing in your rod blank that resembles any sort of spine or backbone. The term "spine" is used to refer to an effect that exists in most rod blanks due to certain manufacturing anomalies. Your rod blank is a simple, tapered tubular shaft, It's made by rolling a section of prepeg (fibers and resin combined in a cloth or sheet) cut into a particular pattern flag, around a tapered steel mandrel. After heating in an oven, it's removed, the shaft is pulled from its inside and the result is a fishing rod blank. This type of construction lends itself to some imperfections, however, such as one side of the rod blank being a little thicker than the other. It also tends to produce rod blanks that are not perfectly straight. These and other manufacturing anomalies mean that the stiffness or power of the rod blank will not be identical on each axis around the blank. One particular axis will be softer or less powerful than all the rest and it is this axis that rod builders refer to as the "spine." In reality, it's not a thing, but rather an effect of those manufacturing anomalies we spoke of earlier.

The Myth

At some point in the 1970's, various authors of rod building books made mention of this effect called spine and stated that it should be oriented in a particular position in order to stop the rod from twisting when fighting a fish. They also stated that a rod would cast more accurately if the spine were oriented in a particular position. The entire basis for these statements, however, came about as a result of what happens when you flex a rod by hand. If you put the rod blank butt on a hard surface and support the tip with one hand, and then press down in the middle of the blank with your other hand, the rod blank will roll and then come to rest in a position from which it does not want to depart. The authors believed this proved that line guides must be mounted either on or opposite this axis

in order to eliminate rod twist when fishing. Subsequent authors simply repeated this notion in their books and little by little the myth became fact. And all without any proof, other than the aforementioned hand pressure test, having ever been offered.

What the original and subsequent authors missed, however, was the fact that pressuring a rod blank in this way ***does not in any way approximate what happens when a fish is on the end of the line!***

The Lever Arm Effect

Unless you're preparing to tie a string to the end of a cane pole, my guess is that you're getting ready to thread wrap some line guides to your new rod blank. When attached to a rod blank these guides function as tiny lever arms. Once you run a line through them and then load the rod by pulling on the line, as a fish would do, the lever arm effect will cause the guides to attempt to turn towards the direction the load is coming from. This is what the aforementioned authors overlooked and why the all the talk about the importance of rod spine is really much ado about nothing.

Fact #1 Any rod with the guides located on top (conventional casting rods) will be inherently unstable in a fishing situation. Such a rod will attempt to turn or twist until the guides face the direction the load is being applied from. With a fish on the line, such a rod will attempt to twist until the guides are on the bottom of the rod.

Fact #2 Any rod with the guides located on the bottom (spinning and fly rods) will be inherently stable in a fishing situation. Such rods, when loaded by a fish, will not attempt to turn nor twist due to the fact that the guides are already facing the general direction the load is being applied from.

Fact #3 The above 2 facts remain true regardless of where you orient the rod spine. The lever arm effect of the guides always trumps any spine effect.

If you have a hard time believing the above statements, you can easily prove them to yourself. Find the spine and mark it. Now mock up the rod, aligning the handle and guides on, opposite or even off the spine. You choose. Now affix the rod blank butt in a free spinning device (see article on the Spiral Wrap Demo Device) and thread a line through the guides. Now load the line with some hanging weight. Guaranteed, the rod will turn until the guides are facing downward.

If you'd like, reposition the handle and guides on a different spine orientation and repeat the test. Once again, the results will be exactly the same - the rod will turn until the guides are facing the direction the load is being applied from (the weight in this case). No matter how many times you repeat this test and no matter how you orient the spine, the results will always be the same. In a real world fishing situation, the lever arm effect of the guides will always trump any spine effect.

Casting Accuracy

Now what about casting accuracy? In the early 1980's, thousands of verbatim casts were made with a mechanical casting device that completely removed any human error. It was discovered that spine orientation had virtually no effect on casting accuracy. What did affect accuracy to some extent, was the straightness of the rod blank. Rod blanks with a pronounced curve or warp were less accurate when that curve or warp was placed off line to the direction of the cast. The fact that the tip of such a badly curved blank, when oriented far off the line of the cast, tends to travel in an arc rather than a straight line was the likely cause of any loss in accuracy.

Now let's consider the act of casting a lure or bait. Some fishermen use an overhead cast, some cast sidearm. Many expert bass fishermen employ a host of casting styles that can result in the same rod being cast on many different axis. The bottom line is that fishing rods aren't used on a single axis. Such a thing would be impossible. Therefore, even if a certain spine orientation could somehow affect casting accuracy, you would be required to keep your cast within that same plane every time in order to take advantage. Such a thing is beyond the realm of any real world fishing situation.

So...

So this is what we know - rod spine cannot be employed in any orientation that will eliminate rod twist nor affect casting accuracy. Therefore, relax, don't worry, and set about building your rod. If you desire to orient your rod in some particular fashion, you might choose to do what nearly all the commercial rod companies and many enlightened rod builders do - find the straightest axis and put the guides along that. Place any curve so that in the intended fishing position the butt and tip are high and the "belly" is low.

One last thing... suppose you decide to find the spine on your blank and orient it in a certain position, perhaps in line with what another rod building book author has recommended. Is there anything wrong with that? Of course not. In fact, it is the absolute unimportance of the spine that allows fishermen all over the world to orient the spine differently and still all wind up with perfectly functional fishing rods! Do what *you* feel comfortable with - in the long run, it isn't going to matter. Relax and have fun building your rod! ✍ *Tom Kirkman*