DON'T SETTLE FOR MINOR CHANGES IN ENGINE PERFORMANCE. LET THE **CONLEY PERFORMANCE RACING SYSTEM** "PUMP" UP YOU ENGINE!

CONLEY PRECISION ENGINES DOES NOT ASSUME RESPONSIBILITY FOR BLURRED VISION, WEAK KNEES, UNCONTROLABLE SMILES, TEMPORARY BLINDNESS, HEADACHES, AND INCREASED HEART RATE AS A DIRECT RESULT OF THE ADDITIONAL ENGINE PERFORMANCE. WE DO, HOWEVER, ACCEPT A PERCENTAGE OF THE WINNINGS. HAPPY RACING!

Congratulations. You have purchased the Conley Performance Racing System (CPRS). The Perry Pump and Carburetor was developed over 20 years ago by John Perry. Tens of thousands of these systems have been used successfully in model airplanes. This is the first system that addresses the problem of fuel delivery and carburetion for Nitro cars. The pump operates on crankcase pressure and does not require batteries. The "positive – negative" crankcase pressure operates a diaphragm, which pumps fuel to a secondary diaphragm, which regulates fuel pressure. This is a regulating pump, which is designed to maintain a constant pressure form idle through high speed. At first glance you might think the carburetor adaptor is just a piece of machined and anodized aluminum. Actually, this is an **AVM** (Accelerated Velocity Manifold) **Intercooler**, which is designed to accelerate and cool the fuel/air mixture going to the engine. We have measured over a 100-degree difference in temperature between the cylinder head and intake manifold. Because the carburetor is not attached directly to the crankcase, "hot starts" are easier and less frustrating. There is no longer a need to wait for the engine to cool down before attempting a restart. "Extensive tests were preformed on a 90-degree day with 95% humidity". We have replaced the normal idle screw with a 0-80 set screw (Allen wrench included) which allows for a better installation of your air cleaner. After installation you will immediately notice a difference in "low end response" and "mid range" power. The basic carburetor adjustments are preset at the factory. These adjustments are only intended for an initial installation. !!!!!**DO NOT OPEN THE NEEDLE VALVE WHEN YOU FIRST TRY TO START THE ENGINE**!!!!! Remember, this carburetor is designed to run on pressure. Very small adjustments will make a large change in engine performance**. Do not attempt to use your existing carburetor in conjunction with the Perry Pump unless you have a return line coming from the pump/carb going to the tank. This consist of two "T" fittings and check valve. You may pump too much fuel into your engine, resulting in a "hydra-lock" situation. If an electric starter is used, it could destroy the engine.**

!!!!!PLEASE READ ALL INTRUCTIONS VERY VERY CAREFULLY!!!!!

It will be necessary to drill a #36 (or 7/64) hole into the crankcase and tap 6-32. This will be described in detail later in the instructions. If you do not have access to a number drill set or taps, individual drills and taps are available at most hardware stores. CONLEY PRECISION ENGINES ASSUMES NO LIABILITY FOR THE MISALIGNMENT, MIS-DRILLED, OR MIS-TAPPED HOLES IN ENGINE BLOCK. **If you think that this is above your ability, you can return the engine to Conley Precision Engines, and we will install the pressure fitting. If you purchased the carb/pump system from Conley Precision Engines, Inc. the cost is $20.00, if you purchased from another source the cost is $30.00. This cost includes mounting the carburetor.**

Your kit includes the following:

- 1-Pump
- 1-Nylon band (goes around pump)
- 1-Length of thick wall tubing
- 1-Pressure fitting (6-32 thread)
- 1-Carb
- 1-AVM (Accelerated Velocity Manifold)
- 2-set screws
- 1-Check valve
- 1-.028 Allen Wrench
- 2-"T" fittings

Remember that this system does not use muffler pressure.

