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Maintenance & Repair 101

In this month's segment of "Grassroots Tech Barn", we are going to cover two issues that although completely unrelated; both can create problems at the track. Just as with all previous articles, we will try and make this a simple step-by-step process to remedy the problem quickly and efficiently.

Last month, we covered starting issues and the diaphragm gasket is one of the items that can cause starting issues on the flathead Briggs engine. The diaphragm dries out over time due to the dry nature of the alcohol fuel we use, and this may lead to the pump side of the carburetor failing to function. Replacing the diaphragm regularly is also part of a good overall maintenance program.

The diaphragm gasket is located behind the cover plate on the exhaust header side of the engine. It is a very good idea to remove the header to access it easier. I have changed them before without removing the header, but the extra time and effort isn't worth it. If the engine is off the kart, gently lay the engine on its side. This will make it easier. It can be changed on the kart if necessary, just be aware of dropping parts. Four small slotted screws hold the cover in place. Carefully remove each, being careful not to allow the cover to fall off, and the internal parts come out. More often than not, it takes a slight bump to the cover to get the gasket to release. Gently bump the cover with your screwdriver handle to release it. Hold it in place and slowly remove the pieces. There are only four total parts involved, but the order is important. From the outside, we have the cover plate, then the diaphragm gasket, then the cup, and the spring is the last part. To re-assemble, place the spring with the cup on top into the counterbore on the carburetor, and set the new gasket on top of it. Pay attention to how you place the gasket. The end with the two flappers goes to the rear of the engine, and the bottom side is flat. Hold all these parts in place and align the cover on top of the assembly. Start all for screws with just enough tension to hold everything in place, then go back and tighten each one of the screws.

A leaking sidecover gasket is a problem that needs to be corrected as soon as possible. Anyone that has experienced an oil leak knows that an ounce of oil looks like a quart once it has blown all over everything. Before we begin to remove the cover and replace the gasket, we need to make sure the mating surfaces between the block and the cover are clean; we don't want dirt to enter the engine. Spray all the mating areas with brake cleaner to remove the dirt, and once satisfied, drain the oil and lay the engine on its side to get started. Remove the clutch and chain guard and we are ready to dig in. This

procedure is exactly the same whether you are working on a flathead or Animal engine, the only difference is in the sizes of the sockets required to remove the sidecover bolts.

For the flathead, usually 3/8 and 7/16 sockets are all you need, and on the Animal, a 10mm and an 11 mm will usually take care of it.

Remove all the bolts, and GENTLY, GENTLY, tap the cover up with a small hammer. Do not use a screwdriver to pry them apart, this can nick the gasket surface, and create another leak. I emphasize gently because we do not want to disturb the internals, and pull the camshaft or timing gear out with the cover. This will create much larger problems than the gasket leaking. Once the cover is off, remove the gasket, and with a razor blade, carefully remove any remaining gasket from both surfaces. Take care not to allow any of the gasket to fall into the crankcase. Before replacing the gasket, check the number and the thickness of the gasket or gaskets you removed. Some flathead engines require more than one gasket to set the end play, and we don't want to affect that.

Place the new gasket onto the block, aligning on the dowels, and carefully place the sidecover back onto the block. Bump it with the palm of your hand to seat it before replacing the bolts. Start all the bolts by hand, and gently run them up to make contact. Tighten in a crisscross pattern and go over at least a couple times. I personally torque the bolts to 110 in-lbs. I don't want any unnecessary stress on the case, and I want to make sure the bolts are tight, if these come out, the oil will follow, and I don't have to explain what happens next. Replace the chain guard and the clutch, add your oil, and congratulations, you are finished.

Next month we will dig into more maintenance and repair issues. The goal here is to make a bad day at the track better than a good day anywhere else. See you next month!