

REMOVING AND REPLACING BALLBEARINGS

This is a job that is difficult for most boaters since there really aren't any tools available for the removal of ball bearings from model engines. But rejoice, installing the bearings is not as difficult.

First of all, why do bearings need to be replaced? Well, because they feel gritty because of:

- 1.) Debris;
- 2.) The races in the bearings may be worn allowing the crankshaft to rub against the sides of the front plate casting.
- 3.) They are rusty because they were not flushed clean and lubricated after a day of running.

(1) DEBRIS;

Debris can be deposited by a gust of wind, or perhaps small flakes are coming off the bearing balls, possibly because of overheating from lack of lubrication.

(2) WORN BEARING RACES;

Worn bearing races can be caused by the bearings being rusty, and not turning freely and allowing the crankshaft to spin inside the races. This scores either the crankshaft or bearing races causing the crankshaft to wobble and rub against the engine casting walls.

(3) RUSTY;

Unless the bearings are made of stainless steel (which in most cases are not), they will rust if water deposits are not flushed out, and are well lubricated. Some pond water is more corrosive due to droppings from the resident waterfowl, because it's brackish, or even salty. Flushing and lubricating the bearings is a definite must in this case to insure bearing longevity. However, this is no guarantee that the bearings will last forever, you will have to replace them eventually. Some boaters replace them every season just for security.

What ever the reason is for having to replace bearings, I hope to make it easier for you with this article.

REMOVING THE BEARINGS;

Obviously, you'll have to disassemble the engine, as well as push or tap the crankshaft out of the crankcase, or in the case of a two piece crankcase, out of the crankshaft housing.

NOTE: There are two types of crankcases.

1) THE ONE PIECE CRANKCASE:

The crankshaft housing (front plate) and main crankcase are one piece.

2) THE TWO PIECE CRANKCASE:

The front plate is removable. It houses the crankshaft and bearings.

First task is to remove the crankshaft.

Using a wooden, plastic, or rawhide mallet, sharply tap on the tip of the threaded end of the crankshaft and drive it out of the front plate.

After removing the crankshaft, you'll have to heat the front plate to extract the bearings. Heating the aluminum casting causes it to expand away from the steel bearings. It must be very hot. So hot that you will require gloves or a rag to hold the front plate securely.

The next task requires a wood block. I use a 3" length of 2X4 that I stand on end. You'll need the 3" spacing so that you won't hit the table with your wrist.

REAR BEARING:

After you have heated the one piece crankcase, place it flat on the block big bearing down. Hold the crankcase and block as one unit and tap it sharply against the top of a sturdy table in an attempt to dislodge the bearing from its socket. It may take two or three tries, so don't give up. Reheat and retry.

The same method applies to the two piece crankcase, except that you'll have to assemble the front plate back onto the crankcase, minus the crankshaft.

FRONT BEARING:

Removing the front bearing is easier. This task requires a 3/8 diameter wood, steel, or aluminum dowel, and the mallet.

Heat the casting as before. To drive out the bearing, insert the dowel into the crankshaft hole and tap it out.

REPLACING THE BEARINGS:

At this point, drill a 1/4" hole in your wood block at least 1 1/2" deep. The surface you drill into must be perfectly flat.

To insert the new bearings into the engines;

- 1) Assemble the large bearing onto the crankshaft with the bearing shields facing towards the threaded end.
- 2) Insert the crankshaft back into the crankcase and slip the smaller bearing onto the threaded end as far as it will go.
- 3) Insert the crankshaft into the 1/4" hole in the block and by inserting the dowel into the hole in the crankshaft, tap on the dowel to drive the bearings partially into their sockets.
- 4) Reheat the castings and repeat step (3), except this time tap harder in an effort to further seat the bearings in their sockets.
- 5) One last task. Assemble the flywheel back onto the front plate assembly and tighten the nut.

This should seat the bearings completely.

Don't forget to lube them.