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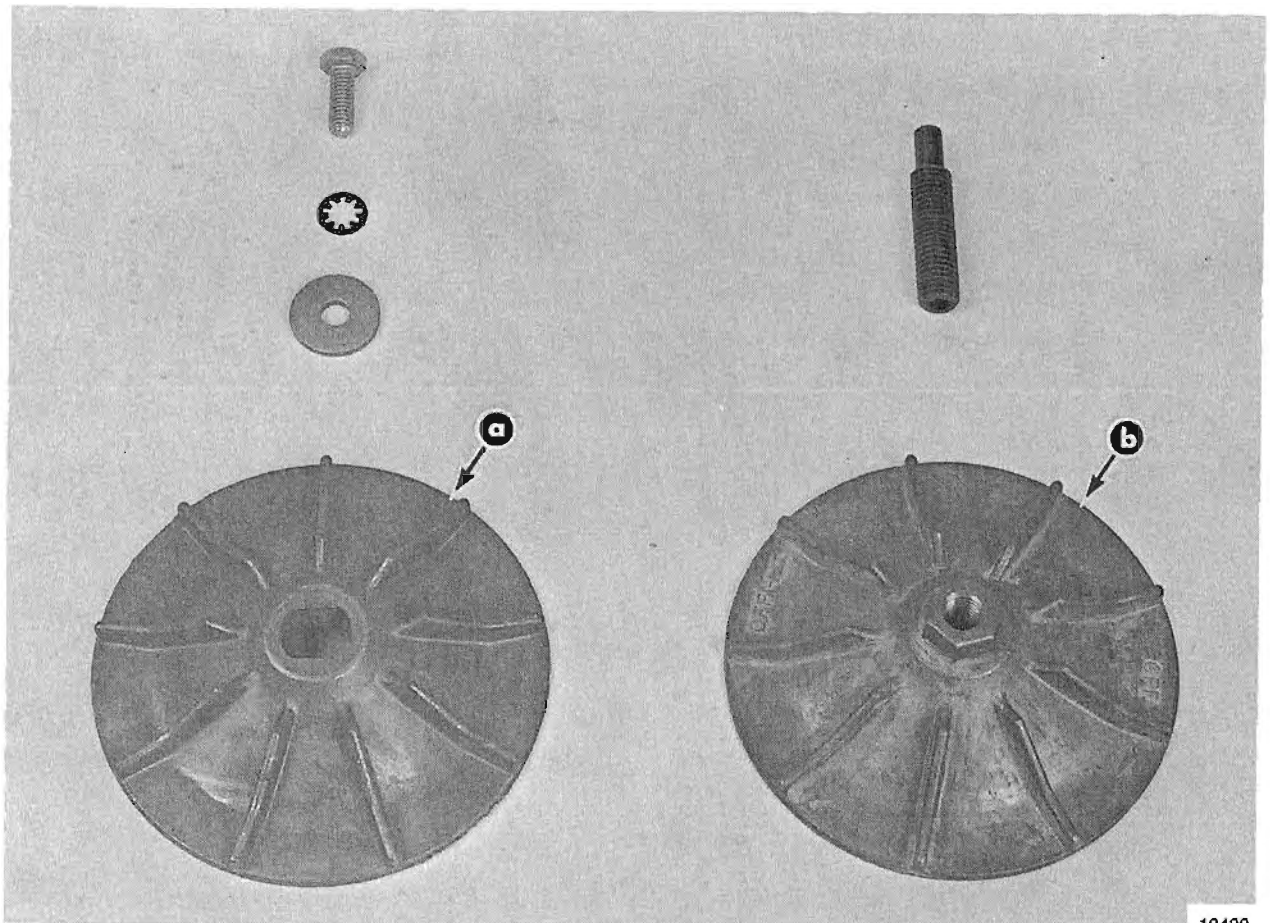
- A. New Design Camshaft and Recirculation Pump Impeller - 170/190 Alpha One Engines
- B. New Starter Motor Attaching Procedure - 170/190 Alpha One Engines
- C. New Design Pistons - 170/190 Alpha One Engines

CIRCULATE TO:  
SERVICE MANAGER   
PARTS MANAGER   
MECHANICS   
"Place in a Service Bulletin Binder"

**A. NEW DESIGN CAMSHAFT and RECIRCULATION PUMP IMPELLER - 170/190 Alpha One Engines**

Later production 170/190 Alpha One engines use a new camshaft (P/N 466-9410A1), recirculation pump impeller (P/N 47-12600A1), and stud (P/N 16-12601). The camshaft has a 1/2" x 13 L.H. threaded hole in the water pump end. The impeller is also tapped 1/2" x 13 L.H. When installing these components a small amount of type "35" loctite should be applied to the threads in camshaft. Install stud in camshaft and torque to 15 lbs. ft. (20 N.m). Thread impeller onto stud and torque impeller to 15 lbs. ft. (20 N.m).

