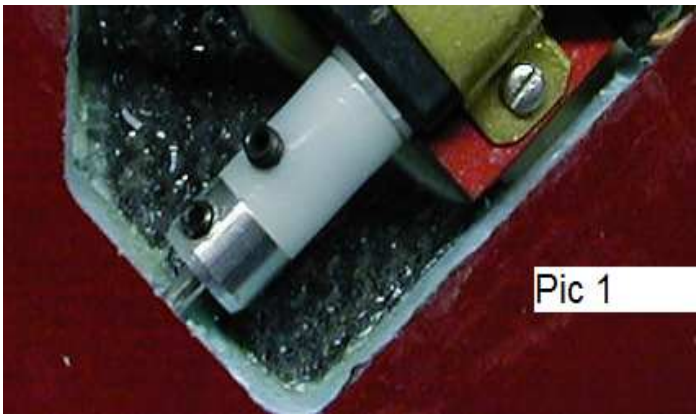
DOING A G2 RETROFIT IN A BAGGED WING

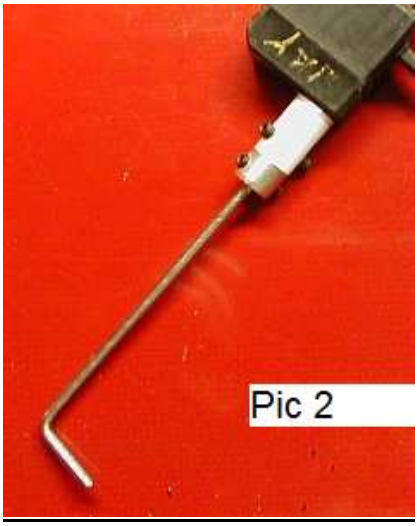
By Harley Michaelis (1/26/11)

Be familiar with the G2-RDS Installation Instructions when doing a retrofit. The foam core wing is that on my Big Smoothie thermal ship in the picture by the Community College dome seen in my website. Had the wing been hollow molded, the retrofit would have been even easier because the hex ended drive shaft with wiper could have been inserted through the servo opening to manipulate into the pocket. Because foam filled the wing, the hex end of the shaft had to be run forward through a tunnel in the foam starting at the hinge line.

Picture 1 shows how an old RDS solid wire drive shaft was connected to the right flap servo. Picture 2 shows the solid wire shaft with end bent that enters the pocket in the flap. The aluminum item is a 3/32" IRF Tempered Aluminum Coupler Top (332TACT). Using it, four setscrews can bear on flats on opposing sides of the flap shaft. It is not used on the G2 RDS because set screws are not used to retain a shaft in a coupler.



