Section 14
Fan Drive, Water Pump and Alternator

Procedures covered in this section:
Install fan drive countershaft, water pump, and alternator.

Cards used in this section:

HARDWARE CARD	E31 CARD 1F	E42 CARD 1F
E29 CARD 1F	E35 CARD 1F	

Prints used in this section:

E31-2000	E35-2001

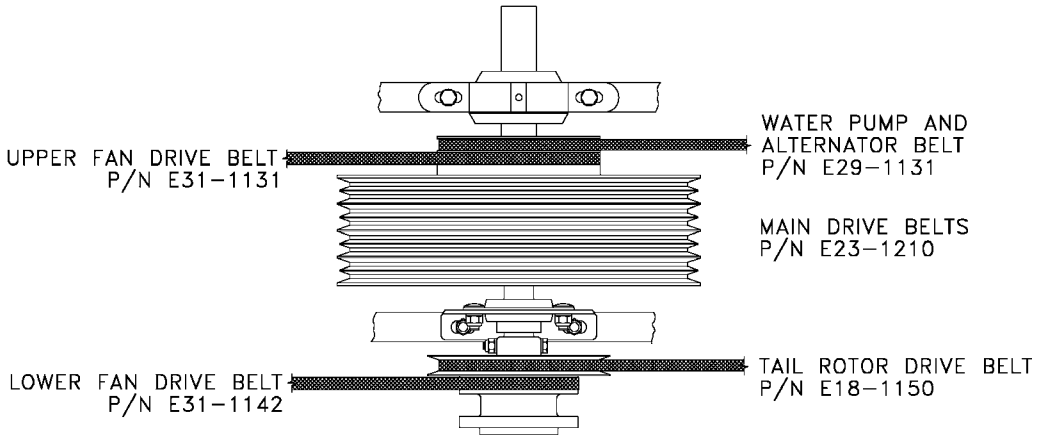
Templates used in this section:
None

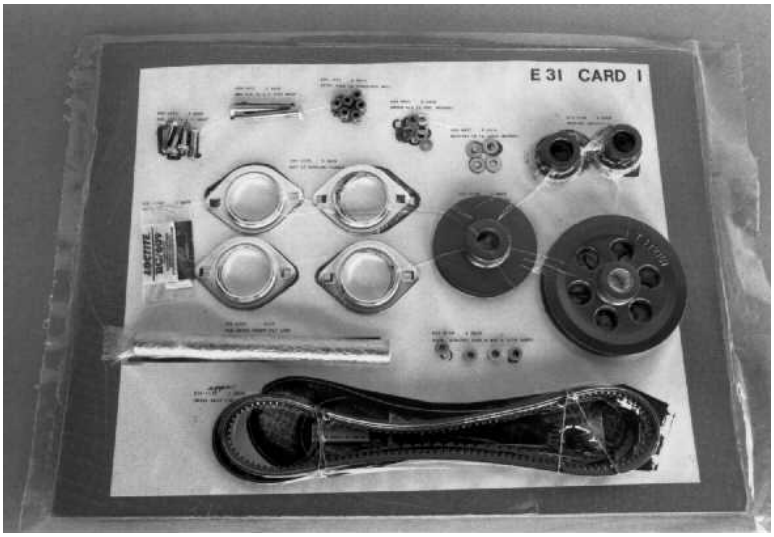
Tools required for this section:

Air or electric drill	Drift punch	Straight edge
Allen wrench	Hammer	
Band saw or hacksaw	Screwdriver	

Drill bits of the following sizes: 3/16", 1/4", 5/16", Letter “D”
Ratchet with sockets of the following sizes: 3/8", 7/16", 1/2"
Wrenches of the following sizes: 3/8", 7/16", 1/2"

Notes:
1. DRIVE BELTS: The drawing below shows placement of the different drive belts on the secondary assembly.





FAN DRIVE COUNTERSHAFT

Photo #1

Use print E31-2000 when installing the fan drive countershaft assembly.
Parts as received from RotorWay International.

Photo #2

Place the pulleys and bearings on the shaft. The lower (large) pulley should be even with the end of the shaft. Space the pulleys apart to match the corresponding pulleys on the secondary unit.

