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Revisions

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1.0 Introduction

1.1 Purpose

The purpose of this document is to describe the belt tensioning procedures for the rear mount alternator NC71200-1 or ES-13070-1 on the Columbia 350 and Columbia 400 aircraft. See paragraph 2.3 for installation of the NC71200-1 or ES-13070-2 alternator on the Columbia 300.

1.2 Intended Audience

The intended audience of this document consists of Kelly personnel and mechanics tasked with checking belt tension and re-tensioning this belt.

2.0 Procedures

The belt tension must be checked every 25 hours of aircraft operation.

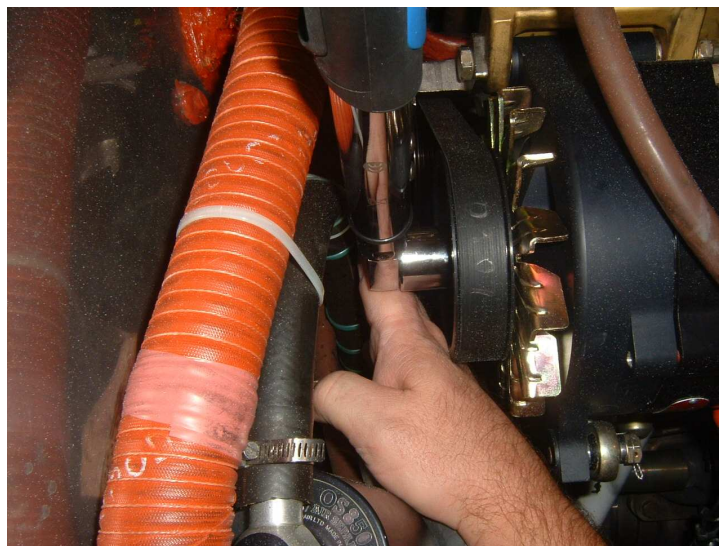


Figure 1 – Rear Mount Alternator Position

2.1 STEP 1 – Check current tension level

To check that the belt is properly tensioned a technique to measure the torque at which the belt slips is used. The torque required to cause the belt to slip is correlated to the tension in the belt itself which allows the proper belt tension to be set.

After removing the cowling the slip torque must first be checked. To do this a calibrated torque wrench is needed. Set the torque wrench to 300 in-lbs and place the socket on the nut that fastens the pulley to the alternator. Have another person hold the aircraft propeller to prevent it from rotating. The first person should then rotate the torque wrench in a clockwise or tightening motion on the alternator pulley nut. If the 300 in-lb torque limit is reached before the belt slips on either the alternator pulley or starter drive adaptor drive pulley then the tension is correct. If the belt slips before the torque wrench limit is reached then lower the torque setting on the torque wrench to 290 in-lbs and repeat the procedure. Continue lowering the torque wrench setting in 10 in-lb increments until a point is reached where the belt does not slip prior to the torque wrench reaching its set limit. Record what the initial slip torque was in the logbook entry.

If the 290-300 in-lb limit was reached prior to the belt slipping then the belt tension is acceptable and does not need to be re-set. Check the rest of the alternator mounting points for proper security and inspect for the rest of the alternator drive system. Examine the lower alternator mounting bracket for cracks. Examine belt for excessive wear or oil contamination. Replace belt if required. Proceed to Step 2 if the slip torque was below 300 in-lbs.

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2.2 STEP 2 – Belt Re-Tensioning

If the slip torque was below 290 in-lbs then the belt tension must be reset. To re-set the tension, loosen the stop nuts on either end of the turnbuckle. Rotate the barrel of the turnbuckle to increase the tension that is being placed on the belt. It will not take much to increase the tension to the proper levels. A half a turn or less may be sufficient. Once the initial half turn is done re-check the slip torque using the procedure described in Step 1. The slip torque must fall between 290 – 300 in-lbs. Continue to rotate the barrel of the turnbuckle to increase the belt tension until this slip torque setting is reached. Avoid raising the slip torque above 300 in-lbs.

Once 290 – 300 in-lbs is reached on the slip torque, tighten the stop nuts on the turnbuckle to prevent the barrel from rotating further. Check the slip torque one more time to ensure that the barrel was not accidentally rotated during tightening of the stop nuts. If the slip torque passes this final check then apply a drop of torque paint to each stop nut to turnbuckle connection, finish inspecting the engine compartment and re-attach the cowl. Note in the logbook what the initial and final slip torque settings were and the Hobbs time at which the tension was reset.

If there are any questions please call Kelly Aerospace Thermal Systems at 440-951-4744 and ask for a Technician who can discuss belt tensioning procedures with you.

2.3 Columbia 300 Procedures

The procedures for checking the tension on the belt are nearly identical to that of the Columbia 350 and 400. The exception is that the alternator is located on the left front side of the engine. The torque wrench should be placed on the alternator nut. The nut should be rotated clockwise or in a tightening motion to check for belt slip. The slip torque values still apply. If the slip torque has dropped to 290 in-lbs it must be reset to a minimum value of 290-300 in-lbs. The max slip torque for this application is higher than that of the rear mount Columbia 350 & 400 application. The slip torque should be no more than 400 in-lbs.

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