Section 13
Tail Rotor Drive

Procedures covered in this section:
Apply temperature strips to pulleys; cut out and assemble idler pulley mounting scissors; install pulley assemblies, tail rotor control cable, and tail rotor belts; re-install tail boom (if removed); attach belt replacement label.

Cards used in this section:

HARDWARE CARD	E18 CARD 1F
E16 CARD 3F	E18 CARD 2F

Prints used in this section:

E09-2000	E17-2001
E17-2000	

Templates used in this section:
E18-1

Tools required for this section:

Band saw	Mallet	Snap ring pliers
Drift punch	Pliers	Tape measure
Hammer	Protractor level	

Ratchet with sockets of the following sizes: 3/8", 7/16", 1/2", 9/16", 11/16"
Wrenches of the following sizes: 3/8", 7/16", 1/2", 9/16", 11/16"

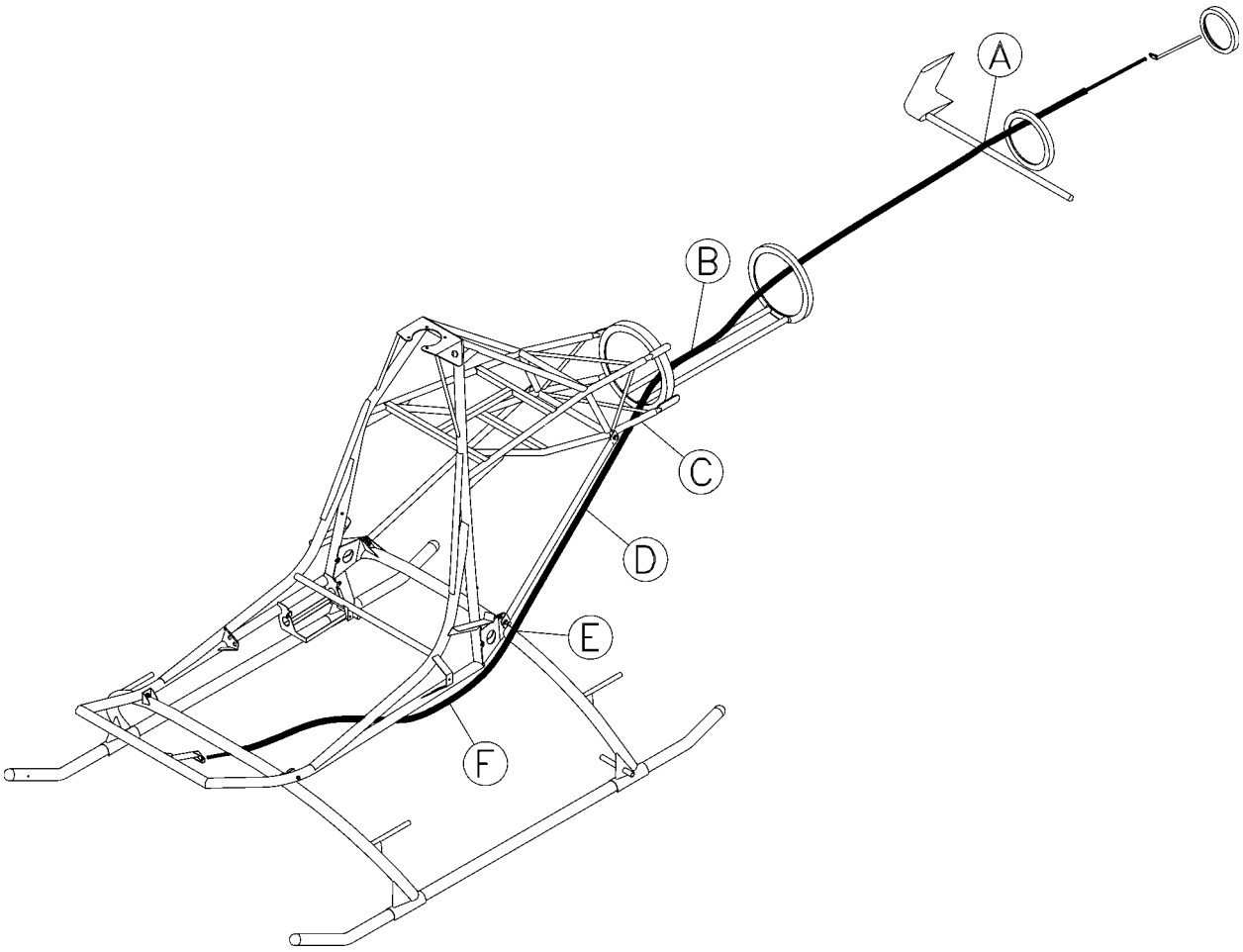
Notes:
1. IDLER PULLEYS: It may be easier to mount the idler pulleys and scissors while the tail boom is off of the airframe.

