



## DRI HONDA 400/440EX NATIONAL KIT ASSEMBLY TIPS

1999-2005 Models

*SPECIAL NOTE: DRI does not recommend working on the engine of your Honda 400EX without the assistance of the Genuine OEM Honda Service Manual.*

**ASSEMBLY:** It is strongly recommended to follow all instructions in OEM Honda Service Manual, specifically for torque values and cam timing set.

Also consult the DRI Tech Sheet for *4-Stroke Top End Assembly*.

*SPECIAL NOTE:* It is also advisable to read DRI TECH Sheet *4-Stroke Upgrade Components*

**BREAK-IN:** Read and follow instructions for DRI TECH Sheet *4-Stroke Engine Break In*.

\*NOTE: Engine will run better after it has 3-5 hours on it.

**VALVE SETTINGS:** Valves should be checked initially every 3-4 hours for first 12-hour period after initial set-up and every 20 hours after that. Consult your camshaft specification card for correct clearances. Stock clearances no longer apply after camshaft has been upgraded to a DRI camshaft.

**DRI CAM SETTINGS (Clearances must be set and checked with engine cold)**

Cam Profile Number	Intake	Exhaust
X1	.008"	.010"
X2	.004" - .006"	.005" - .007"
X6	.010"	.012"

NOTE: Setting RH exhaust valve can be tricky due to compression release. It is essential to follow instructions for setting in OEM Service Manual. See rocker arms information below.

**ROCKER ARMS:** Hard faced rocker arms must be used in conjunction with hard faced cams (failure to use will cause premature camshaft wear).

NOTE: It may be necessary to clearance top plate for additional up travel in reference to right hand exhaust rocker. Check for adequate clearance when top plate has been installed on head.

FAQ-What is hard facing? The pad where the rockers touch the camshaft is machined away, welded up, ground to the proper clearance then heat treated to match camshaft.

**PISTON RINGS:** Piston ring installation is a very delicate procedure and should be performed by a trained professional. All rings **MUST** have gap checked.

\*DRI recommends consulting their install DRI Tech Sheet for *4-Stroke Ring Installation* before attempting to install your rings.

**COMPRESSION RELEASE:** DRI recommend using the factory compression release system that is attached to the camshaft. Install and adjust exactly as per the instructions in the OEM Honda Service Manual



**SPARK PLUG:** Use NGK DPR8Z (Low Speed, High Altitude)  
NGK DPR9Z (Standard Riding, High Speed) Gap: 024" - .028".

**AIR INTAKE:** DRI recommends using a Pro Flow Air Cleaner Kit with K&N Filter and Outerwear. For best performance it is recommended to use stock air box with lid removed. Consult DRI Tech Sheet for *Air Filters* regarding Proper Filter Maintenance.

**EXHAUST:** For maximum performance use Fat Boy 4 Complete Stainless Exhaust System. Turndown and or spark arrester are optional. Always install with new OEM copper exhaust gaskets.

**FUEL:** 13-1 & 12-1 Compression: Use VP C-12 Fuel. Motor Octane 108 or SONOCO STD Race Fuel  
11-1 Compression: Can use 50/50 mix of 92 octane and VP C12  
10-1 Compression: Can use 92 octane pump gas

**OIL:** Maxima Premium 4 10W40

\*Consult Honda OEM Service Manual for oil capacity specifications.

**\*\*BEFORE INSTALLING FRESH OIL IS STRONGLY RECOMMENDED TO REMOVE OIL COOLER AND OIL TANK FROM MACHINE AND FLUSH THOROUGHLY OUT INTERNALS WITH CLEAN PARTS CLEANING SOLVENT**

**CARBURETION:** It is recommended when installing these engine kits to upgrade the carburetion. DRI recommends an Edelbrock or Keihin FCR Carburetor. (Carburetors are available from DRI in thumb or twist. Call for additional details)

If stock carburetor must be used, start with the following settings;

Pilot Jet: #42-#45 Needle: Stock #4 clip down from top Main Jet: #178-#182

\*Using the stock carburetor is not a permanent solution.

### TOP END SERVICE

For maximum performance top end should be serviced at least every 20 hours. For standard usage top end should be serviced at least every 50 hours.

A top end service includes checking, valves, valve sealing, piston clearance, cam chain and tensioner, lower rod bearing etc.

Piston clearance should be kept between .002" - .0035" not recommended to exceed .005"

Ring end gap should be kept .015" - .020" not to exceed .020"

Consult DRI or a qualified technician for additional assistance.

### LEAK DOWN TEST

It is advantageous to periodically do a 4-Stroke Leak Down test to gauge your engines current performance and state of wear.

\*DRI recommends consulting their install DRI Tech Sheet for *4-Stroke Leak Down Testing* before this test.

**CRANKSHAFT:** For Standard usage stock rod should be sufficient. Under serious performance conditions an upgraded connecting rod may be required. Contact DRI for additional details.



**GEARING:** OEM Gearing 14/38, Dune Riding 14/38, Hill Racing 13/48, MX Racing 15/36-38

**IGNITION:** The stock ignition is adequate for most riding. However, DRI offers the Vortex X10 Ignition as a high performance option. The Vortex X10 CDI comes with 10 preprogrammed ignition maps. (Ignition curve aggressiveness is limited by the stock flywheel Pick Up location) see Vortex product section on DRI website for more information.

**CLUTCH:** The clutch must be kept in excellent condition for maximum performance to be delivered. DRI recommends using a Hinson Billet clutch basket and upgrading to an 8-Plate clutch kit with Hinson 8-Plate Inner Hub and Pressure Plate. Call DR Tech department with any questions.

**HOUR METER:** It is recommended to install an hour meter on your machine. This device can come in very handy keeping track of packing life, valve adjustments, oil changes, top end service, etc. A number of manufacturers offer them for under \$ 50.00. Installation is simple

#### NOTES

1. Valve clearance and Deck height must be checked. Valve to Piston clearance should be minimum .040"; Piston to head clearance should be .040".
2. Must use special modified DRI steel head gasket

***DRI is not responsible for any engine component (gears, rod, etc.) fatigue or failure due to increased horsepower and torque.***

SINCE 1977 Racing INTERNATIONAL