TECHNICAL INFORMATION

DUNCAN RACING INTERNATIONAL INC.

MODEL: Honda TRX 250R 1986-89; Honda ATC 250R 1985-86

GENERAL NOTES PC 2000 POWER VALVE CYLINDER

- All PC 2000 Cylinder Kits come pre-ported by Duncan Racing. On Nikasil coated cylinders the interior finish has a matte type finish. This occurs in the Nikasil plating process and has no effect on performance.
- Model/Identification: ’00 Model PC 2000 cylinders were made in the years 2000 and 2001, these models were available in 265cc and 275cc Nikasil and 300cc steel. All these cylinders have an ID # starting PC-20_ _ _.
  ’02 Models cylinders began production in January 2002. They were available in (4) sizes 265cc, 275cc, 305cc and 340cc all with Nikasil coating. All ’02 models have ID # starting PC-22_ _ _. It is strongly recommended to pay close attention to the following instructions and the separate replacement parts list. Even though both ’00 and ’02 model cylinders are very similar they have some critical differences that must be noted. *Note all ’02 model PC 2000 cylinders have PC 2000 cast in to lower LH side bottom of each cylinder.
- Cylinder head water fitting has been moved on the PC 2000 cylinder head to clear the power valve. You must alter the way the top radiator hose attaches to head. On ’86-’87 model radiators a separate hose must be used (a ’88-’89 top hose will work or a piece of universal automotive radiator hose will be needed). On ’88-’89 model radiators the original hose will work but must be rotated so there are no kinks in the hose. **ALL YEARS MUST BE FREE FROM KINKS OR TIGHT BENDS. FAILURE TO ROUTE HOSE CORRECTLY WILL CAUSE SEVERE ENGINE FAILURE.**
- Use only NGK BR9EVX Spark Plugs. Recommended gap .028”. Or BR9EIX w/factory preset gap.
- Longer base studs are required on all models. Ask DR for more information.
  ’00 Models require (4) 55mm base studs.
  ’02 Models require (2) 55mm base studs front (exhaust side) and (2) 80mm base studs rear (intake side)
- Power Valve Seepage; the power valve system is designed to pass a post assembly pressure test of 6 lbs for 6 minutes. But when the engine is run (very hard at high RPM’s) the valve assembly may seep slightly. This will be noticed by a small amount of fuel/oil mixture coming out of the power valve holder slot above the exhaust flange. This **DOES NOT HURT THE ENGINE.** DR recommends keeping clean by removing black plastic coves and wiping with a clean rag inside and out. No further disassembly of power valve is required for this operation. If there are any questions contact Duncan Racing.
- Power Valve cleaning; the power valve assembly should be cleaned every 10-20 hours of usage. For instruction on this procedure refer to DR tech information sheet that deals specifically with PC 2000 power valve assembly or contact Duncan Racing.
- Cylinder Head: Both ’00 and ’02 model heads are different and non-interchangeable. They both use the same o-rings around spark plug. Install new o-rings with a bit of lubricant each time dome is removed/replaced from head. All PC heads must use OEM Honda style 8mm non-serrated acorn style nuts, with copper washers under the nuts. Torque to 18-21 ft lbs in 5 lb increments using a criss cross pattern. Both models use different domes, be sure to use correct dome for each application. Call DRI with any questions.
- Head O-Rings; the PC 2000 has its own size head o-rings. O-rings should not be used from similar model machines. Always use new o-rings every time head is removed. Never use any

type of sealer on o-rings. When reordering o-rings make sure to specify engine displacement, there are different sizes for different engines. Head torque should not exceed 21 ft lbs.

- Piston Clearance; Nikasil-Piston to cylinder wall clearance should be kept between .002" and .005". (002"-.003" is ideal)….. '00 Model 300cc Steel Sleeve-Piston to cylinder wall clearance should be kept between .003" and .006". (.003"-.004" is ideal) **RUNNING ENGINE WITH EXCESSIVE PISTON TO CYLINDER WALL CLEARANCE CAN CAUSE SEVERE ENGINE DAMAGE.**
- Top End Rebuilds; the top end should be rebuilt every **25 hrs for race** usage and every **50 hours for recreational** usage. The PC 2000 is designed to exceed these limitations, put to ensure maximum reliability it is **STRONGLY** recommended to follow out guidelines. One big exception to this rule is getting dirt inside the engine. If you believe that your PC 2000 has ingested any abrasive material it is recommended to disassemble top end and have it inspected by a professional technician.
- Crankshaft; The tremendous power gains put out through the PC 2000 cylinders can cause rod bearings and or rods to break or fail. To ensure maximum reliability it is recommended to use OEM Honda crankshafts and rods in new condition. This will give your engine its most reliable option.
- Reed Cage; DRI recommends using a PYRAMID Reed Valve (the only 4-sided cage available) with a stock OEM Honda '89 Intake manifold. Do not use a reed spacer.
- Exhaust Flange; DRI recommends using their CNC steel heat-treated dual o-ring exhaust flange. A stock flange will work if DRI dual o-ring flange is unavailable. Do not use an aluminum flange.
- Exhaust Systems; DRI offers a complete line of Paul Turner pipes for various power RPM needs. Contact a DRI technical advisor for proper advises regarding your specific application. Always use a new or freshly rebuilt PTR Fat Boy 2 silencer.
- Case Machining; 265cc and 275cc models cylinders bolt right on stock case with out any machining. **BOTH 305cc and 340cc Nikasil cylinders require machining of the center cases. This is required to accommodate the larger flange diameter required for such large pistons. All case machining must be performed on bare cases (disassembled). All machining must be done be a trained professional machinist. *See separate Tech Instructions for specific machining details.* DRI offers this service. Call for details.**
- Additional Technical Data: DRI offers a complete line of technical information sheets covering a variety of subjects; Break-In, Jetting, 2-Stroke Assembly, Air Filter Maintenance, etc. This technical data is also available on the DRI website www.duncanracing.com listed in the TECH CENTER.
- Fuel: **RACE FUEL REQUIRED ON ALL PC 2000 Cylinders.** DR Recommends using Sonoco STD (www.racegas.com) or VP C12 (www.vpracingfuels.com)
  *See DR TECH Doc Race Fuel for more information
- Premix; Maxima 927 or Maxima K2 at a 32-1 ratio (4 oz. per gallon)
- Cylinder Identification; Each PC 2000 cylinder has a 5 digit I.D. number stamped in the cylinder on the right hand side just above the base gasket surface. It can be read when cylinder is installed on machine. '00 model starts PC-20_ _ _. '02 model starts PC-22_ _ _ .
- Replacement Parts; See additional technical data list for listing of all replacement parts.

NAME_____ **I.D. #**_____

PISTON SIZE_____ **DOME SIZE**_____

For replacement parts and services see: http://www.duncanracing.com/TechCenter/2015-PC2000Parts_Updated4.21.15.pdf