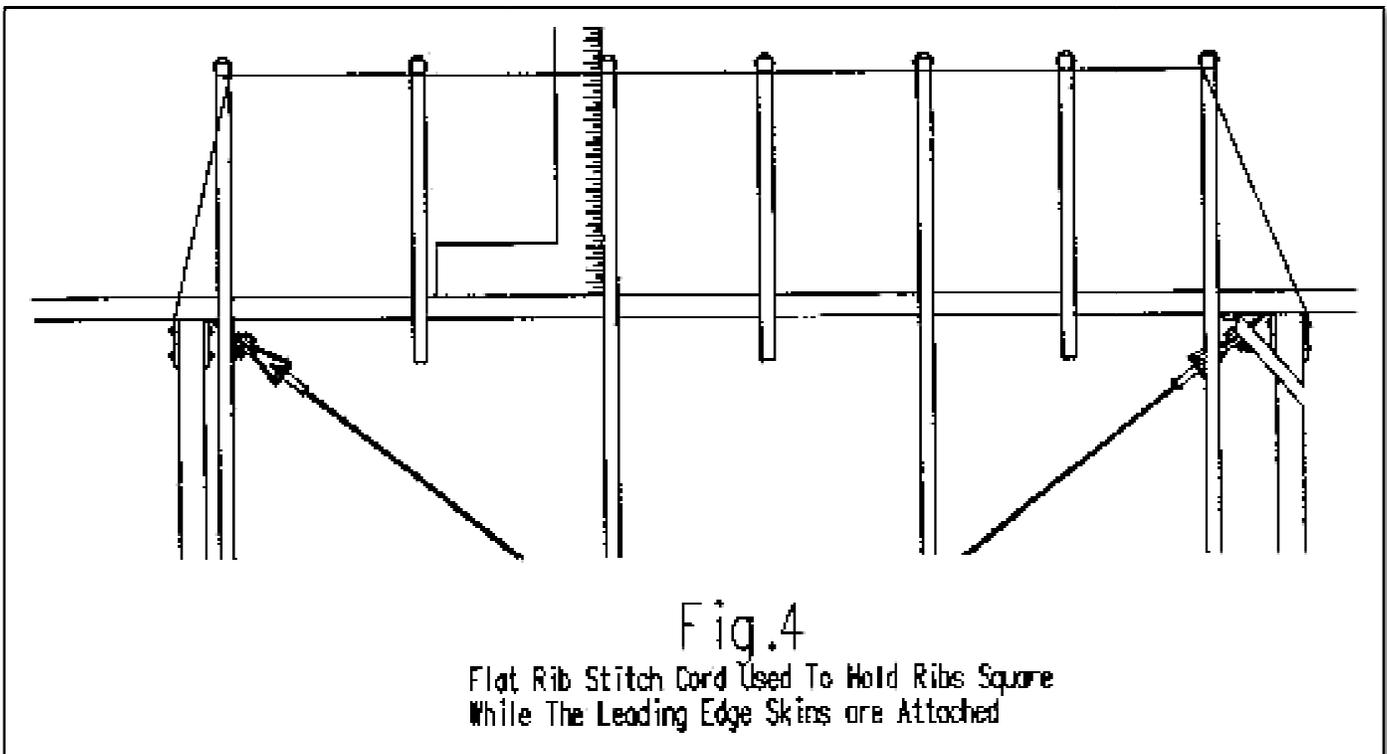


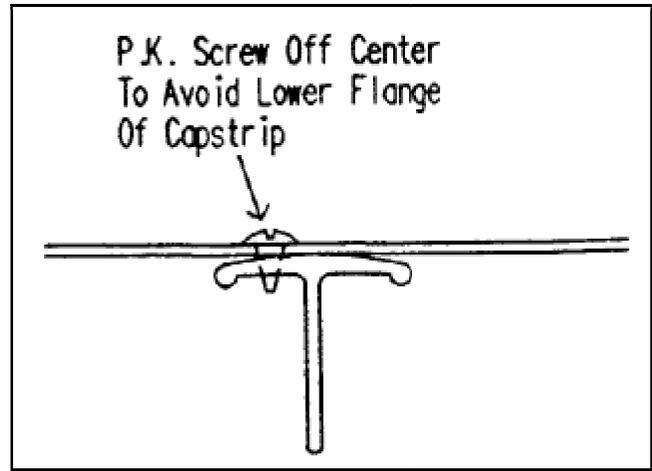
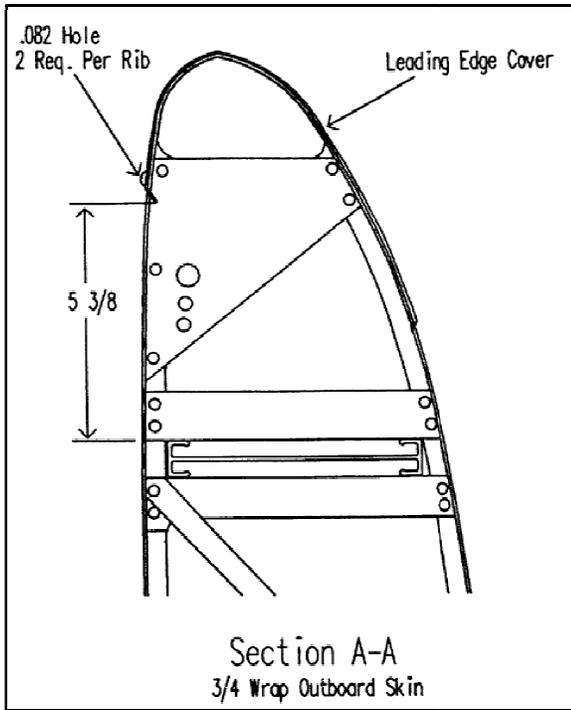
Dakota Cub Aircraft Installation Instruction - Leading Edge

Bottoms up! Always start the installation of the leading edge skins with the wing bottom facing up. It is the easiest way in which to start and helps assure a good job. The wing should be placed on a good set of saw horses that are reasonably level and support the wing assembly on the front and rear spars. There are very few parts installed under the leading edge skins with the exception of landing or position light wiring and of course the landing light assembly. Make sure these are in place before installing the skins!!! The ribs will need to be held perpendicular to the spar for the skins to be installed properly. To aid in this effort, Piper used a formed metal strip with holes that picked up each rib. It floated in place and kept the ribs spaced at the proper distance from each other. Another method Piper utilized was herring bone tape (see figure 4) interlaced along the rib noses and tied off at each end.



