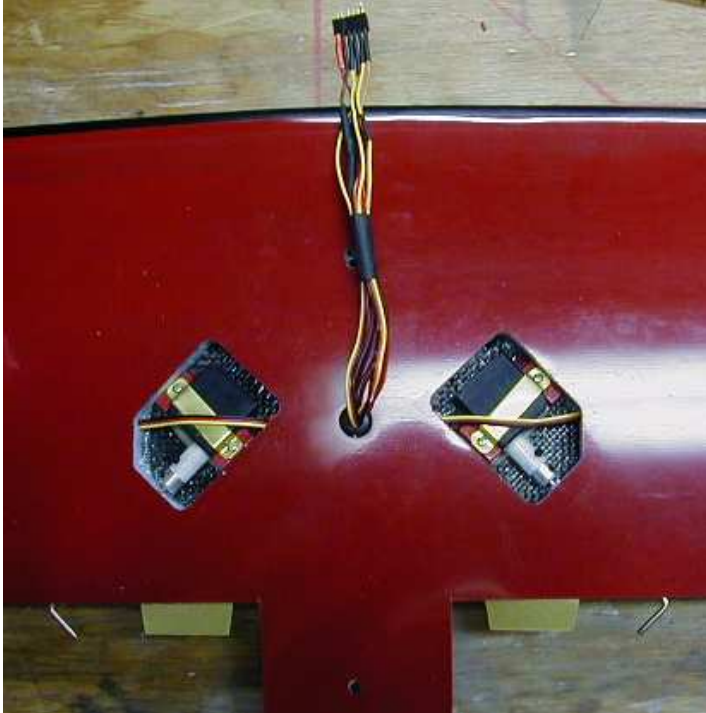


WIRING HARNESS IN THE CENTER PANEL by Harley Michaelis (3/10/09)

This details wiring up a 6-pin, 2-part connector, such as the Deans. The picture is of the center panel of a Big Smoothie wing. It shows the flap servos with Kimbrough Couplers used in installing the RDS, the flap drive shafts & the “individual Kevlar hinges” favored for flaps & ailerons. Flaps are attached after programming for them is done.



The male part of the connector is to extend a bit beyond the wing LE for handy connect & disconnect to the female (receiver) part of the harness.

After making the grommet hole through which leads exit the wing, clear away foam under the skin with an “L” shaped piece of coat hanger wire, etc.

The long leads from the aileron servos pass over the flap servos. After wiring is done, a split grommet is seated in the hole.

The optional aluminum tops on the Kimbrough Coupler bottoms are an RDS accessory offered by modeler-machinist Walt Dimick. Using them secures a flap drive shaft with four setscrews seating to the opposing flats ground on it.

AILERON SERVO LEADS: At the servo, snip leads to 3” or so. Set aside what’s cut off to use on the receiver harness side. Snake leads through the tunnels. Solder on & mount the servos. Run the leads over the flaps servo wells.

With tweezers, etc. fish them out of the grommet hole, take up slack & extend 3” or so beyond the wing. Slip a 1-1/2” or so length of ¼” or 5/16” heat shrink tubing over the leads to protect them from rubbing on the main bolt.

Carefully separate the signal wires without losing insulation. Near their ends, tag them as “LA” & “RA”. Tape is a nuisance. You could use ties of colored thread, etc. to designate which is which. Cut the + & - leads 2” shorter than the signal leads & separate them.

FLAP SERVO LEADS: Repeat as done for the aileron servos, extending the leads the same amount. Tag the signal leads as “LF” & “RF”. Install the grommet.

See the drawing on the next page. The Deans connector has a groove separating 2 pins from 4. The + & - wires are to be bundled & attached to the 2 pin group.

As shown in the next picture, this is accomplished with ½” long pieces of brass or copper tubing that receive the bundle at one end & extend single leads to the pins from the other end. Note that the tubing is grooved to make an opening at the center. This allows solder to flow both directions to make a reliable joint.