 # 1. Before you remove the engine, figure out where would be the best place to mount the pump. Set the carb in place on the engine and visually look over the entire engine area and select the placement or the pump and pay particular attention to the linkage hook-up. Remember the distance should be kept as short as possible. The piece of tubing included with the kit should give you an approximate distance placement. This tubing can be cut shorter if necessary. If you look around the car you will notice that there are a lot of screws that are used to hold the frame pieces together. By removing one of these screws, the nylon band that goes around the pump can be held in place. Remember to allow for the fuel lines that go to the in and out of the pump. Since these small engine operate at a high r.p.m. vibration can be transmitted to the pump, this abrasive cloth will keep the pump from rotating. The pump should not be attached directly to the metal chassis the engine is mounted on. IF POSSIBLE TRY TO PUT THE PRESSURE TAP IN THE ENGINE OPPOSITE THE EXHAUST SYSTEM. In some cases it may be necessary to fabricate a small angle bracket for the pump to mount to.

#2. Once you have decided where the pump will go, mark which side of the engine the pressure fitting should be place. Remove engine, usually there are four screws on the bottom of the car. If you are careful, the engine can be removed, without removing the clutch.

#3. Look inside the engine. I have found that the transfer port directly above the motor mount tabs is a good place to place the pressure fitting. There is a space on the side of the crankcase directly below the bottom of the cylinder liner that is perfect. This may seem very thin, but it has been my experience that this area is about .100 thick. This is more than enough thickness for drilling and tapping. Another way of locating this position is look at the motor mount and measure up (from the top side) about 1/8" and half way between the motor mount screws. Refer to drawing. Remember this is only a reference point. It may differ from engine to engine. On the Ofna .12, I removed the "Colt" stick-on aluminum label and located the hole placement. The Ofna .21 was drilled directly through the raised lettering in the castings. There was still enough thread on the pressure fitting to screw in and seal with a little Loctite. The HPI .15 was located in approximately the same place. It is important that the placement of the hole be far enough above the top edge of the motor mount for the points on the hex of the pressure fitting to clear. This may seem like a minor point, but these engines are rather small and sometimes 1/32" may make a lot of difference.

#4. Completely "wash and dry" the inside of the crankcase with a good cleaner. This is very important because the aluminum chips will not stick to the residue of oil that is in the engine. This should be done on all engines, both new and used.

A. Once the exact location of the pressure fitting has been established and marked, lightly center punch.

REFER TO REPRINT OF ARTICLE IN **RC CAR ACTION** FOR FURTHER INSTRUCTIONS.

THIS STEP IS EXTREMELY IMPORTANT. Rotate the crankshaft so the piston is not visible below the bottom on the cylinder liner (when looking at the interior or the engine and the position of the rod is away from the hole(refer to drawing) that you are planning to drill.

#5. After the engine has been reinstalled in the car, install the carb and adaptor. Make sure that the "O" ring on the base of the manifold is snug against the crankcase while tightening the screw. In some installations it may be necessary to rotate the carb 90 degrees to align with linkage. It may be necessary to add a longer linkage wire that goes to the carb. In some cases it may be necessary to attach a ball link on the control arm. You may also need to put a small bend in the linkage, for alignment purposes. If your car has a slide barrel carb you may need to install a 90-degree "bell crank" which turns linear or sliding motion into rotary motion. These are available at most hobby shops and distributors. In most cases it can be mounted on the "top plate" of the car. This plate is usually supported by riser blocks form the frame (pan) of the car. I used one of these risers and just installed a longer screw through the bell crank. If a bellcrank is used, it will be necessary to add an additional linkage rod.

#6 Connect all components together as per drawing inclosed

#7. Connect the "red" thick wall tubing from the pressure fitting on the engine to the bottom of the pump. Remember, it is very important to avoid any area that may "kink" this or any other fuel line. Also make sure to keep this tubing away from the muffler or exhaust pipe.

#8. DO NOT USE MUFFLER PRESSURE IN CONJUNCTION WITH THE PERRY PUMP. Plug the pressure outlet on the muffler by placing a very short length of fuel line tubing over the pressure tap and placing a small screw in the opposite end of the tubing.

#9. If you are running a new engine for the first time, try to avoid making any adjustments on either the idle disk or the high-speed needle. Run about 5 tanks of fuel through the engine then go through the adjustment process. Refer to instructions on carb adjustments included with your kit.

#10. If the engine does not seem to run correctly, after you have several tanks of fuel through the engine and the carburetor has been adjusted, try changing the glow plug. It seams like the first thing people want to do is adjust the carburetor. Even try different glow plug manufacturers. You may be surprised with the results. It may be necessary to