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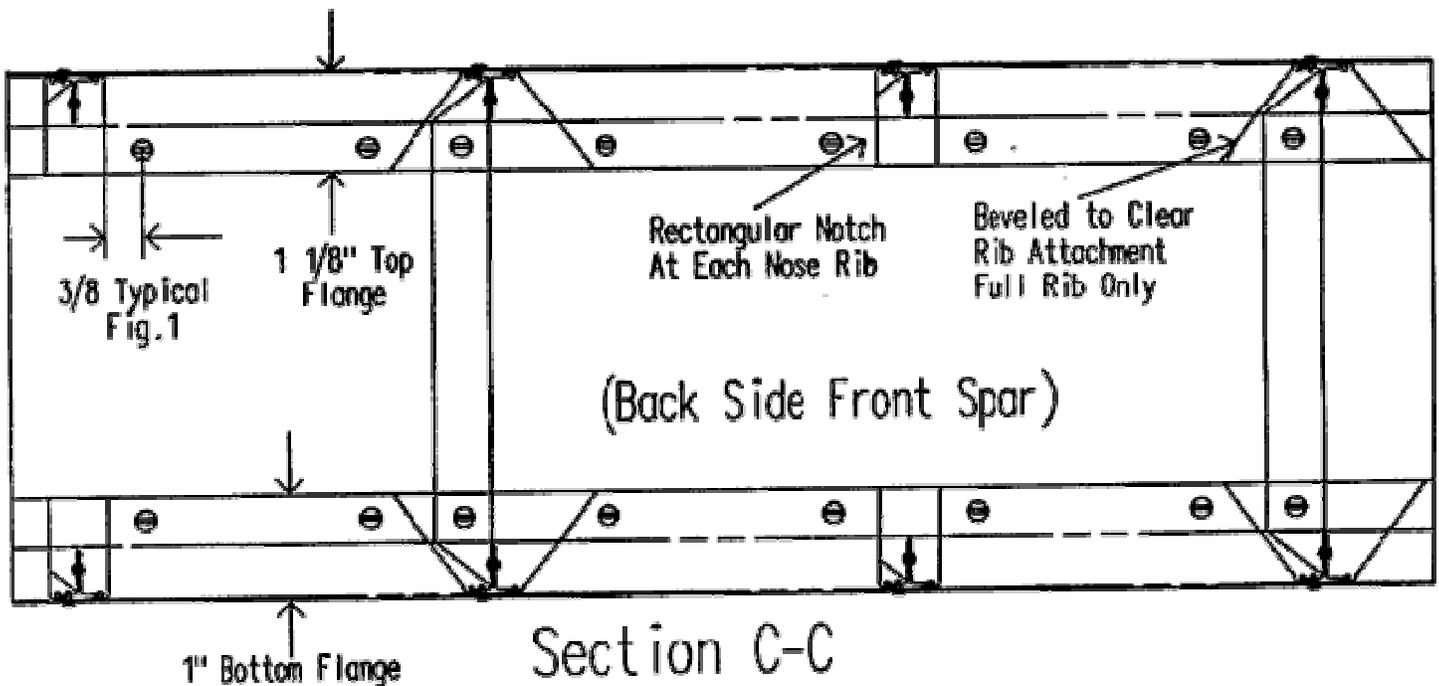
The ribs could be aligned and the tape held them in place until the skin was installed. I prefer to utilize flat rib stitch cord and interlace it at the rib nose, again tying it off at each end. The waxed rib lacing cord allows for the ribs to be moved around for the alignment process yet "grips" the rib capstrip very well. From this point it is necessary to start with the out-most tip skin and install it onto the outboard aileron rib, tip nose rib, tip rib and tip bow. Next the 3.4 wrap outboard skin is installed by measuring from the front spar cap forward and make a line at 5 3/8". This installation is accurately detailed in Section A-A using one PK screw per rib/ nose rib.



