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SERVICE INSTRUCTION

DATE: March 27, 2015

Service Instruction No. 1129C
(Supersedes Service Instruction No. 1129B
and Service Letter No. L160)
Engineering Aspects are
FAA Approved

SUBJECT: Methods of Checking DC Alternator and Generator Belt Tension

MODELS AFFECTED: All Lycoming direct drive engine models

TIME OF COMPLIANCE: During periodic maintenance inspection of the engine and at anytime the alternator or generator belt is installed.

REASON FOR REVISION: Revised instructions for clarity, added torque values for twin 3/8 in. (9.53 mm) belts to Table 1.

NOTICE: Incomplete review of all the information in this document can cause errors. Read the entire Service Instruction to make sure you have a complete understanding of the requirements.

If correctly installed, tensioned and checked periodically, the DC alternator or generator drive belt will give very satisfactory service. However, an incorrectly tensioned belt will wear rapidly and can slip and cause a decrease in electrical energy output.

1. When to complete a belt tension check.
 - A. Immediately after the belt is installed and then after 25 hours of operation after installation.
 - B. During each 100-hour maintenance inspection thereafter.
2. There are three methods to complete a check of the belt tension:
 - A. Torque Method (measure the torque required to slip the belt(s) at the small pulley as follows):
 - (1) Hold and secure the propeller to prevent rotation of the engine.
 - (2) Apply a torque indicating wrench to the nut that attaches the pulley to the alternator or generator and turn it clockwise.
 - (3) Record the torque value on the torque indicating wrench to slip the belt(s) at the small pulley.
 - (4) Adjust the belt tension as per the required torque values that correspond to a new or used belt identified in Table 1.

**Table 1
Required Torque (Belt Tension)**

Width of Belt		Condition of Belt	Torque at Pulley		Condition of Belt	Torque at Pulley	
inches	millimeters		ft.-lb	Nm		ft.-lb	Nm
3/8	9.53	New	11 to 13	15 to 18	Used*	7 to 9	10 to 12
Twin 3/8	Twin 9.53	New	22 to 26	30 to 36	Used*	14 to 18	20 to 24
1/2	12.7	New	13 to 15	18 to 29	Used*	9 to 11	12 to 15
----	11	New	22 to 24	30 to 33	Used*	15 to 17	20 to 13

* A belt is considered used if it has been installed on the engine and the engine has been operated.



ISSUED			REVISED			PAGE NO.	REVISION
MO	DAY	YEAR	MO	DAY	YEAR		
03	05	65	03	27	15	1 of 2	C

NOTICE: The higher tension specified for a new belt(s) is to compensate for the initial stretch that takes place as soon as it is operated. These higher tension values are not to be applied to belts that have been previously used. Although the specified torque values for DC alternators and generators are the same, the tension for alternator belts is to be slightly higher than the tension applied to the DC generator belts. Also, Chrysler alternators do not have a nut on the shaft and therefore cannot be checked by the torque method.

B. Deflection Method

- (1) Attach the hook of a small spring-scale to the belt at the approximate mid-point between the ring gear support and the alternator or generator.
- (2) Pull on the scale until a reading of 14 lb (6.4 kg), is shown for a new belt, 10 lb.(4.5 kg) for a used belt.
- (3) Measure the distance the belt has moved with the 10 or 14 lb. (4.5 to 6.4 kg) load applied.
- (4) The distance (deflection) is to be 5/16 in. (7.94 mm). If less than 5/16 in. (7.94 mm), the alternator belt tension is too tight.
- (5) Adjust the belt tension as required to get 5/16 in. (7.94 mm) distance (deflection).

C. Belt Tension Gage using Lycoming tool number ST-131 (Figure 1):

- (1) Extend the hook to its extreme position by depressing the handle.
- (2) Put the hook over the belt with the nose piece centered on the belt.

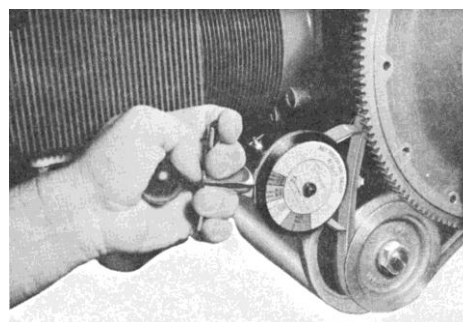


Figure 1
Belt Tension Gage - ST-131

NOTICE: In the next step, release the handle of the Belt Tension Gage quickly. If the handle is released slowly, internal friction will cause an inaccurate reading.

- (3) Quickly release the handle of the Belt Tension Gage and read the indicated belt tension on the dial (Figure 2).
- (4) Repeat steps 1, 2, and 3 several times to ensure an accurate reading.
- (5) Adjust the belt tension as necessary to get the appropriate reading on the Belt Tension Gage.



Figure 2
Belt Tension Gage Dial

ISSUED			REVISED			PAGE NO.	REVISION	S.I. 1129
MO	DAY	YEAR	MO	DAY	YEAR			
03	05	65	03	27	15	2 of 2	C	