2. TAIL ROTOR BELTS: Belt length is normally marked on the belts in inches, but sometimes they are supplied with the length marked in millimeters instead. For example, the 118” belt is normally marked “1180”, occasionally it may be marked “3000”.

3. TAIL ROTOR CONTROL CABLE ROUTING: The drawing below shows an overall view of the installation of the tail rotor control cable.

   When routing the tail rotor cable, start at the tail end and work forward. This way you can pull the slack out of the tail boom end and leave it in the tub. Run the cable over the horizontal fin spar (A) and use plastic wire ties to attach it to the spar on the passenger side of the boom. Moving forward, attach the cable along the right of the ballast weight weldment (B).

   As the cable leaves the boom, route it under the cross brace and lower tailboom mount tube (C). This will reduce a tight radius area. Then run it along the outside of the tailboom support tube, pilot side (D), above the rear landing gear (E) and under the fuel tank (F). The cable will last longer if it is not tied in a tight radius anywhere along the cable path.



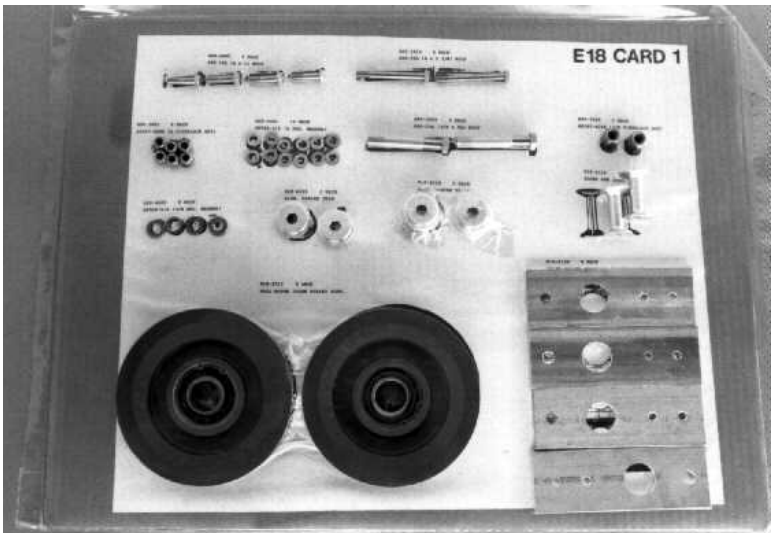


Photo #1

Use print E09-2000 and template E18-1 when constructing the tail rotor idler pulley assembly. Parts as received from RotorWay International.

Photo #2

Clean a small area of the tail rotor idler pulley with acetone and a clean cloth, then apply one temperature strip near the edge.