**IMPORTANT: DO NOT apply loctite to impeller threads.**



19420

a - Old Style  
b - New Style

**Figure 1**

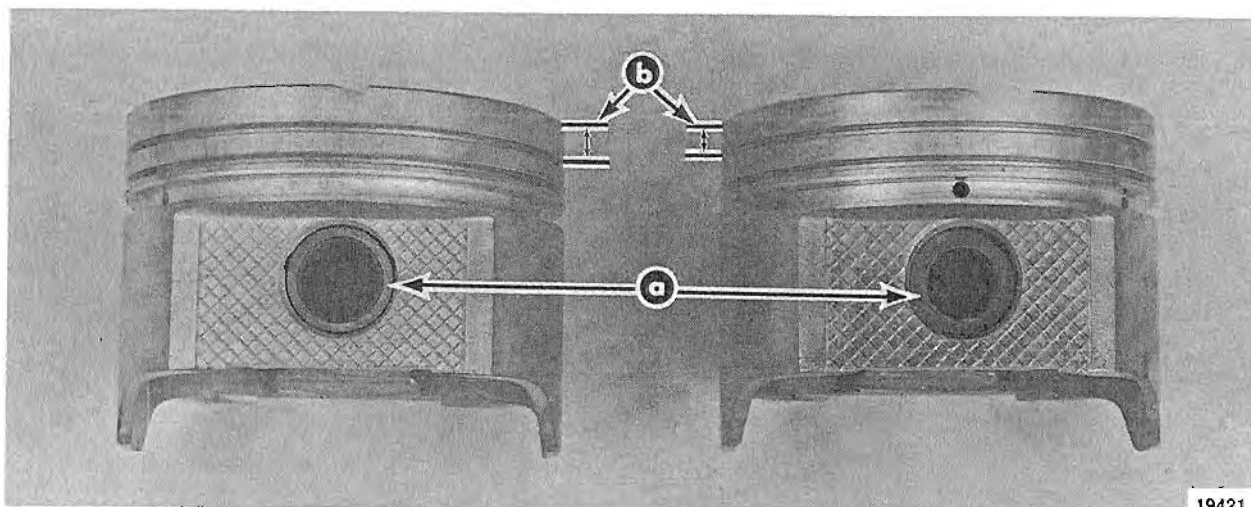
## B. NEW STARTER MOTOR ATTACHING PROCEDURE - 170/190 Alpha One Engines

The studs (that were previously used on the 470 thru 488 models to mount the starter motor) have been replaced with bolts (P/N 10-48130), nuts (P/N 11-99405), and washers (P/N 12-25909). The bolts and washers are installed from the flywheel housing side of the engine and the nuts are installed against the starter motor. The new attaching procedure makes removal and replacement much easier. Torque nuts and bolts to 60 lbs. ft. (81 N.m).

## C. NEW DESIGN PISTONS - 170/190 Alpha One Engines

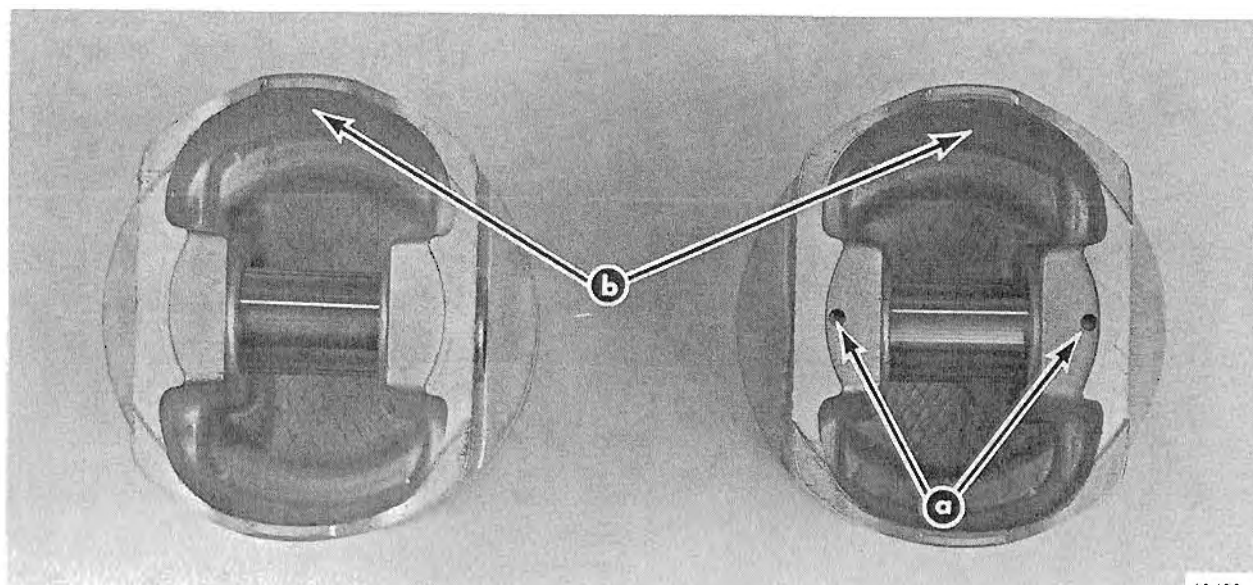
The pistons previously used in 170 engines have been redesigned for more durability. The new piston will now be installed in the 170 and 190 Alpha One engines and will be used as a Quicksilver replacement part for both engines. Figures 2 and 3 show how to identify the new piston from the old piston. The new piston can be intermixed with the original pistons on both the 170 and 190.

**IMPORTANT: The old style piston must not be used in 190MR engines.**



a - Thicker Piston Pin in New Piston  
b - Old Style 3/8" - New Style 5/16"

**Figure 2**



a - Oil Holes in New Piston  
b - Piston Part No.  
Old No. 778-9015  
New No. 778-9441

**Figure 3**