

THE Do-It-Yourselfer

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INTERNATIONAL

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I have been working on motorcycles for 40 years. The reason I got started was out of necessity, because back then the bikes were not as reliable as they are now. I wanted to be a racer, but my finances didn't allow me the pleasure of having a mechanic. So I decided to do the work myself. After all, it was only a motorcycle and a small one at that. So it couldn't be that hard. Or so I thought at the time.

After breaking and replacing the same part several times I decided that I should figure out why it was breaking. I decided from this time on, all future repairs would start with finding out, if I could, what caused the problem. The act of taking an engine apart and putting it back together with a new part doesn't make you a mechanic. You are just another parts changer.

When something breaks, there is a reason, whether it be little or no maintenance, poor design, abuse or any number of other reasons. It is up to the person doing the repairs to find the problem. As a do-it-yourselfer it can be time-consuming if you have to take it apart and put it back together several times. One of the most frequent comments I hear when it comes to describing a problem is, "I was just riding along easy and such and such broke." This may well be true, but

something had to happen to stress the part and cause the problem.

Parts usually don't just break without giving you a hint somewhere along the way, like a vibration, a rattle, smoke, loss of power. The longer you wait to check or fix a problem, the more expensive and inconvenient it will be. In the past, I have had customers bring me a machine with a problem and want me to tell them it's okay for one more desert

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trip or one more weekend. When you get the hint that it's going to break, it never tells you when. So the sooner you check it out and take care of a problem, it usually costs less in money and frustration to take care of it right away.

Following are some of the things I've seen that can cause you problems.

AIR FILTERS

Whatever brands you use, make sure they are clean, installed and lubed properly.

SPARK PLUGS

Stick to the recommended heat range. When installing, put a drop of oil on the threads and don't over-tighten. If you are having tuning problems after installing a new spark plug, remember: just because a spark plug is new, doesn't mean it's okay. A new plug can be defective without the engine ever starting.

CHAINS AND SPROCKETS

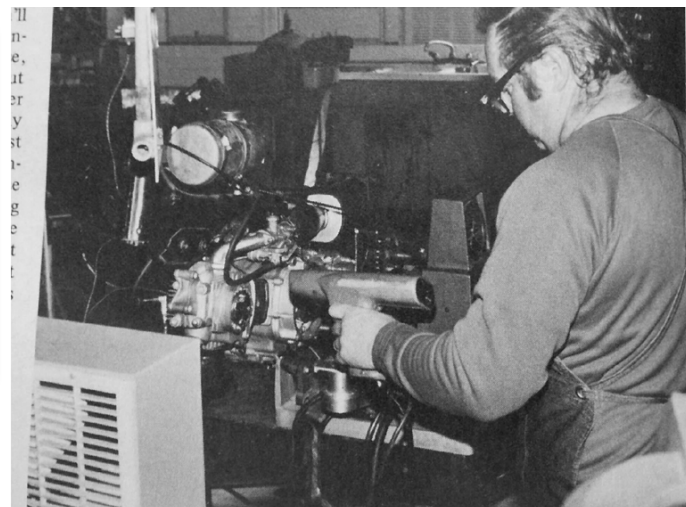
Replace chains and sprockets as needed. If you're not sure, check your shop manual. If you replace the chain when needed, your sprockets will usually last longer. If your sprockets need replacement, check everything.

CYLINDER REMOVAL

Do not use a screwdriver or anything else to pry the cylinder loose from the crankcase. The damage done to the gasket surface is hard to repair. If it's a four-stroke, it may just leak oil. But if it is a two-stroke, the damage may



Danny Duncan - Founder of @duncanracingint in #1977. Top tuner of 3 and 4-wheelers since original ATC 90. Still building winners! Celebrating his 85th birthday this August.



ABOVE, the main man in ATCs, Danny Duncan is shown here adjusting the timing as per factory specs. We set the timing at the "F" mark throughout the dyno session. One point you might keep in mind is that the timing can be adjusted to aid the bottom or top end power to suit your needs.

cause an air leak. After a cylinder has been removed and replaced, the engine should be pressure checked for air leaks.

FLYWHEEL REMOVAL

Most flywheels are designed with a threaded section in the center of the hub which is also cut with a taper to match the crankshaft. There is also a keyway cut in the crankshaft and the flywheel hub. The keyway is just to index the flywheel, not to hold it on. That is the job of the taper

and the bolt or nut on the end of the crankshaft. If you use the proper tool to remove the flywheel, you should have no problems.

If you use a gear puller that pulls from the outside of the flywheel, you may have a problem, as the flywheel is not designed to come off this way.

If all of your off roading is done in the deserts, take advantage of the hot summer break to go through your equipment to check for needed repairs and do important maintenance. Don't wait until the fall and then expect the mechanics to rush your job

through. When it comes to equipment reliability, a little advance planning and summer time work can make the next desert season your best yet.

Danny Duncan has a rich history in the motorcycle industry in San Diego County, dating back to 1959 when he started racing. His motorcycle career began with working for Saylor Mayne and Edison Dye before settling in at Valley Motorcycles in El Cajon CA. In 1977 he started Danny's Machine Works, building three-wheeler aftermarket products. In 1987 he sold the business to his children and went to work for them. Today, the family owned and operated, Duncan Racing International (www.duncanracing.com) is world-famous. Danny is the machinist there.

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TURN THE PAGE FOR MORE *Tear Down Time!*



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