

WOOD GEAR LEG STIFFENERS:

One effective method of dampening the shimmy tendency of the spring steel rod gear leg consists of bonding a wooden block to it to alter its vibrational characteristics. This can be done as shown in SK-75. The wood used in this illustration is a standard window molding available from most building supply stores, and the reason for using this will become obvious later. Sawing two pieces of this molding lengthwise and bonding them together as shown will provide a tapered piece which attaches (bonds) easily to either the front or rear of the gear leg. The resulting assembly is attached with a bonding agent such as BONDO type body filler or a polyester fiberglass putty. Use the string method to align the fairing.

Once this has cured, sand or file the excess bonding agent smooth, and wrap the whole assembly with 2 or 3 layers of 9 oz. fiberglass cloth. Fiberglass tape of 2-3 inch width wrapped around the gear leg works well because it is easier to keep taut than is a large sheet of fiberglass cloth. These wrappings of fiberglass tape are saturated with polyester resin (or epoxy if you prefer) as they are applied.

The wood stiffener blocks may be attached temporarily by spiral wrapping them with fiberglass filament re-inforced packaging tape. This should be viewed as a short term installation, because the filament tape will deteriorate and may not last for more than one or two years; much less if directly exposed to sunlight for long periods of time.

The gear leg/dampening block assembly can be covered by an aluminum fairing as shown in SK-75, or can

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become a part of a foam/fiberglass fairing as shown in SK-76. For the fiberglass fairing, the wood block must be on the leading edge of the gear leg (its shape as determined by the window molding strips, is nearly perfect for leading edge streamlining.) A light 2 lb./cubic ft. urethane foam is used for the trailing edge fairing, and serves as a filler only, having little strength. A piece of foam sheet 1-1/2 or 2" thick and 3-1/4" wide at the top and 2-1/8" wide at the bottom will work about right. The fiberglass which was wrapped around the gear leg will have a rough weave surface. Holding the foam strip against this and working it up and down will "hollow out" the foam to the shape of the gear leg. Simply bond this in place and proceed to shape the foam to the streamline shape desired. This shaping can be done with a file, a sanding block, or even a remnant piece of foam. While shaping, use the aligning string procedure. Since the foam is very light, the thin trailing edge must be worked with care. One possibility here is to bond a 1/4" wooden dowel on the trailing edge to protect it during forming and to provide a firm trailing edge radius to form the fiberglass cover around. A polyethelene tube run the length of the fairing through a channel cut in the foam can provide a housing for the brake line. Once the shape of the aft fairings has been attained, it should be coated with one brushing of resin and allowed to cure before any fiberglass cloth is applied. This is because the foam is porous and will soak up a lot of resin from the first layer of cloth, making adhesion difficult unless the seal coat is used first. The cover should consist of 2 or 3 layers of 9 oz. fiberglass cloth, pre-cut to size with the cloth weave at a 45 deg. angle to the gear leg. The 45 deg. angle will permit the cloth to contour better around the tight trailing edge radius. Wrapping around the trailing edge is suggested so that a continuous fiber is provided here rather than the risking inter-layer delamination possible if the cloth were trimmed at the trailing edge and butt joined there. Also, overlapping of the cloth at the leading edge will fill in that area and provide a better teardrop shape for the fairing.

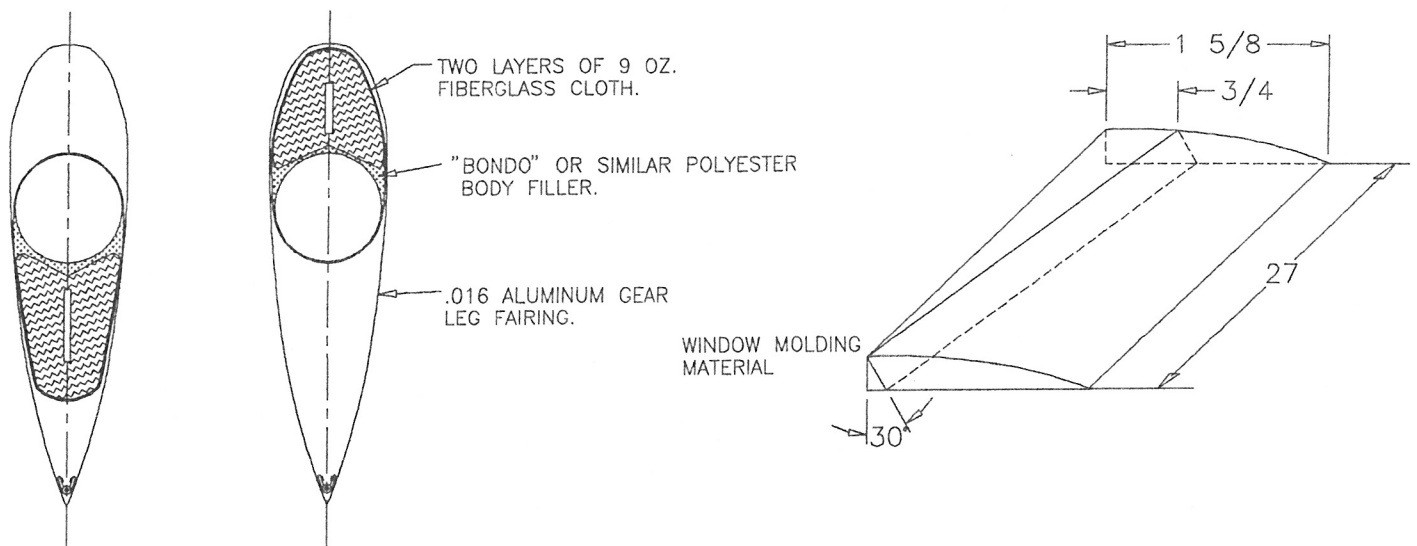
Once the fiberglass build-up is completed and cured, enough additional coats of resin should be added to fill in the weave so that it can be sanded smooth after a final coat of finishing resin (resin with surface agent added to enhance sanding) is applied.

ALUMINUM GEAR LEG FAIRINGS:

Aluminum gear leg fairings can be fabricated and installed per DWG 58. Because a tight fitting fairing is desired for minimum drag, this fairing must flex with the gear leg. A single piece fairing will not flex enough and will "oil can", even under a 1 G load. If the fairing were to be made loose enough to permit the gear to flex inside it, it would have to be at least twice the thickness of the gear leg. A two piece fairing, overlapping at the center, flexes with the gear leg and still maintains a nearly perfect contact fit over the full length of the gear leg, so this is the solution chosen for the RV-6.

DWG 58 shows the gear leg fairing and its parts. It consists mainly of wrap-around .016 aluminum fairing attached

SK-75 WOOD "DAMPENING" STRIPS FOR GEAR LEGS



Cutting the edge of the molding at a 30 deg. angle as shown will permit it to nest well on the gear leg. This can be done on a table saw or a band saw with a tilting blade or table. Cutting the taper toward the narrow end is done by taping this molding to a board with the specified 3/4" offset, or can be done simply by marking the line and carefully hand feeding it through a band saw. Make right and left hand pieces, then glue the two together and bond to the gear legs.

SK-76 WOOD-FOAM-FIBERGLASS GEAR LEG FAIRINGS

