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# INSTRUCTIONS

## MOTION PRO TWO-STROKE LEAK DOWN TESTER P/N 08-0071

**Pressure testing** is a test performed on a two-stroke engine to ensure that the engine has no air leaks. An air leak in a two-stroke engine can cause a lean condition in engine fuel-air mixture. This in turn can result in engine overheating, piston seizure, detonation etc.

### WARNING!

**Wear eye protection to prevent eye injury from escaping gas and/or flying particles. We recommend that a qualified mechanic in a properly equipped shop perform this procedure.**

1. To leak test the engine: cylinder, head, reed cage, intake manifold and spark plug must all be installed and torqued correctly. Exhaust pipe and carburetor must be removed.
2. Seal round exhaust ports with the correct size rubber expansion plug. For 1985-2001 Honda CR500R, remove the exhaust manifold and seal the exhaust port using the flat metal plate with a rubber gasket. The black vinyl gasket and the #32 hose clamp are used to seal the oval exhaust port on 1993-1994 and 1999-2014 Yamaha YZ250.
3. Insert the correct size carburetor adapter (#1, #2 or #3) into the intake manifold and tighten the manifold clamp. Teflon tape the thread on the quick coupler and install coupler into the carburetor adapter.
4. Push the nylon hose (from the pump/ gauge assembly) into the quick coupler. If the nylon hose leaks where installed into the coupler, push the hose into the coupler assembly while under pressure. It is important to have the system under pressure while attempting to seat the hose to coupler. To remove hose, push green (or gray) ring on quick coupler towards brass fitting while pulling and twisting hose out.
5. With all test equipment in place and the piston at bottom dead center, use the hand pump to pump 6 PSI of air pressure into engine. Never exceed 8 PSI of air pressure or damage to the seals and/or engine may occur. If loss of air pressure occurs, spray soapy water over mating surfaces to see where soap bubbles appear. Repair any leaks that may appear and redo test. A leakage rate of 1 PSI per minute is acceptable; however the lower the leakage rate the better your engine will perform.
6. By carefully listening at various points, you may be able to locate air leaks that are not easily accessible with soapy water. Crankcase seal leakage may be heard by removing the magneto cover or if on primary side may be heard through the oil filler hole. Leakage at the power valve seals and O-rings can be heard by removing the power valve linkage covers or through the transmission oil filler hole. On water-cooled engines, head gasket leakage may show up as bubbles in the radiator coolant.
7. On the Yamaha Banshee, RD 350/400, RZ350 and TZ250 (parallel twins) the center crank seal (labyrinth seal) will allow low velocity air to pass from one side to the other side. Therefore, both the left and right cylinders/ crankcases are tested together. To do so, seal both exhaust ports and one intake port. Then, install the correct carburetor adaptor into the remaining intake port. Perform steps 1 thru 6. There is no way to check the labyrinth seal; this seal will normally out last the crankshaft main bearings. On Suzuki RM motorcycles, the power valve breather hoses must be plugged off in order to pressure test the engine correctly. There is no seal in the power valve chamber.
8. Each leak down tester is tested for leaks at Motion Pro. To insure that your leak down tester remains leak-proof it should be tested periodically. To test simply connect leak down tester hose to a 1 quart leak proof container and pressurize to 6 PSI. If no leakage occurs in ten minutes the tester is leak proof. To locate leaks spray a soapy water solution over fittings and connections and look for soap bubbles. On pipe fittings, use Teflon tape or pipe sealant. Occasionally, the check valve between the hand pump and hose will leak. Clean the check valve with contact cleaner and re-grease the ball in the check valve to insure a good seal, and then retest.