

GRASS ROOTS

TECH BARN

with Jimmy Rivers

Leak No More

A leaking gasket can turn a good day at the racetrack into a nightmare in a hurry. Today, we are going to focus on the side cover gasket and the head gasket for the Animal engine. Preferably, this job should be done by the engine builder, but sometimes at the track this is not possible. Both of these require special attention and care to insure that we don't turn a small problem into a much bigger one. So, let's grab our tools and get started.

First, we want to focus on the side cover gasket. Before loosening any bolts, we want to first drain all the oil from the engine. This will help make sure we don't make a mess later. Then, take a can of spray brake or carb cleaner, and spray all the dirt away from the mating surfaces of the block and cover, the last thing we want is to get dirt into our engine. Once satisfied dirt isn't an issue, lay the engine on its side to remove the side cover

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Lay the gasket over the dowel pins on the block, and start the cover down onto the block. Sometimes it is necessary to assist the crankshaft through the seal with a small screwdriver. Be careful not to cut or tear the seal. Align the cover with the two dowel pins, tap gently to seat, and install the bolts. Tighten the



bolts. A couple of small 2x4's help to steady the engine and help it from falling over. Most engines require the use of a 10mm socket to remove the mounting bolts, and if you have tech bolts installed, an 11 mm socket may be necessary. Remove all the mounting bolts.

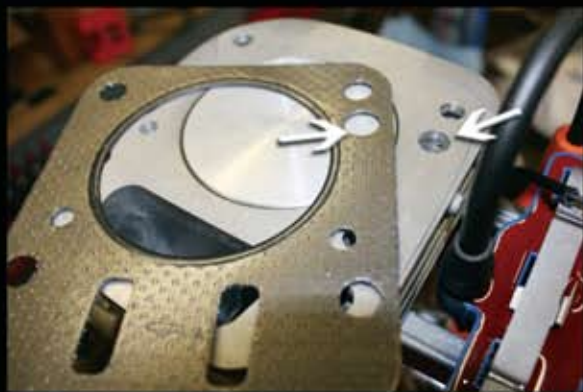
Once all the bolts are removed, GENTLY, GENTLY, GENTLY, tap the side cover up and away from the block. Work slowly and from each side to move the cover straight up. The bosses for the oil fill plugs are great places to tap on. Be very careful the camshaft and crank gear are staying in place, we don't want them to move. Once the cover is clear, we want to remove the old gasket and scrape the gasket surface to remove any material left behind. Use a razor blade and be careful not to let any material fall into the engine. Take a clean rag and clean both gasket surfaces and install the new gasket. (Briggs part number

bolts until contact is made, then torque to 110 in-lbs using a criss-cross pattern. Re-check torque to be sure. Add oil and mount back onto the kart, our side cover gasket replacement is complete.

Replacing a head gasket is a bit more complicated; however, with careful attention and patience, it can be fixed. Clean around the mounting surfaces at the valve cover and head, and the cylinder head to the block with brake or carb cleaner like we explained above. Now, remove the valve cover, nothing fancy here. Before going any further, remove the spark plug, and rotate the en-



gine until the piston is at the top with both valves closed. Use a feeler gauge and measure the valve lash. Write this measurement down. Typical range for lash is .001-.003 and varies by builder. This insures we maintain the valve lash as it was intended. Us-



ing a 5/8 wrench, remove each rocker arm adjuster, rocker arm, and pushrod individually. Place separately; we don't want to mix any of these parts. Using a 7 mm socket or nut driver, remove the cylinder shield. Take a 10 mm socket and remove the four head bolts, and gently lift the head off the cylinder. You will notice, we have not removed the header or carburetor. Using care, we can just place the head to the side, letting the kart body along with the cables and hoses, support the head. Remove the old gasket, and gently scrape the block and head surfaces to remove any left behind gasket material. Clean both surfaces thoroughly.

Upon observation of our new head gasket, (Briggs part number 555698) you will notice one side of the gasket has an

extra hole. This hole is to allow the crankcase to vent, and goes toward the pto, or clutch side of the engine. You will see this hole in the top of the block, just below the top head bolt hole. Place the gasket on the head, locating it on the dowel pins, and place onto the top of the block, and locate the dowels into the holes on top of the cylinder.

Replace the four head bolts and tighten to contact. Torque the head bolts to 150 in-lbs, using a cross pattern. Re-check torque again to verify. Drop in the exhaust pushrod, mount the exhaust rocker arm, and spin the adjuster for this side down finger tight. Make sure the pushrod is properly seated in the rocker arm and the lifer below. Repeat for the intake side. Making sure the piston is at the top and the pushrods down; we want to reset our valve lash. Using a combination of the 5/8 wrench, and a 1/8 allen wrench, tighten the adjuster until we reach the settings we recorded earlier. Securely tighten the lock screw in the middle of the adjuster with the allen wrench. Rotate the engine a few times and re-check the lash again. Replace the cylinder shield and the valve cover, and we are ready to hit the track again.

Hopefully this will help you get through the day at the track. Always consult the engine builder and make them aware of the problem, further repairs or adjustments may be necessary.



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