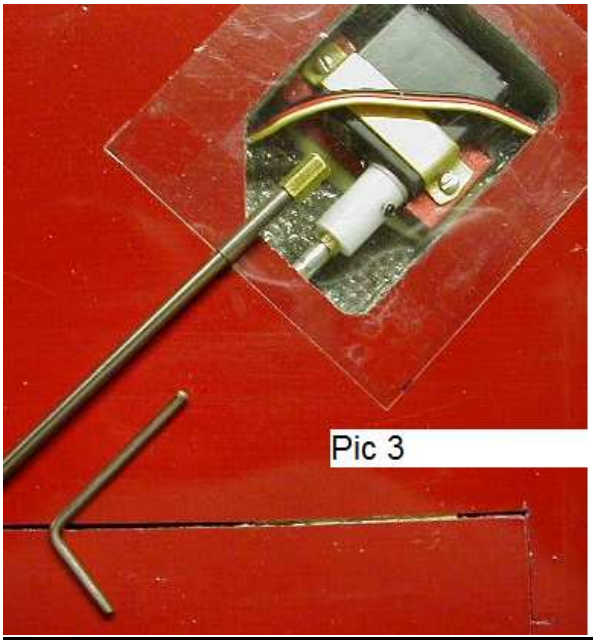
Pic 1



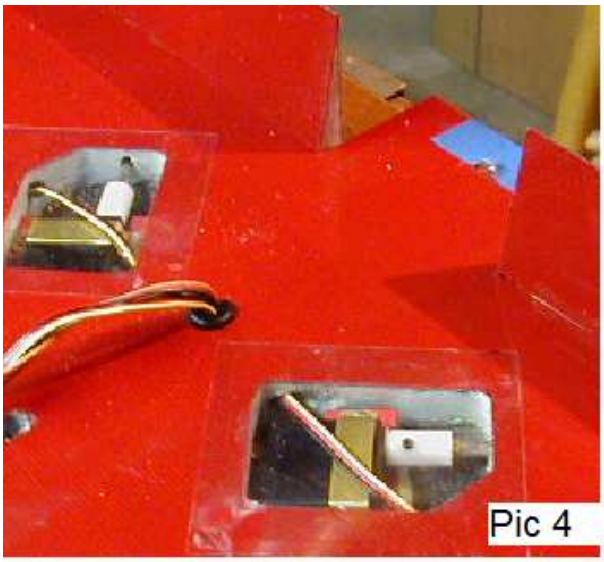
Pic 2

The wire shaft enters the old coupler parts 5/8". Getting it out required shifting the servo back into space at the case bottom and using a needle-nosed pliers to slide the shaft deep into the pocket. Then the servo and the TACT were removed to get to the buried servo screw holding the coupler on. This is tedious as is adjusting the coupler rotationally on the gear to get the bent end horizontal with flap stick in neutral. The old RDS has no provision for needed "fore-aft" movement during deflection, but the flexible wire shaft can "float" a little at the hinge line, if needed. To remove the old shaft, I deflected the flap fully down and with the Dremel and cutting disk cut the shaft at the elbow to remove it in two pieces.

Picture 3 illustrates a G2 installation for flaps. The hex ended shaft slips into the coupler. The little setscrew is captured behind an auxiliary servo screw (ASS 1) to secure it on the JR servo. Attach, detach and rotational adjustment of coupler on the gear are easily done.


Pic 3

Picture 4 shows that the RDS allows full down flap if the wiper is bent enough and if the shaft is angled enough to the hinge line and if hinging and gap wipers don‘t impair the deflection.


Pic 4

Since pockets for 3/32‘ shafts were already installed, I bent new 2-¼” wipers from the same 3/32” SS welding rod using a bench vise and hammer. Such a wiper is shown with the elbow located at the “sweet spot”. The 85 degree bend angle allows full down flap. I silver soldered the wipers inside the shaft following the document that explains how.

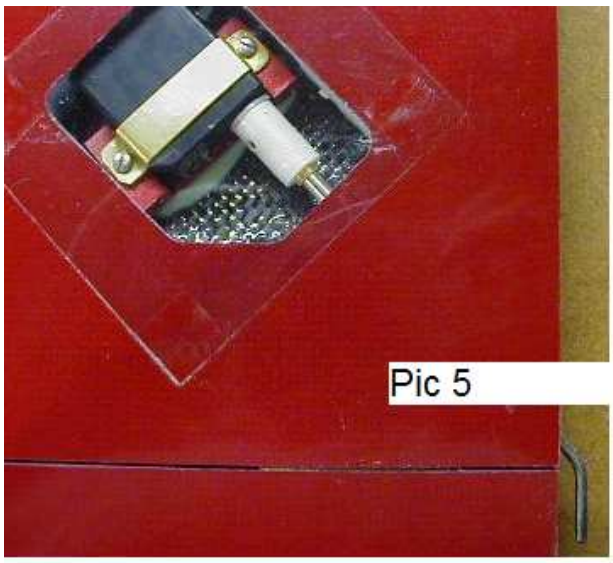
Note the brass hex end on the shaft protrudes a bit from the coupler to allow “fore-aft” motion during flap deflection.

To get the new shaft/wiper in, the flap was deflected down and the hex end inserted forward from the hinge line through the tunnel in the foam core. No “”guide tube” is used. Remember that the little set screw seen is simply captured behind the IRF Auxiliary Servo Screw to secure the coupler. Only ¼” of separation is needed to get the coupler off.

A retrofit into a hollow molded wing made for the horn/clevis/pushrod would be simpler except for the servo openings being squared up. When ARF makers realize that modelers want to use the RDS, we should see angled openings to accommodate the installation.

Picture 5 illustrates an option if the wing is 3-piece, Aileron servos can be mounted in the center section so that the wiper extends from the end cap to slide into a hard slot in the end of the aileron. If the wing comes with squared up aileron openings shafts can go straight back into a pocket.

AILERON RETROFIT: In 3-piece wings RDS enables locating aileron servos in the center section. As shown here, the wiper protrudes out of the end cap a little to slip into a hard slot in the aileron.



I pulled out the old shaft, removed the old coupler and progressively enlarged the hole in the end cap to get the shaft hex end through. If the aileron servo had been squared up to the hinge line the retrofit would have been handled as for the flaps.