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NOTE: Van's Aircraft recommends the use of a C2YR-1BFP/F7497 74 in. [187.96 cm] Hartzell Propeller on the RV-14A or C2YR-1BFP/F74972 72 in. [182.88 cm] Hartzell Propeller on the RV-14. Installation of a different prop may require deviation from the steps in this section.

CAUTION: Before continuing, read the documentation concerning propeller installation included with your propeller and engine.

Step 1: Locate the S-602B Doubler Ring on the S-602-1 Spinner Plate using bolts through the four holes in both parts. See Figure 1.

Match-Drill #30 all of the 1/8 [3.2 mm] holes of the doubler ring into the spinner plate and cleco.

Step 2: Trace the inside perimeter of the S-602B Doubler Ring onto the S-602-1 Spinner Plate. Remove the doubler ring, then cut along the trace to remove the hatched area (shown in Figure 1) from the spinner plate.

Step 3: Deburr the holes and edges of both parts, prime if/as desired, then rivet them together using the rivets called-out in Figure 1.



Step 4: Mark a center line on the flange of the Spinner Plate Assembly for locating the mounting screw holes as shown in Figure 2.



Step 5: Mount the Spinner Plate Assembly to the propeller. The spacers and hardware used to secure the Spinner Plate Assembly are supplied with the propeller. See Figures 3 and 4.

NOTE: The alternator belt must be installed prior to installing the propeller.

Step 6: Install the propeller on the engine according to the propeller manufacturer instructions.

Step 7: Use a straight edge to check the Spinner Plate Assembly for flatness.

Remove any dishing by grasping both sides of the spinner plate and pushing aft. Adjust at multiple clocking positions until the web of the spinner plate is relatively flat and the distance between the spinner plate and the starter ring gear are equal within .040 in. [1 mm] around the perimeter. See Figure 3.

Step 8: Secure the S-603 Front Spinner Bulkhead to the propeller hub using the standard procedures and hardware. See Figure 4.

Do not safety wire the bolts until after drilling nutplate attach holes and installation of the nutplates on the front spinner bulkhead and spinner plate.

The four bolts used to secure the front spinner bulkhead must be safety wired when they are permanently installed.

LOCKNUT

4 PLACES

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#### FIGURE 3: CHECKING AFT SPINNER PLATE DISTANCE



Step 1: Use a fine tooth hacksaw blade to cut slots along the straight portion of the S-601-1 Spinner cutouts as shown in Figure 1. Position the cuts along the inside edge of the marked line.

Step 2: Drill a series of #30 holes around the curved perimeter of the spinner cutouts as shown in Figure 1.

Nip between the holes to remove blade cutouts as show in Figure 2.

Save the removed cutout pieces.

Step 3: Sand to remove the remaining material up to the trim lines in the spinner blade cutout openings.

Step 4: Apply a protective layer of tape to the shank area of the propeller blades to prevent scratching by the fiberglass spinner.

Step 5: Temporarily fit the spinner on the S-603 Front Spinner Bulkhead and Spinner Plate Assembly. Seat the spinner firmly on the propeller hub and check that it is in contact with the spinner plate as shown in Figure 3.

Use a pen to mark the contact area of the front spinner bulkhead on the outside of the spinner. See Figure 3.

Step 6: Remove the spinner and lightly sand the interior of the spinner with coarse grit sandpaper where shown in Figure 3. Sand just enough to remove the high spots of the fiberglass cloth weave texture.

Step 7: Brush a light coat of epoxy resin on the sanded areas on the inside the surface of the spinner.

S-601-1 SAVE CUTOUT

FIGURE 1: CUT AND DRILL SPINNER



FIGURE 2: REMOVE CUTOUT SECTIONS



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Step 4: Remove the spinner. Mark the front spinner bulkhead, the Spinner Plate Assembly, the propeller hub, and the inside of the spinner to make it easy to re-index all of the parts later.

Step 1: Fit the S-601-1 Spinner in place and position it so there is equal gap at the leading and trailing edges of the prop blades (relative to rotation). Clamp in place.

NOTE: If the engine has been "pickled" for long term storage, turning the prop will compromise the long term corrosion protection.

Step 2: Remove the top spark plug from each cylinder to make it easy to rotate the propeller while drilling.

Drill #30 holes in the spinner and the flange of the Spinner Plate Assembly where the previously marked flange centerline intersects with the screw location marks around the aft edge of the spinner. Begin drilling mid way between the blades. Alternate sides, working towards the blades to assure the spinner does not pucker. See Figure 1.