Photo #3

Using a letter “D” drill bit, drill the holes for the bolts that hold the pulleys to the shaft. Then install the bolts. This must be a tight fit.

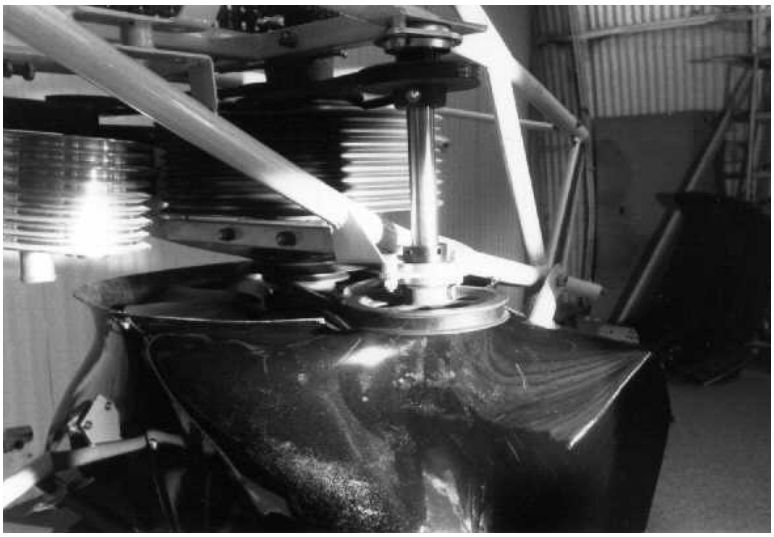


Photo #4

Mount the assembly on the airframe brackets and install the belts. Move the assembly up or down in the bearings for alignment. The lower bearing flanges may be placed above or below the airframe bracket as required. The aluminum spacers may be trimmed or not used if necessary.

Photo #5

On final assembly, Loctite both pulleys and bearings to the shaft. Set the lock rings with a hammer and punch.

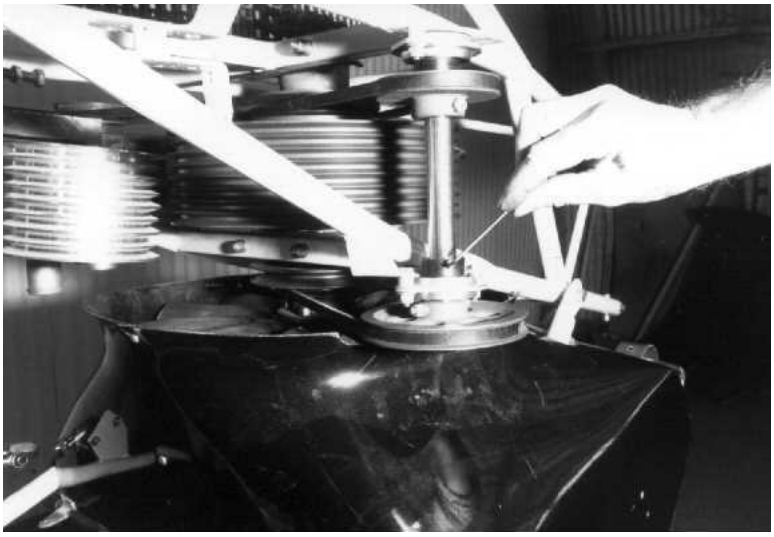
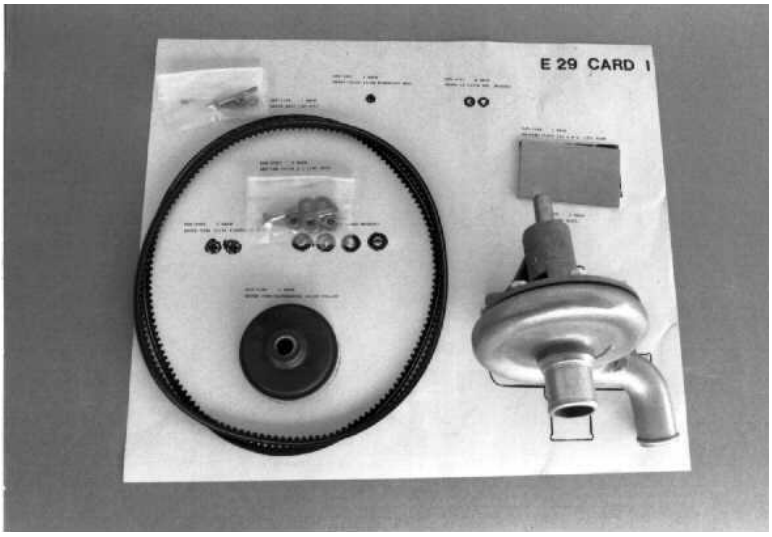