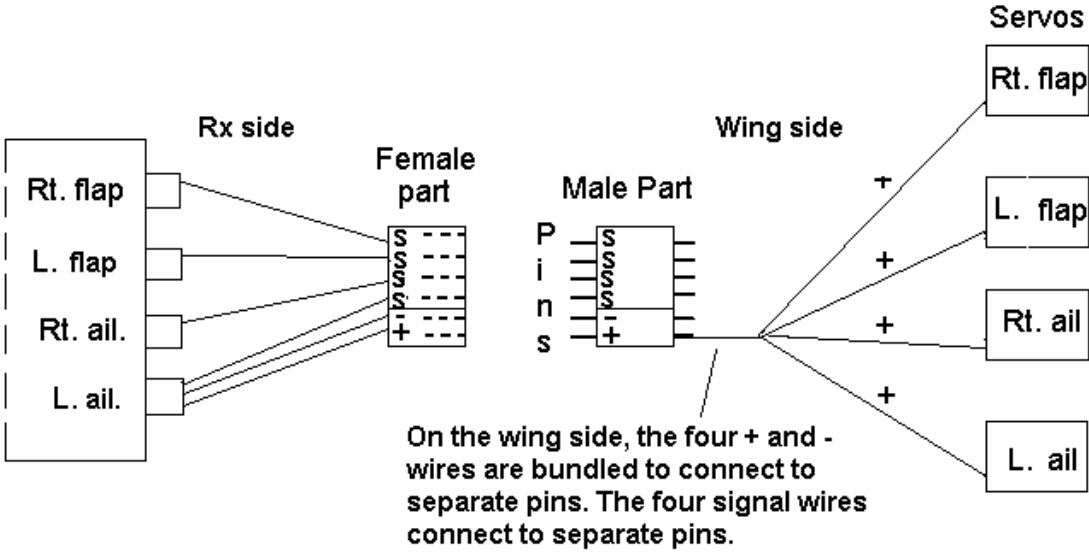


This shows the bundled + & - leads separated from each other & from the signal leads. Heat shrink tubing insulates the bundles & gives strain relief where the single lead to a pin exits.

Strip about 5/16" of insulation from each + & - wire. Twist together, lightly tin & insert into a tube. From twisted wire, preferably at least #24 gauge, strip 1/4", tin & insert in the other tube end. Apply heat & solder at the "V" groove to join all.

Trim all 6 leads to the same length beyond the LE. Remove 3/16" of insulation & tin the ends. Slip HS tubing on each ready to solder to a pin.

The drawing below depicts the + bundle going to an outside pin. The - bundle goes adjacent. Signal wire order to the four pin group is arbitrary. Just get them in the corresponding correct slot in the receiver.



Above, lower left, the 3 wires are those going to the left aileron slot in the receiver. When that side of the harness is lastly made, power to all slots is provided.

To protect paint while soldering, invert the panel over soft towels & lay cardboard on it. A 30 watt iron with 1/8" spade tip works well.

SOLDERING TO THE PINS: Push the + pin out of the connector block. Tin it where a wire goes.



A block with a tight slit nicely holds a pin to tin & solder a lead to it. Then push the pin back into the connector block. Remove another pin & repeat until all are back in place. Shrink the HS tubing bits to the pins.

The pic below shows a finished assembly that matches the drawing above. The receiver side of the harness might be anywhere from 4" to 6" long depending on how much of the wing side extends beyond the LE & how far it is to the receiver. Decide on the receiver side overall length. Snip the + & - leads off the outer three servo connectors, but leave those connectors in place. As needed, splice to the signal leads so the servo connectors can reach the receiver.



The wrap is a non-tacky electronic insulating tape that bonds only to itself & keeps all wires bundled.

Electrical engineers may frown on the current to 4 wing servos going through one pair of leads, but it reduces connector size & wire bulk & has never been a problem in the Genie line ships. Also, flat rather than twisted lead to aileron servos has never been a problem.

CAUTION: As part of a routine pre-flight check, always see that all pins are fully inserted into their respective slots. If the pin to which a + or - bundle is soldered should become disengaged, none of the wing servos will move. If one wing servo is not moving, its signal lead may be disengaged.

<<<< >>>>