

**RING-GEARS:** Lycoming engines use ring gears either with 122 or 149 teeth with the 122 being the most popular. This installation is optimized for the 122 tooth ring gear which is the gear that Lycoming chooses to use on all the O-235's and the larger O-540's and O-720's. The mid range power plants (O-320's and 360's) are equipped with 149 tooth ring gears and while the starter can be made to work with that ring-gear, we don't recommend it. The tooth contact pattern is not optimized and we believe that a detrimental wear pattern could eventually occur. We have been assured by mechanics in the field that all Lycoming ring gears are mutually interchangeable across the entire Lycoming piston engine line. If you have a 149 tooth ring gear, we suggest you consider swapping for the 122 tooth unit.

**TIME OF COMPLIANCE:** At any time starter or ring gear support is replaced.

There have been several reported instances of starter drive failure that were caused by installation of incorrect starters or starter ring gear supports. Failure of this type is the result of the mismatch that occurs between the starter drive gear and the ring gear.

There are two different drive gears employed in starters and starter ring gears on Lycoming aircraft engines: The first type is characterized by gears having a 10/12 diametral pitch\*, while the diametral pitch of the gear teeth in the second type is 12/14. Gears with 10/12 D. P. cannot be meshed with gears having 12/14 D. P. Consequently, a Lycoming starter with a 10/12 D. P. cannot be used on an engine having a ring gear support with 12/14 D. P. gear teeth.

The gear teeth on both the starter drive and the ring gear must be of the same diametral pitch.

In appearance, gear teeth on both starter drive and ring gears, are similar, therefore, it is necessary to

count the teeth on starter ring gears (figure 1) and measure shaft diameter on starter drives (figure 2) to distinguish components with different diametral pitch gears. The following chart lists the characteristics of both:

RING GEAR SUPPORT		STARTER DRIVE GEAR	
Diametral Pitch of Gears	No. of Teeth	No. of Teeth	Diameter "A"
10/12	122	9	9/16
12/14	149	9	13/32

The measurement of diameter A on the starter gear support shaft can be taken as a means of determining the diametral pitch of the gear. A pair of dividers, or a vernier caliper may be used for measuring.

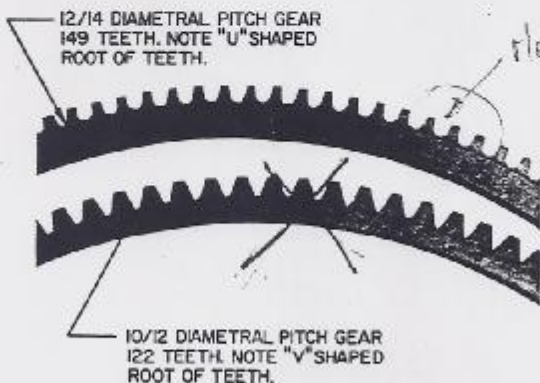


Figure 1. Segment of Starter Ring Gears Showing Difference in Gear Teeth

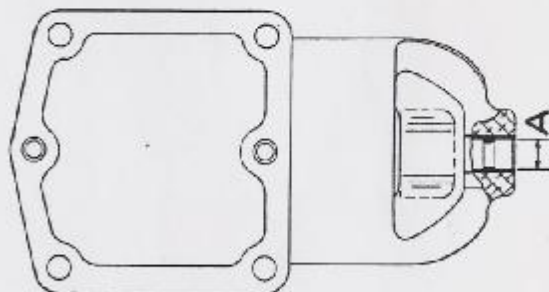


Figure 2. Bottom View of Starter Showing Section at End of Drive Shaft

\* - Diametral pitch (D. P.) pertains to the number of teeth per inch of diameter of the gear. In the system employed in this instance, the numerator indicates the pitch determining the number of teeth while the denominator indicates the pitch governing the height of the teeth.

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PRESTOLITE  
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occasio  
2000 F.V.7  
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10,32 mm  
14,3 mm  
13,3