

SUBJECT:

Thermawing Kit Modifications Amendment 1

Introduction:

This service bulletin (SB-06-002 Amendment 1) is being issued to upgrade the current Thermawing installations to the latest revision level. All effected parts should be replaced with the latest revision level parts included with this service bulletin. The parts installed prior to this service bulletin being issued will not affect the aircrafts safety or performance. The revisions are being issued strictly to increase the systems reliability.

A Columbia 400 recently experienced a fracture of a starter adapter drive shaft shortly after installation of the Thermal Systems de-ice alternator drive kit. After evaluating the incident, it revealed that some aspects of the installation have been done incorrectly. This service bulletin instructs the service centers on proper installation techniques, inspection, and changes in torque values to match TCM's and eliminate any confusion.

As a precautionary measure, a roll pin will be installed in a new belt cutter. The roll pin will prevent the belt cutter from rotating and contacting the alternator fan blades.

Items being affected:

- DI-00079 Deice Controller
- AL-00047 Alternator Bracket
 - (Alternator mount bolt and shimming washers are included)
- AL-00028-A Alternator Drive Pulley
- NC71200-1 Alternator
- AL-00029-C pulley will be included on the Alternator assembly
- AL-00025 Belt cutter
- AL-00030-AF Roll Pin
- AL-00030-Q AN7-52A Pivot Bolt
- AL-00030-S MS21045-7 Pivot Bolt Nut
- TCM P/N 649924 Nut

Deice Controller is being replaced to incorporate the latest firmware package.

Alternator bracket has been redesigned to allow for more installation flexibility and better alternator pulley alignment. The bracket was also redesigned for easier and more accurate manufacturing of the part; this will improve the reliability and longevity of the part.

Alternator Drive Pulley was modified to improve belt wear and alignment. The new design also provides for more installation flexibility in pulley alignment.

Alternator is being upgraded to improve reliability and to incorporate the latest manufacturing techniques.

Roll pin is being inserted to prevent belt cutter from rotating. A new belt cutter will be issued to accommodate the roll pin.

Pivot bolt nut needs inspected for proper fit up, hardware installation sequence, and torqued properly.

TCM shaft nut P/N 649924 will be replaced with the same part but with a TCM specified torque value.

COMPLIANCE:

Upon Receipt of Bulletin

EFFECTIVITY:

41058, 41087, 42071, 41504, 41039, 41514, 41533, 41105, 41044, 41532, 41060, 42083, 41097, 41025, 41525, 41083, 42037, 41062, 41028, 41036, 41055, 41004, 41043 and all other Thermawing kits received before service Bulletin date. The remainder will be addressed by the next kit revision level and installation manual.

Inspection:

Inspect the alternator fan for any indication of damage resulting from contact of the belt cutter.

Measure the breakaway force on the engine drive pulley nut. If it is greater than 900 in-lbs contact Columbia and do not fly the aircraft.

Clean the starter adapter aft housing with solvent to remove any residual engine oil. Recowl and fly the airplane for 15 - 20 minutes and then inspect the aft shaft seal of the starter adapter and all areas around it for any indication of a leak from the rear seal. If any leaks beyond a minor seal seepage are found immediately contact Columbia and do not fly the airplane.

Fill in inspection data sheet located at the end of the Service Bulletin and return to Kelly Aerospace Thermal Systems.

PROCEDURE:

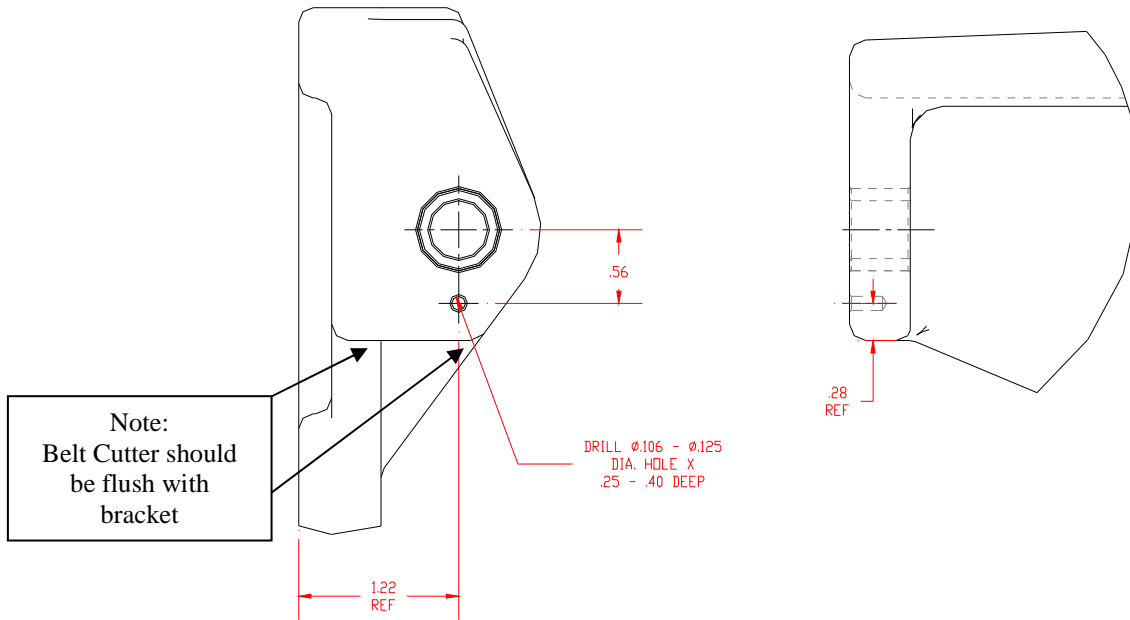
If complied with on previous revision the skip this paragraph. Current Drive pulley (section 8.1), Alternator Pulley(section 8.1), Rear Alternator Mount Bracket(section 8.1), controller(section 9.0), and alternator(section 8.2) per Installation Manual. For the latest installation manual visit www.airplanedeice.com

Remove the current drive pulley nut. Ensure the breakaway torque is under 900 in-lbs as previously state. Replace original nut with new issued nut and lubricate the threads with clean 50 weight engine oil and torque to 450-500 in-lbs. Refer to TCM SB M89-6 Dated March 10th 1989 for related procedures.