Leading Edge Fasteners

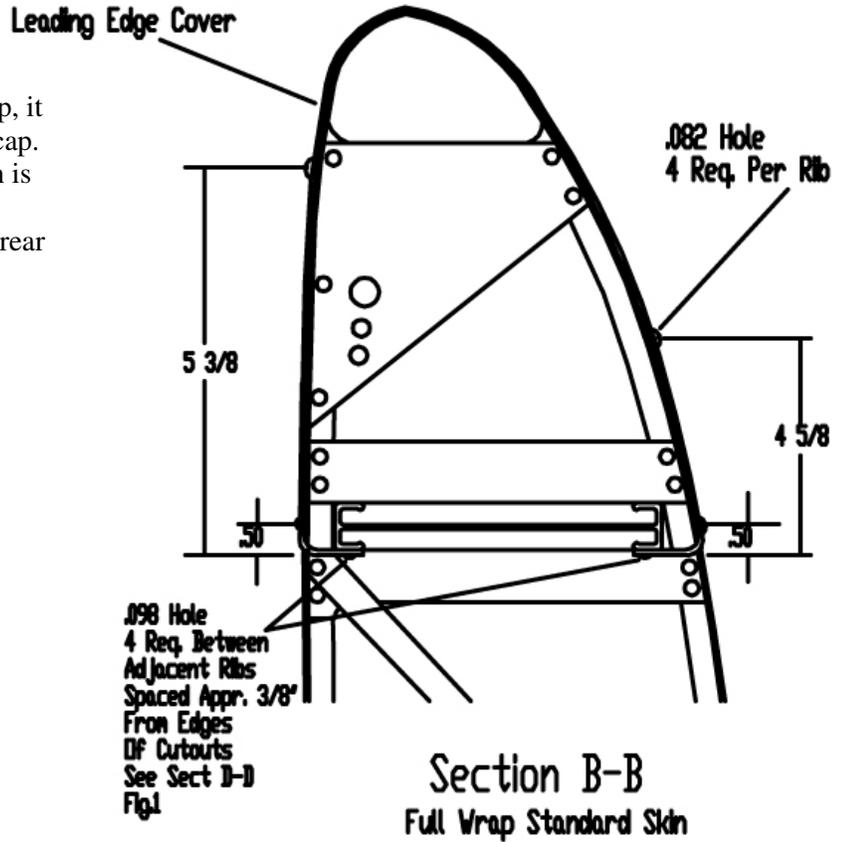
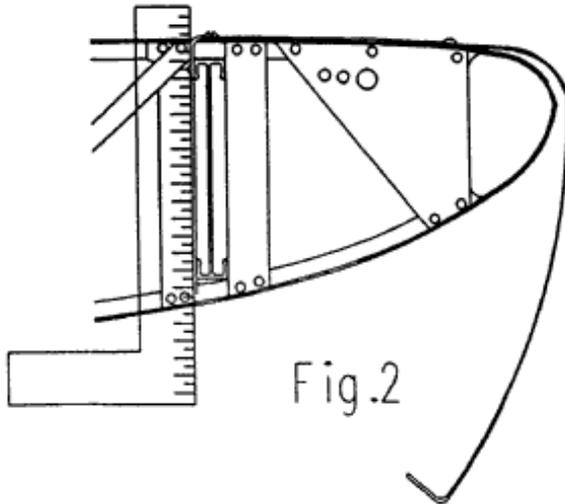
- LE to Spar Cap: #4 Blunt Point Type B (PK)
- LE to Rib Capstrip: #4 Truss Head Screw

Next install the #3 Full wrap leading edge skin. If you are fabricating the leading edge skins yourself it will be necessary to "notch" the skins properly to fit over the ribs. The top leading edge flange as indicated in the Section C-C drawing should be 1 1/8" in length and the bottom flange is 1" in length.



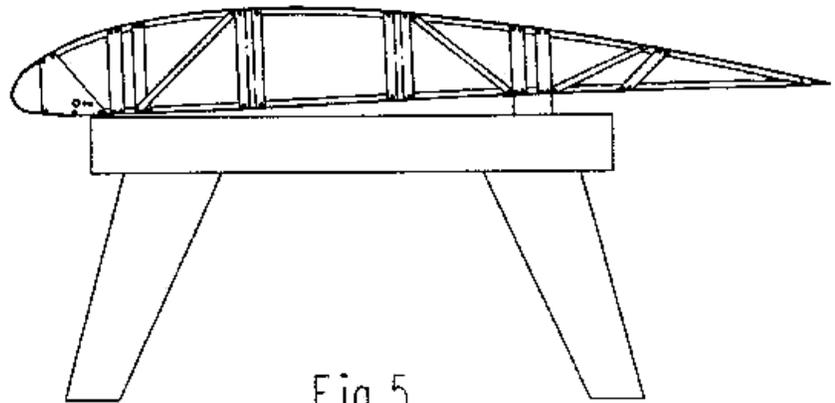
The notch width should be 5/8" to 3/4" wide, with the flange at each full rib also being diagonally cut as indicated to avoid interference with the rib attachment flanges. Refer to Section B-B and Section C-C for the correct screw installations.

When securing the leading edge flanges to the spar cap, it is preferable to utilize any existing holes in the spar cap. The addition of holes not necessary for the installation is critical. NOTE: it is important to make sure the 1" bottom skin flange is parallel (Fig. 2, below) with the rear spar cap.



If this is not done properly (along its entire length) the skin will tend to skew from end to end and the result will be the skin notches will not fit properly when the skin is wrapped around to the opposite spar cap. The installation of the #2 full wrap skin and the inbd full wrap or tank bay skins are basically the same. The only exception will be the tank bay skin which has a tank lid ledge formed into the top surface.