Photo #6

Tighten the set screws on both lock rings.

Photo #7

Another view of the assembled fan drive.



WATER PUMP

Photo #8

Use print E31-2000 when installing the water pump assembly.
Parts as received from RotorWay International.

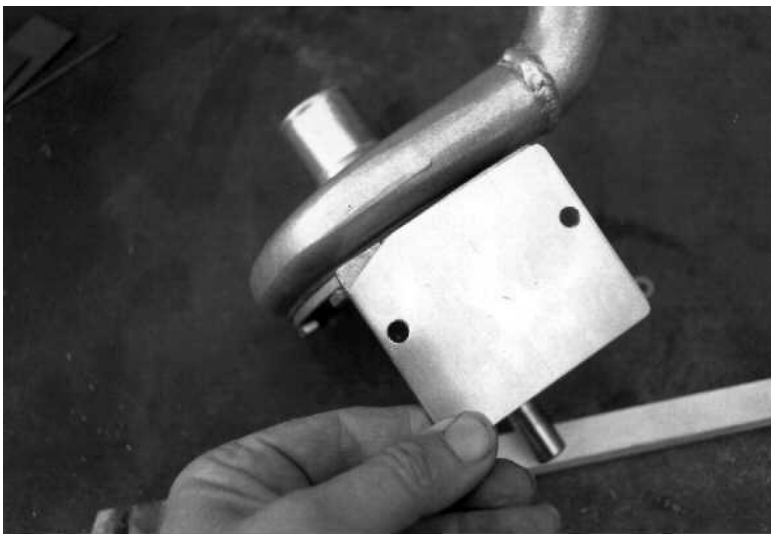


Photo #9

Lay out and drill the 5/16" holes in the backing plate. Cut off the corner if necessary to clear the airframe tube when the water pump is at the end of its travel.

Photo #10

Bolt the water pump on the airframe and position the pulley on the shaft for the correct belt alignment. This is a tight fit. Do not drive the pulley on shaft with a hammer as this will damage the seal.

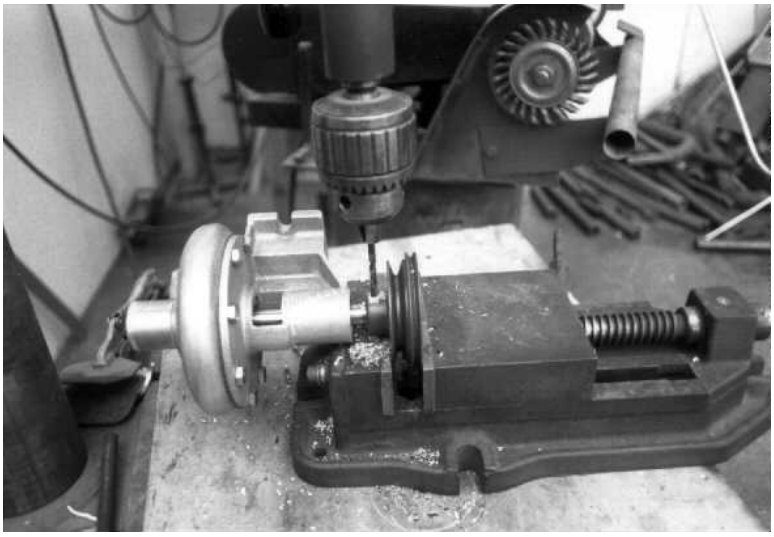


Photo #11

Remove the water pump and drill the 3/16" hole through the pulley and shaft. Install the bolt, nut and washers.

