McCULLOCH

SERVICE BULLETIN # 1104

SUBJECT **REMOVAL OF STARTER RATCHET**

MODEL **1-41, 1-51** DATE **9/9/60**

For easier removal of the Starter Ratchet, P/N 57072, when replacing either the Starter Ratchet or the Starter Rewind Spring, P/N 51665, on Model 1-41 and 1-51 engines, follow this procedure.

1. Remove the fan housing (with starter assembly attached) from the engine.
2. Remove the starter assembly from the fan housing and remove the starter cover from the starter assembly. Unwind the starter rope but do not remove the rope from the drum hub.
3. Carefully drill two 0.1990-inch diameter holes (No. 8 drill) through the starter base and into and through the starter drum at the location shown in Figure 1.

NOTE

Drill slowly and cautiously to prevent damaging the starter base and the starter spring.

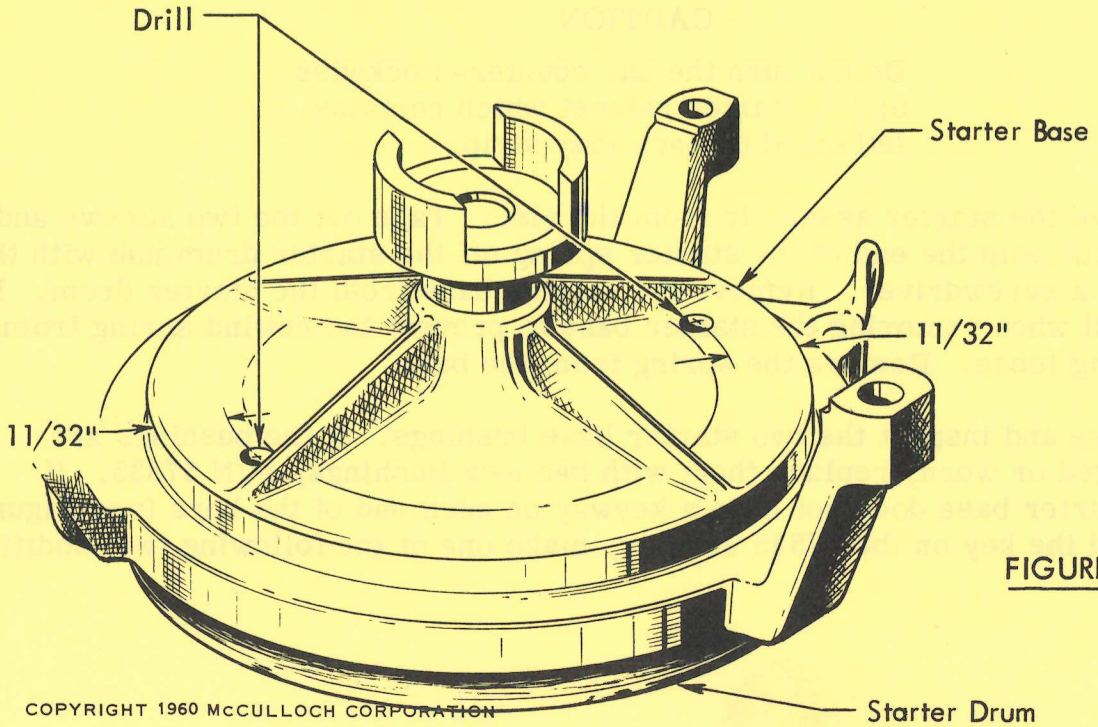


FIGURE 1

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4. Insert two 10-24 x 2-inch long screws through the drilled holes to lock the starter drum to the starter base. Put the starter assembly on a bench vise with the threads of the two screws in the jaws of the vise (see Figure 2). Tighten the vise securely.

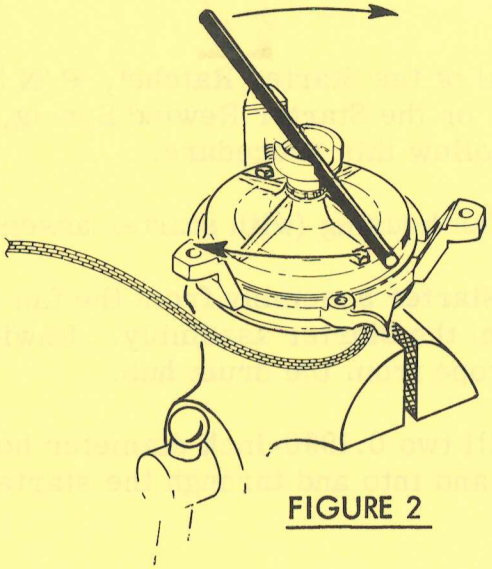


FIGURE 2

5. Place a small bar between the two teeth of the starter ratchet and pull the bar around clockwise to break the starter ratchet loose (see Figure 2). Remove the starter ratchet from the drum shaft.