Step 3: Drill #30 holes in the spinner using the holes pre-punched in the S-603 Front Spinner Bulkhead (visible through the spinner) to determine location.



FIGURE 1: SPINNER PLACEMENT



FIGURE 2: ALIGNMENT MARKS

<u>Step 1:</u> Cut out the S-606A paper template supplied at the end of this section.

Align the template as shown in Figure 1 and tape to hold it in place on one of the spinner cutout pieces.

Mark the template profile on the spinner cutout with a pen.

Remove the template and repeat the process on the other spinner cutout.



#### FIGURE 1: SPINNER CUTOUT AND TEMPLATE

Step 3: Cleco the S-601-1 Spinner in place.

Clamp the gap fillers in position, centered in the cutout opening as shown in Figure 3.

<u>Step 4:</u> Drill #40 the locations shown in Figure 3 the gap fillers into the Spinner Plate Assembly. This will require an angle-drill for some holes because of the close proximity of the prop blades.

<u>Step 2:</u> Trim the spinner cutout pieces to the trim line traced in Step 1. The remaining parts are now S-606A Gap Fillers.

Mark the rivet spacing on the gap fillers as shown in Figure 2.







## FIGURE 3: DRILLING GAP FILLER

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<u>Step 1:</u> Fabricate two S-606C backing plates from the provided AS3-063X3X3 aluminum sheet. See Figure 1.

Mark three lines to divide the plates into four sections. See Figure 1.



## FIGURE 1: BACKER PLATE

Step 2: Make a slight bend at each line on the backing plate using a bench vice and a hammer as shown in Figure 2. Start with the center bend. Curve the plate so it fits inside the radius on the inside surface of the S-606A Gap Fillers as shown in Figure 3.



FIGURE 2: FORMING THE BACKER PLATE



FIGURE 3: BACKER PLATE CURVATURE

<u>Step 3:</u> Mark the hole locations and screw locating line on the S-606C Backing Plates as shown in Figure 4.

<u>Step 4:</u> Remove the hatched area from the backing plates. See Figure 4.

<u>Step 5:</u> Clamp the trimmed backing plates to the S-606A Gap Fillers as shown in Figure 5.

Drill #40 the holes indicated in Figure 5.

Step 6: Machine countersink all #40 holes in the gap fillers.

Break the edges and finish sand the gap fillers.

<u>Step 7:</u> Rivet the backing plates to the gap fillers using the hardware called out in Figure 5.

Step 8: Cleco the gap fillers to the S-602-1 Spinner Plate.



Step 1: Drill #40 a pilot hole where the screw locating line marked on Page 44-06 Step 3 and the line on the S-601-1 Spinner intersect into the spinner and S-606C Backing Plate. Support the backing plate against the pressure of the drill bit while drilling.

Final Drill #19 the screw attach holes. See Figure 3.

Step 2: Remove the S-606A Gap Fillers.

Fit the nutplates called out in Figure 3 to the backing plates and match-drill #40 the rivet attachment holes using the nutplate as a drill template.

Machine countersink and rivet the nutplates to the gap fillers with the rivets called out in Figure 3.

Step 3: Remove the S-601-1 Spinner and S-603 Front Spinner Bulkhead.

Step 4: Fit the nutplates called out in Figure 1 to the S-603 Front Spinner Bulkhead and to the Spinner Plate Assembly, then match-drill #40 the rivet attachment holes using the nutplates as drill templates.

Machine countersink and rivet the nutplates to the bulkhead and plate assembly with the rivets called out in Figure 1.

Step 5: Reinstall the front spinner bulkhead on the propeller (reference the indexing marks made previously), then torque according to the propeller manufacturers instructions. Safety wire the attach bolts.

Steo 6: Cleco the gap fillers to the Spinner Plate Assembly. Rotate the prop blades so that the blades are at the maximum pitch stop. This can be done using a pair of boards clamped together approximately 10 in. [254.0 mm] from the tip of one blade. See Figure 2.

Check for interference between the blade shanks, and the spinner and gap fillers. Mark for any additional trimming required to provide an approx. 1/8 in. [3.2 mm] gap as shown in Figure 3.

Step 7: Rivet the gap fillers to the Spinner Plate Assembly as shown in Figure 4. Loosen the nuts that attach the rear bulkhead to the propeller hub as needed to improve riveting access.

Re-torque the nuts to the propeller manufacturer specifications when completed.

Step 8: Install the spinner with the hardware called out in Figure 1.

Sand the aft edge of the spinner and gap fillers flush with the aft edge of the Spinner Plate Assembly as shown in Figure 3.



FIGURE 2: ROTATING THE PROP BLADES

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