ALTERNATOR

Photo #12

Use print E31-2000 when installing the alternator assembly.
Parts as received from RotorWay International.

Photo #13

Mask the openings in the alternator to prevent metal chips from entering, then cut off the excess material on the scribe line.

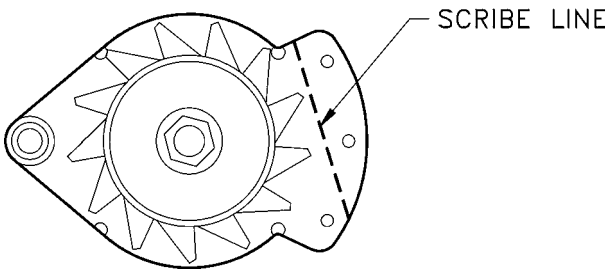


Photo #14

Referring to print E35-2001, connect the wires from the voltage regulator to the alternator. The appearance of the bottom of the alternator may vary, but in all instances the wires are to be attached as follows:

BLACK = NEG
RED = REG
GREEN = FLD

Cut the existing connector off of the yellow wire (at left) and install a 1-pin connector, supplied on E35 CARD 1F.
Note: Some alternators are supplied with the voltage regulator already mounted and wires already connected.

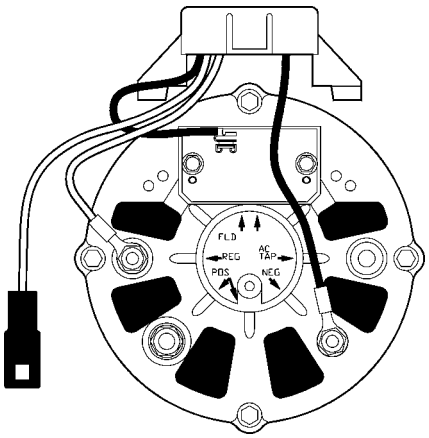
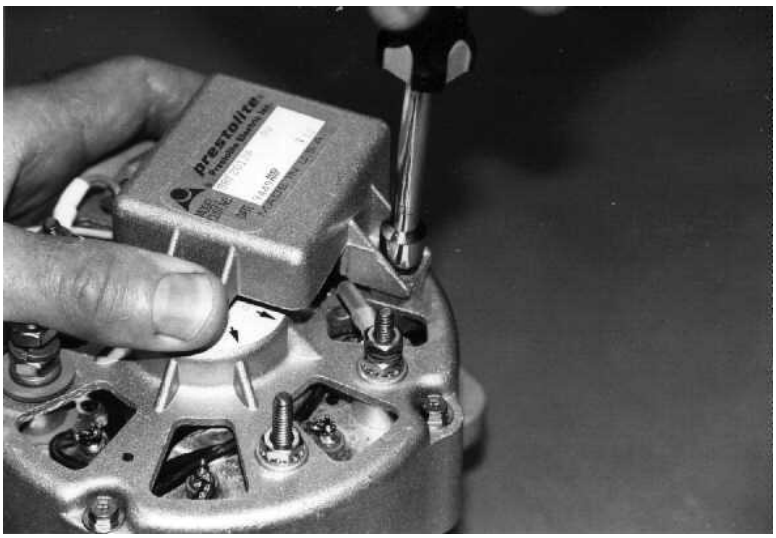


Photo #15

Mount the voltage regulator to the alternator using the self-tapping screws and lock washers provided. Note: These screws will cut their own threads as they are driven in. Make sure the screws thread straight into the holes.



