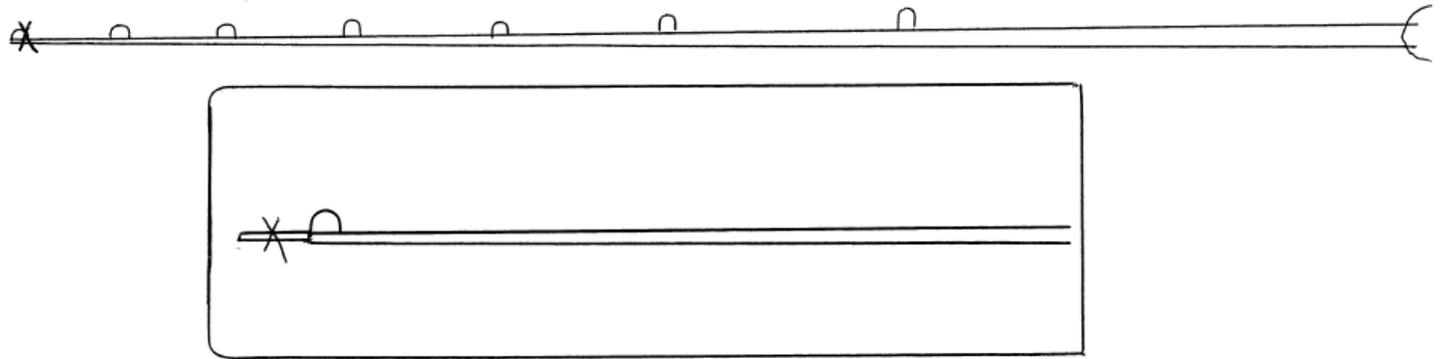


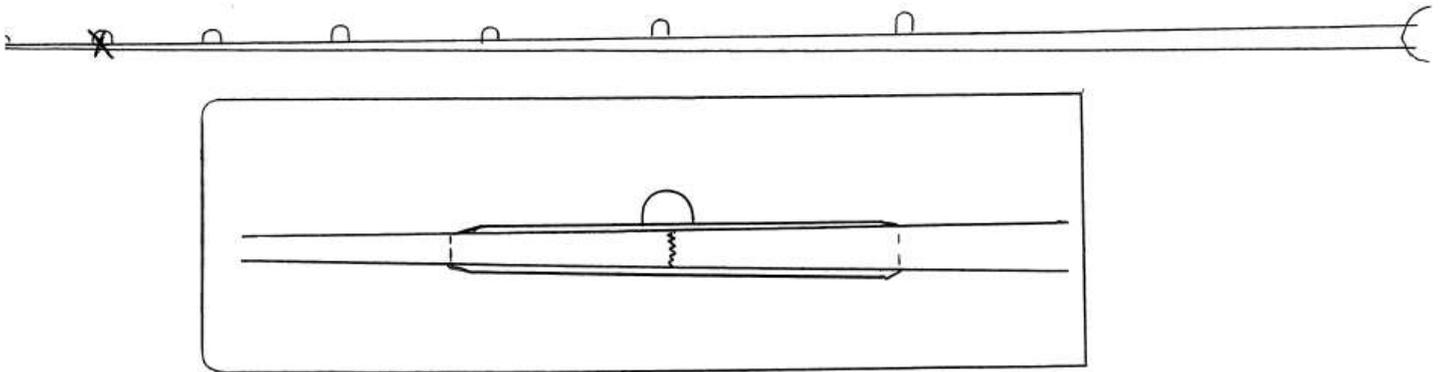
## REPAIRING BROKEN RODS, Matt Lubaway

1. **BROKEN TIP.** - The rod tip OFF.



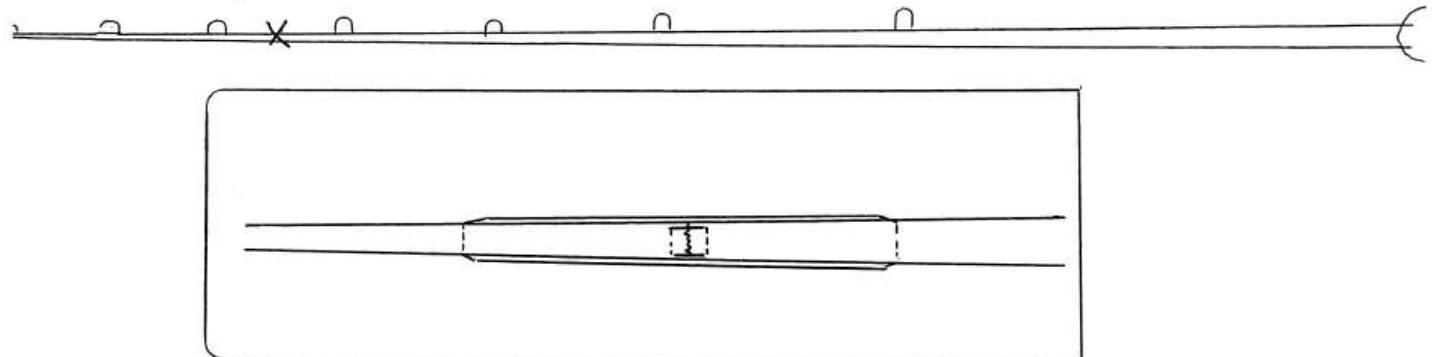
**NO SLEEVE;** Heat the tip top, remove old rod material, and re-attach the tip top.