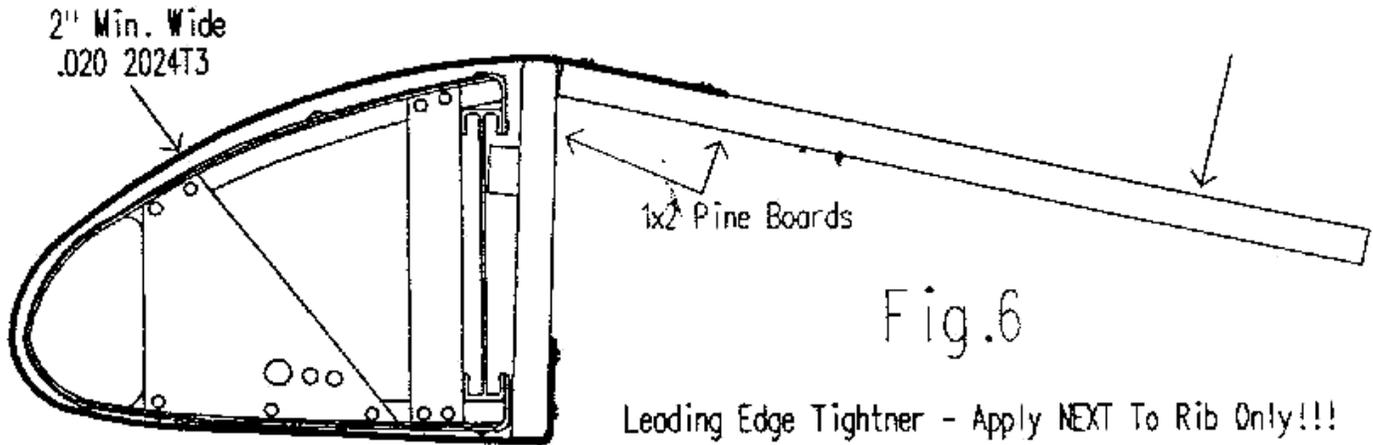
This skin also has the tank strap assemblies which will interfere with the screw placement. It is recommended to install at least two screws between each rib or tank strap. This area needs to be well secured as it carries the flight loads from the tank lid. When all screws (rib and spar cap) are installed it is time to flip the wing over (top side up) and begin the washout process. With the wing sitting on the leveled sawhorses it is now necessary to wash out the wing tip. Use the dimensions in the rigging section of your flight manual. It is necessary to wash the wing properly BEFORE the tops of the skins are installed.



1" Spacer At Rear Spar For Washout

If this is not done the leading edge skins may oil-can and deform as the washout is twisted in during the rigging process. The method I use is to add a 1" spacer under the rear spar at the outer aileron rib (Figure #5, above).

The amount of washout varies between models just a bit, and by putting "most" of the washout in now, the rigging can be completed without the worry of distorting the skins. The skins now can be tightened over the rib noses and attached as per Section A-A, B-B & C-C. You will have to again start from the tip skin and work inboard. There are several methods that may be used to tighten the skins onto the ribs. Ratcheting cargo straps wrapped around the skin and rear spar work pretty well. Hand fashioned tensioning devices can also work great. One method I have used extensively is illustrated below in Figure #6.



It can be made from a 1"x2" board about 2" wide and will easily tighten the skins. I recommend using at least three tighteners per skin section POSITIONED AS CLOSE TO THE RIB AS POSSIBLE, and tightening them to the point they slightly telegraph the position of the rib. This insures that skin will not be able to move. When the skin installation is complete the structure becomes very rigid allowing just enough movement for the rigging process. The wing diagram shown here is for the PA-18 SuperCub. All metal spar models are similar in most respects. The wood spar models differ but the principles for leading edge skin installation are similar and should produce excellent results.

Double check - double check - triple check to make sure all screws are tight and all components are in their proper place.