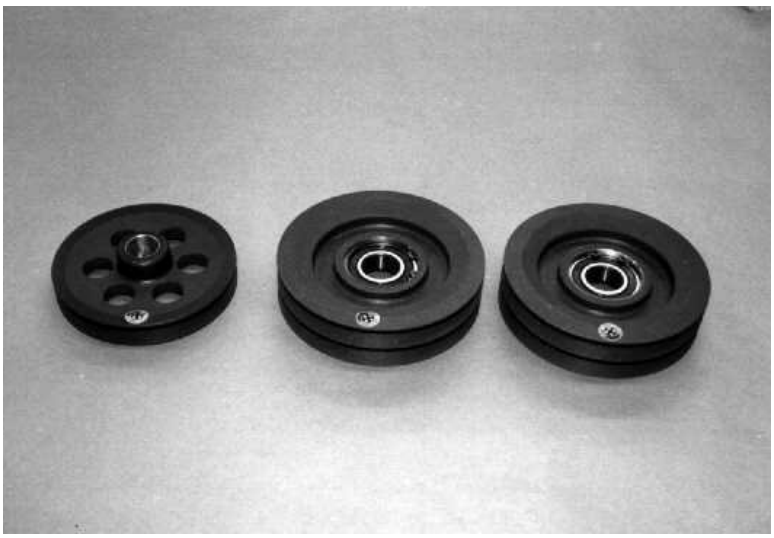


Photo #3

Apply a temp strip to the other idler pulley and to the drive pulley that is mounted on the tail rotor shaft. These strips are to be checked at every pre- and post-flight inspection to help monitor the condition of the tail rotor belts. Refer to the rigging section and the Flight Manual for further details.

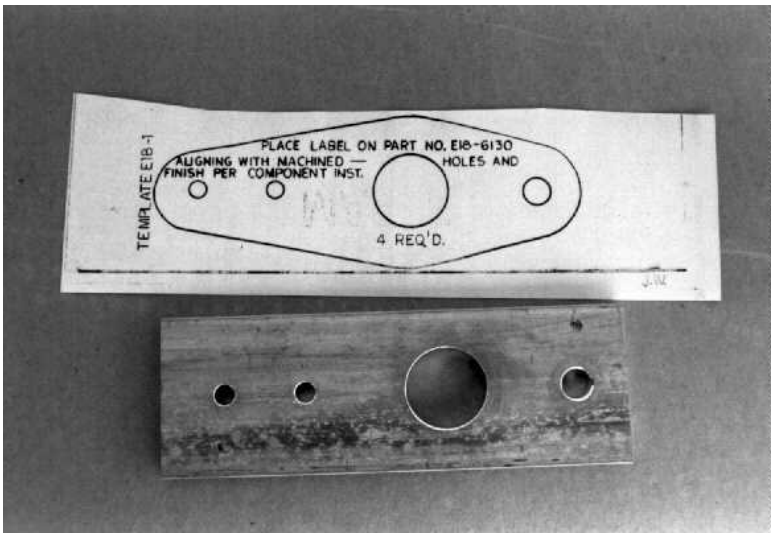


Photo #4

Using template E18-1, cut out the idler pulley mounting scissors.

Photo #5

Bolt two of the idler pulley mounting scissors together with the idler arm spool between them.

Photo #6

Install the spacers into each pulley bearing, then bolt the pulley assembly into the mounting scissors. Tighten both bolts.
Note: If the completed assembly is too wide to fit between the lugs on the bulkhead, remove material evenly from the spool and bearing spacers using a file or sandpaper. The assembly should fit between the lugs and be able to pivot freely throughout its full range of travel.