2. **BROKEN 1<sup>ST</sup> GUIDE.** The rod tip broken in the center of the last guide is a very common break area. The break shown last time was in an area that will not see much flexure or bending. Under heavy load, the rod at this point will be mostly straight, except when casting the line



**EXTERNAL SLEEVE; 1/2 inch overlap each side, plus 1/8 inch tapered.**

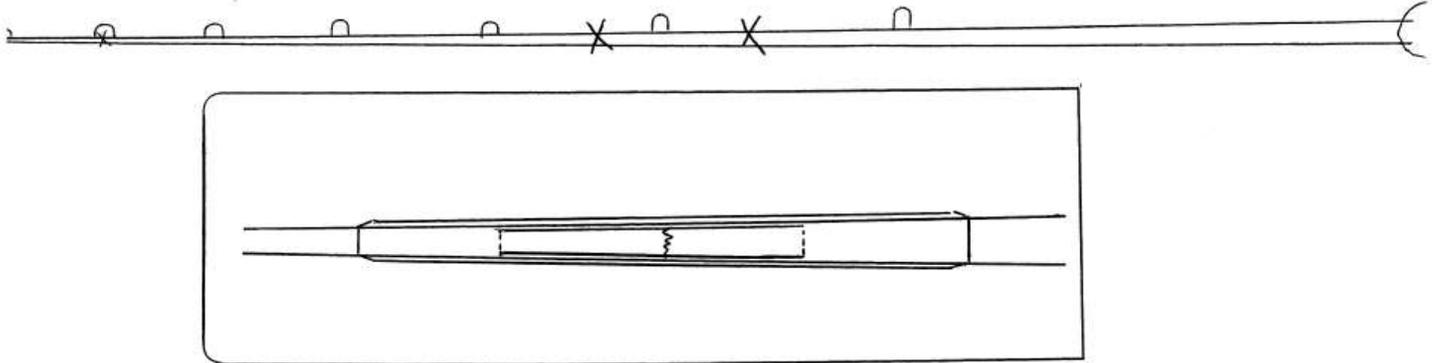
3. **BROKEN 14" FROM TIP.** The break in No. 3 is about 14 inches from the tip. The bending moment is more pronounced in this area. Your sleeve needs to be slightly longer in order to accommodate the longer moment arm and slightly stiffer sections being joined.



**INTERNAL PLUG: fiberglass 1/4 inch.**

**EXTERNAL SLEEVE; fiberglass over graphite, 5/8 - 3/4 inch overlap each side, plus 1/8 inch tapered.**

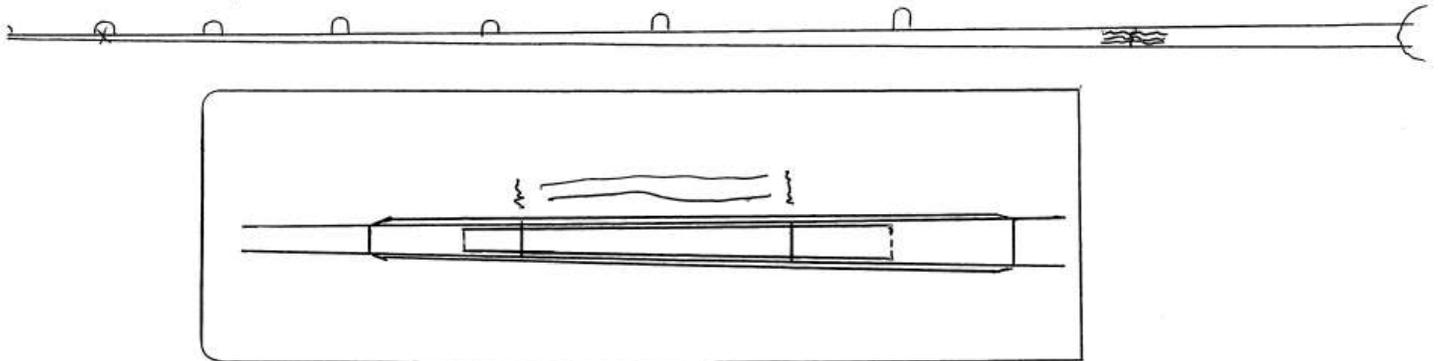
4. **BROKEN CENTER OF ROD.** No 4 is into real structure, this one has to be good in every aspect or the rod is doomed. This is in the area of greatest flex which means greatest bend load and fatigue factor. But mostly, it is an area of sensitivity. You FEEL the rod in this general area and you want to maintain that feel.



**INTERNAL PLUG: graphite 1 1/2 - 2 inch.**

**EXTERNAL SLEEVE; fiberglass over graphite 3 1/2 - 4 inch, 45° tapered end.**

5. **RECONSTRUCTION OF HEART.** This repair is the reconstruction of a good piece of the very heart of the rod that is removed. The damage to the (crushed) rod extended a little more than an inch in both directions from the impact area.



When a large area of damage is removed, the remaining pieces will not mate properly due to variances in diameter. Thus it is necessary to fabricate a 'spacer' to restore the area that was removed, making it possible to then utilize an internal plug and external sleeve in restoring the rod to good usable condition.

**INTERNAL PLUG: Fiberglass length of inner spacer, plus overlap 1 1/2 on butt and 1 1/4 on tip sections.**

**INNER SPACER: Fiberglass cut to length of removed damage, plus 1/10 inch for sanding.**

**EXTERNAL SLEEVE; Graphite length of internal plug, plus overlap 1/2 inch each end.**

6. **REBUILD A FERRULE.** Somebody stepped on the ferrule and that put it out of round, with many pieces separated and damage extending about 1 & 1/2 inches inboard from the end. A piece of fiberglass that fit into the ferrule and cut it to extend 2 & 1/2 inches into the ferrule and rod. I left about 4 inches excess for the rod wrapping chuck.

