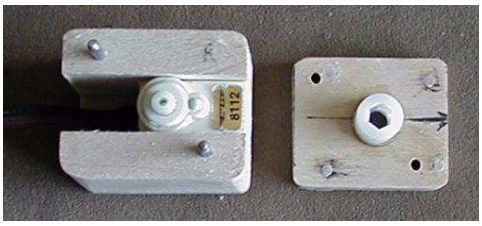
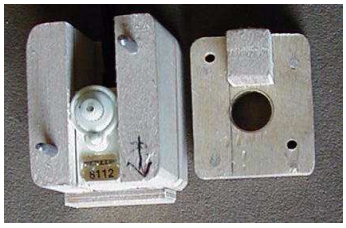
CUSTOM SPLINING THE COUPLER

Revised 08/22/2010

As shown below, make a sturdy support to hold the servo upright and the coupler centered over the output gear. A drill press, sander and a wood working power tool make it easy. 3/16" ply works for the rectangular top and bottom. Sides can be 3/8"-1/2" thick pine, bass, etc. Their top to bottom measurement is to match the servo case from its bottom to where the output gear exits it.





Glue sides to the bottom to snugly fit servo case. True up rear end so a plate can be glued there to butt servo against. Drill a 3/8" hole in top piece, cut a bit oversize. Center hole over output gear, mark and trim top.

Use a tiny drop of common wood glue at the corners to temporarily hold the top in place while you drill through it and the sides for a couple of 3/32" pins. Remove the top. Add pointy ended pins. With servo butted at the rear, glue a block to the underside of the top to keep it there.

With piece of waxed round toothpick, plug the threads in the output gear. Coat gear and case top with paste wax. Push output arm on and off to flatten wax. Push the ply top down flush using the pins to guide it. Splined end down, push the coupler through the 3/8" hole to meet the servo. With tape, mark the coupler where it exits the hole.

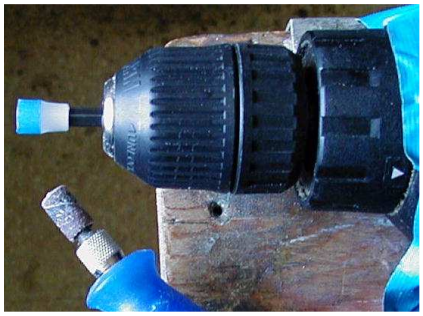
If the fit to the coupler is too tight, slip it on a 3/16" hex shaft and into a hand drill. Gently sand it down so it can be pushed out, but fit the hole without slop.

The plug: Glue a 3/16" dowel in 3/16" ply so exactly ½" protrudes. Drill a 1/16" hole through the dowel. Clean away any glue where the dowel exits. The hole is an escape for putty displaced by the output gear.

SPLINING: Get a 4 oz. stick of OATEY Steel Filled Epoxy Putty at the Home Depot, etc. The literature says "Mixes In Your Hand" and "Hardens Like Steel In Minutes". Well cured it makes clean, durable splines. Join plug and coupler. Cut a 1/16" slice from the stick. Peel away the covering. Quickly knead it to uniform color. Pack the putty into the splined end of the coupler. When full, wet a finger and press it smooth. Clean off any putty on the coupler exterior.

Place the wood top flush to the sides. Insert the coupler and plug. Compress the assembly until the coupler touches the servo. If necessary, compress with bench vise or C clamp.

Holding the wood top down flush, twist and remove the plug to break putty loose that oozed into the 1/16" hole. If there's a column of putty in the coupler, slip a piece of 1/8" tubing over it to break it loose. Clean the plug to reuse it. Check the surplus mix for hardness. When firm, lift off the top and from the hex end, push out the coupler. Resist testing the splines for a few hours.



To reduce coupler bulk and weight for DLG's, use the setup shown here to sand it down, first reducing overall diameter, then taper smaller to the hex end. Reduce length by 1/8".