CAUTION

Do not turn the bar counter-clockwise or the starter ratchet which contains left-hand threads may strip.

6. Remove the starter assembly from the vise. Take out the two screws and carefully slip the end of the starter spring off the starter drum hub with the end of a screwdriver. Remove the starter base from the starter drum. Be careful when removing the starter base to prevent the rewind spring from jumping loose. Remove the spring from the base.

7. Remove and inspect the two starter base bushings. If the bushings are damaged or worn, replace them with two new Bushings, P/N 57535. If the starter base does not have a keyway on each end of the bore (see Figure 3) to hold the key on the 57535 bushing, make one of the following two modifications:

a. Using a small hacksaw and a flat file, notch a keyway wide and deep enough to take the key on the bushing, on each end of the starter base bore (Figure 3). This is the recommended method because the keyways prevent the bushings from turning and reduce bushing wear.

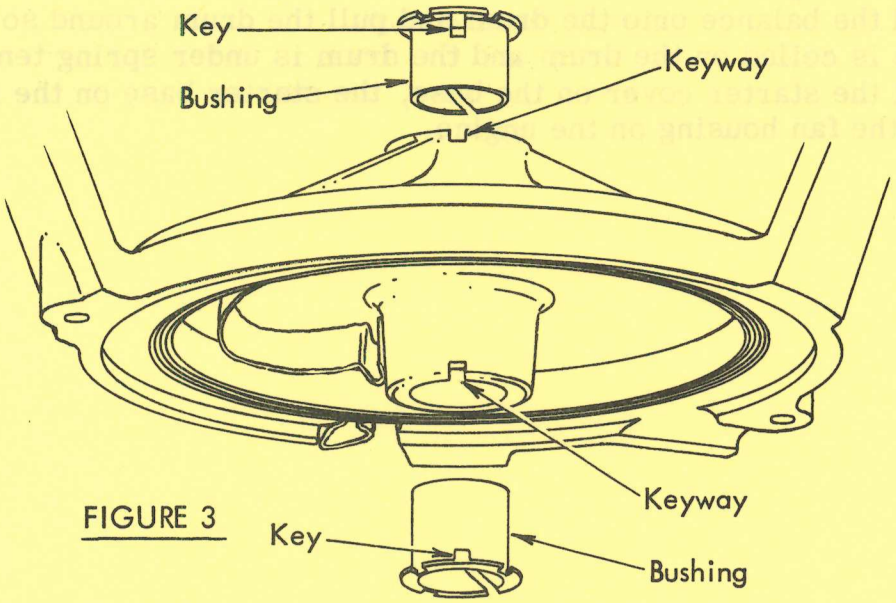


FIGURE 3

b. Alternate method. Using a sharp razor blade or knife, carefully remove the key on the bushing as shown in Figure 4.

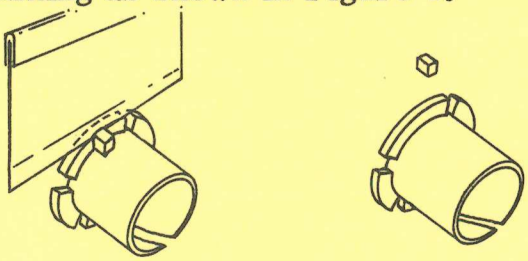


FIGURE 4

8. Clean all the starter assembly parts, file off any sharp edges and blow low pressure air through the passages to remove any metal filings left from drilling the two locking screw holes and filing the keyways.

9. Install the rewind spring using the following method:

   a. Unfasten the two clips holding the new spring and release the spring in a box or other protective container allowing it to unwind harmlessly.

   b. Slip the spring eyelet at the end of the spring into the hole provided in the rim of the starter base.

   c. Hand-wind the starter spring in a counter-clockwise direction inside the starter base.

10. Slide the starter drum shaft into the starter base with the free end of the spring fitting into the spring slot of the drum. Install the starter ratchet on the starter drum shaft by turning it counter-clockwise. Rewind the starter rope on the drum. If the rope hangs loose after being rewound, wind the balance onto the drum and pull the drum around so that all the rope is coiled on the drum and the drum is under spring tension. Reinstall the starter cover on the base, the starter base on the fan housing and the fan housing on the engine.