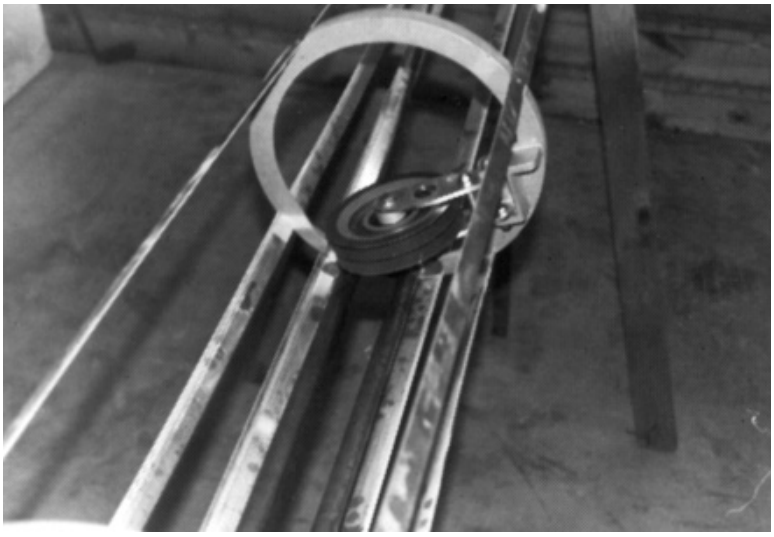
Photo #7

Apply grease to the outside of the scissors, inside of the bulkhead lugs, and both bolts. Install the pulley assemblies into the bulkheads. Tighten the bolts, then loosen them just enough to allow the scissors to pivot freely in the bulkheads. (When moved, gravity should cause it to swing freely in the bulkhead.) The pivot bolts used here are part number E00-2405 (found on E18 CARD 1F) along with washers, part number E00-4401. Fiberlock nuts, part number E00-3402, are used on these bolts because of limited accessibility.

Note: It is important to make sure that there is clearance around the ears of the scissors and the inside radius of the bulkhead to allow the assembly to pivot freely throughout its full range of travel.

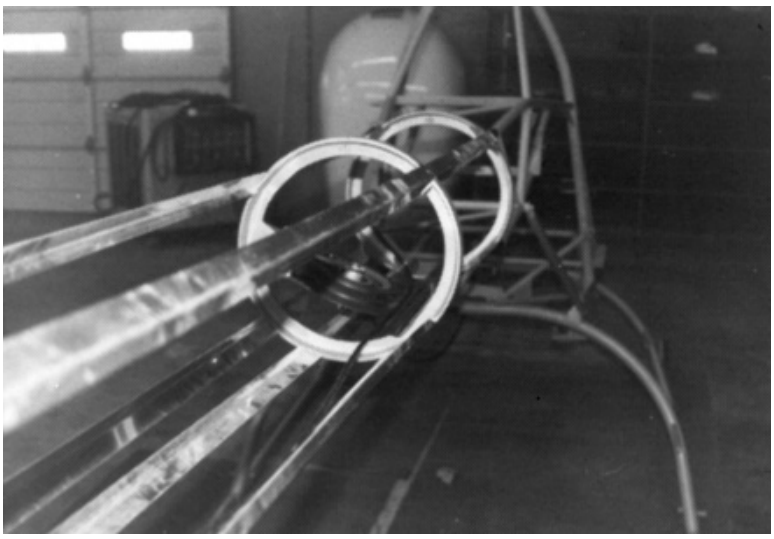
WARNING: IF THE PULLEY ASSEMBLY DOES NOT PIVOT FREELY, LOSS OF TAIL ROTOR DURING FLIGHT MAY RESULT, WHICH COULD CAUSE SERIOUS INJURY TO PILOT AND PASSENGER AND/OR DAMAGE TO THE AIRCRAFT.

Photo #8



A view of the idler pulley and scissors mounted in the bulkhead (with tail boom skin removed for clarity).

Photo #9



Install the tail rotor control cable in the mount tube weldment. Refer to page B of this section for details about how the cable is routed.

Note: The tail boom skin is not shown in these photos for clarity.

Photo #10

Refer to print E09-2000 for belt placement and install the belts. The horizontal trim fin spar must be removed on one side to allow the second belt to route properly, and the tail rotor assembly must be partially disassembled in order to install the last belt. Refer to Section 6 for tail rotor assembly, and see rigging procedures for belt tensioning.

Photo #11

After the belts are installed and tensioned, apply the “belt replacement label” to the upper tail rotor slider stringer on the pilot's side. This will be checked at every pre- and post-flight inspection to help monitor the condition of the belts. Refer to the rigging section and the Flight Manual for further details.