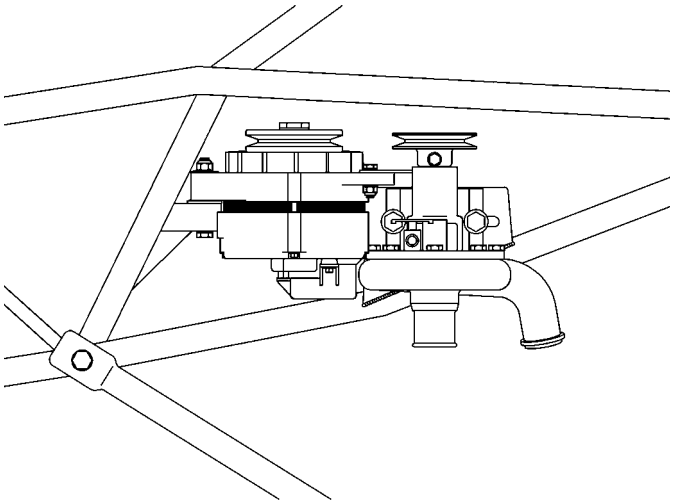


Photo #16

Mount the alternator on the airframe bracket. Place a straight edge across the pulleys to check alignment. Add washers between the bracket and alternator if necessary to achieve alignment. Install the bolt from the bottom.

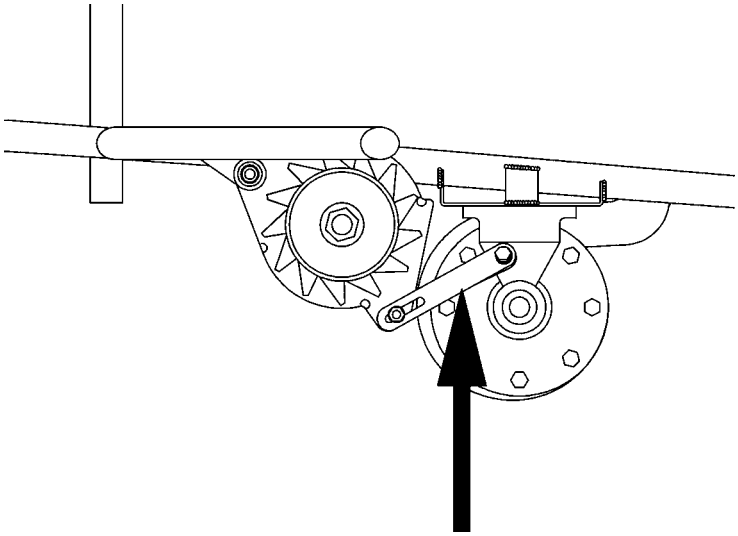


Photo #17

Fabricate the belt adjusting strap (indicated by arrow). Drill the body of the water pump in the approximate area shown and bolt the strap to the water pump and alternator. Install and tension the belt. It should be tight enough so that the alternator pulley is just able to be turned by hand. This will prevent excessive pressure on the water pump seal.

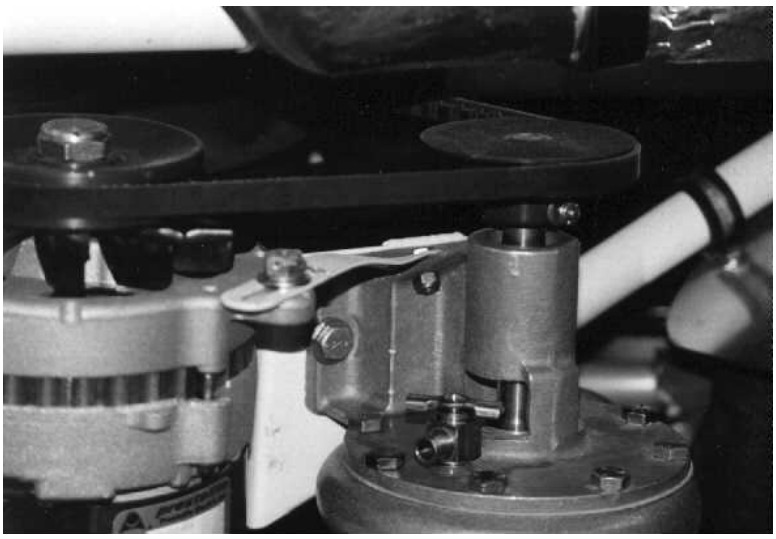


Photo #18

Another view of the water pump, alternator, and belt adjusting strap. Note location of the hole drilled in the water pump for the adjusting strap bolt.