!!CAUTION!!

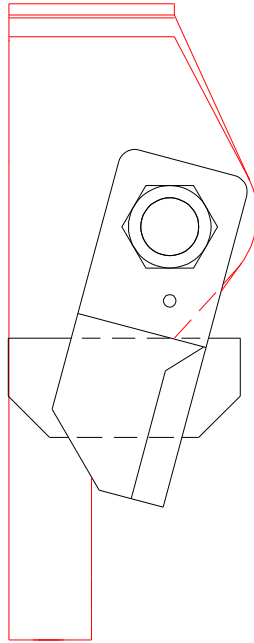
Do not over-torque the drive pulley nut

Along with the service bulletin, Kelly Aerospace has provided a hole transfer punch, roll pin, and a belt cutter (AL-00025). Push the belt cutter against the bracket and place the hole punch through the hole drilled on the belt cutter as seen in figure 1.



Red-Alternator Bracket

Black-Belt Cutter



NOTE-Position belt
cutter as shown.
Refer to drawing on
page 3.

Figure 1

Tap the hole punch with a hammer hard enough to leave an indentation
(See figure 2).



Figure 2

Using a size 40 drill, create a pilot hole where the indentation exists. Take a size .106 to .125 drill bit and create a hole .25" to .4" deep in the bracket where the indentation exists (see figure 3).



Figure 3

Take the belt cutter and place it on a hard surface. Place the roll pin on the hole in the belt cutter. Tap the roll pin into the hole so that it is flush with the other side of the belt cutter (See figure 4).

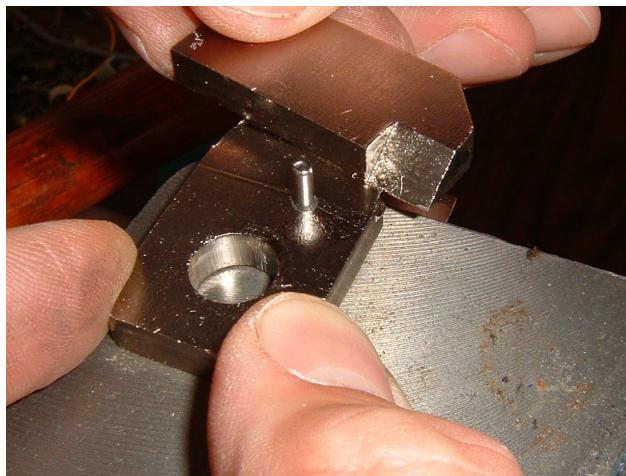
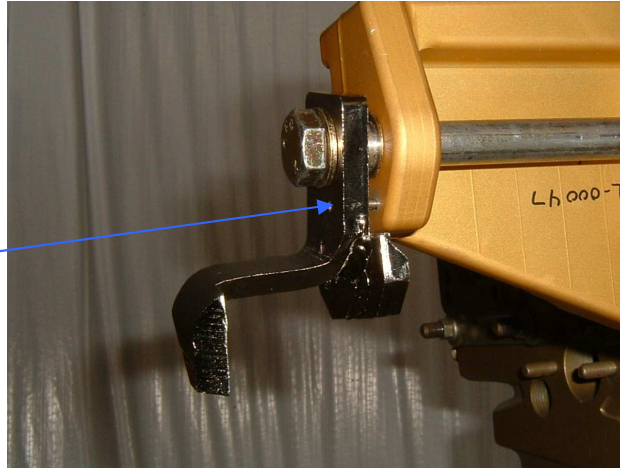


Figure 4

Place the roll pin attached to the belt cutter into the alternator bracket (see figure 5).



Notice the roll pin is flush with the surface of the belt cutter

Figure 5

Ensure that there is no washer between belt cutter and alternator bracket. Torque the nut AL-00030-S to 270-300 in-lbs dry. For the rest of the installation visit www.airplanedeice.com and download the latest revision to the Thermawing Installation Manual.

A new belt will stretch after initial installation; therefore it is required to readjust belt tension after 2-4 hours of flight time.

MATERIAL REQUIRED:

Thermawing installation tools and general shop tools

PARTS AVAILABILITY:

No additional parts are required

DISPOSITION OF INVENTORY:

All alternators, controllers, brackets should be returned to Kelly Aerospace unless the service center already complied with the previous revision of Service Bulletin. All belt cutters and Nuts (TCM P/N649924) that are replaced because of amendment 1, should be shipped back to the address below. An RMA will be issued for the aircraft that receives replacement parts. When the parts are received by Kelly Aerospace the account will be credited the full amount.

For any starter drive adapters that will be replaced contact Columbia Aircraft Manufacturers Parts and Warranty.

Kelly Aerospace Thermal Systems
1625 Lost Nation Road
Willoughby, OH 44094

CONTACT INFORMATION:

If you have any questions concerning the instructions in this service bulletin, please contact Kelly Aerospace Thermal Systems at 440-951-4744

To Contact Columbia Aircraft Manufacturing's parts and warranty see below.

Columbia Aircraft Manufacturing Inc.
Parts and Warranty Coordinator
PartsandWarranty@FlyColumbia.com
541.318.1144 Ext. 209
Direct: 541.330.4183
Toll Free: 1-877-390-5454
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