



INSTALLATION INSTRUCTIONS

MSD Enhancer Ignition for the Honda TRX400EX PN 05-00-4203/PN 4203

Parts Included:

- | | |
|------------------------------------|-----------------------|
| 1 - Programmable Enhancer Ignition | 1 - Y-Splice |
| 1 - MSD Coil Assembly | 1 - Black Ground Wire |
| 1 - Ignition Mounting Brackets | |

Parts Required: (Not Included)

- 1 - Clutch Lever Micro Switch for Holeshot Feature

Note: It is recommended that you have the factory service manual while performing this installation.

TECHNICAL INFORMATION

Spark Output: The Enhancer Ignition System for the Honda 400EX produces a high output spark that is approximately double the stock spark output. This increased spark energy allows the use of richer fuel mixtures or even exotic fuel such as alcohol. The MSD Ignition will put out approximately 30,000 volts to the spark plug.

Spark Plugs: With the MSD Enhancer, it is recommended to use as cold a spark plug as possible while still being able to start the engine easily. The spark plug gap will largely depend on the compression of the engine. The higher the compression the smaller the plug gap you must run. A good rule of thumb for the spark plug gap is between .032" and .036". Taking the time to test with different gaps will give you the best gap for your application.

MSD Coil and Spark Plug Wires: The MSD Coil features low resistance (0.2 Ohms Primary, 2K Ohms Secondary) with a turns ratio of 70:1 for maximum spark voltage and energy. The 8.5mm Super Conductor Spark Plug Wires are very low resistance (less than 50 Ohms per foot) for maximum voltage carrying capabilities. Even with this low resistance, the wire still suppresses EMI (Electro Magnetic Interference) from disrupting the electronics of the ignition. This is the only wire recommended to be used with the MSD Enhancer Ignition System.

Adjustable Ignition Timing Curve: The MSD Enhancer Ignition system allows you to program an ignition timing curve. Changes in altitude, compression, fuel octane or a number of other variables requires that the ignition timing be compensated. The Enhancer allows you to advance or retard the initial timing as well as designate a different timing curve to increase overall power and performance.

Holeshot Feature: The MSD Enhancer Ignition has a special built-in circuit that sets a low rpm limit. This rpm limit produces consistent and quick starts. This allows you to concentrate on the start of the race instead of throttle position.

Rev Limiter: The MSD Enhancer Ignition max speed rev limiter is adjustable from 8,750 to 12,500 rpm.

REMOVAL

Refer to the factory service manual for the proper removal.

Note: Do not mix the Factory Honda Coil and CDI unit with any MSD Components as severe damage may occur.

INSTALLATION

The MSD Enhancer Ignition is designed to mount between the rear frame rails in front of the tail light (Figure 1). Four mounting straps and foam strips are supplied with the kit to hold the ignition to the frame.

1. Hold the ignition in position between the rear frame rails and mark the location of the mounting straps. Wrap the supplied foam strips around these positions then install the mounting straps to the frame rails (Figure 1).
2. Mount the Ignition with the base plate facing up to the straps using the supplied hardware as shown in Figures 2 and 3.



Figure 1 Installing the Mounting Straps.



Figure 2 Mounting the Ignition



Figure 3 Installing the Mounting Straps.

3. With the Ignition mounted, connect the two wiring harnesses and route them along the upper frame rail on the left side. Route the Black and Red wires toward the battery terminals. **DO NOT CONNECT THEM TO THE BATTERY AT THIS TIME.**
4. Locate the original 5-pin connector above the battery (it looks like a rectangular connector wrapped in electrical tape). Trace these wires about six inches forward. At that position,

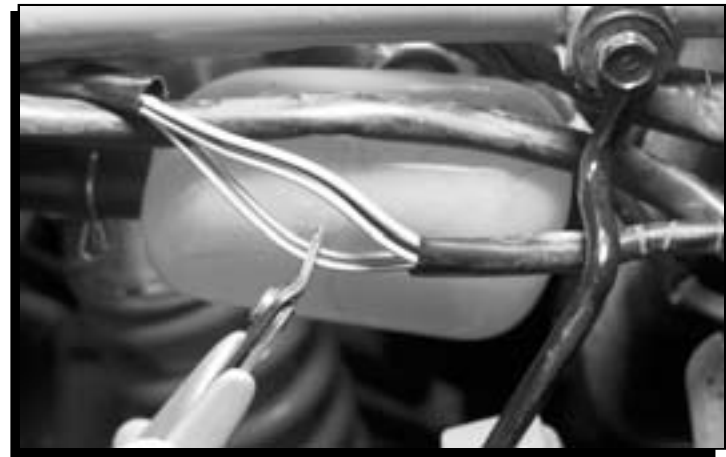


Figure 4 Splicing the Pickup Wires.

cut away the black sleeve to access the Green/White and Blue/Yellow wires. These are the pickup wires and need to be spliced (Figure 4) to be connected to the MSD Ignition.

5. Cut the Green/White and Blue/Yellow wires and strip the sleeve back to install the supplied bullet connectors. Using a good quality crimp tool (such as the MSD Pro-Crimp Tool, PN 00-00-1515/PN 3505) and install the female bullet connectors to the wires going to the pickup. Install the male ends to the side that goes towards the 5-pin connector (Figure 5).



Figure 5 Installing the Bullet Connectors to the Pickup Wires.

6. Connect the Blue MSD wire to the Blue/Yellow Honda wire and Green MSD to the Green/White Honda wire.
7. Continue routing the MSD harness along the upper frame rail to the coil. Disconnect and remove the original coil (Figure 6).
8. Mount the new Coil to the supplied bracket then mount the assembly. The Black ground wire must be connected to the bracket's mounting bolt (Figure 7).



Figure 6 Removing the Original Coil.

9. Continue routing the remaining wires towards the front of the quad and locate the factory CDI control box under the front cover (Figure 7). Find the Black/White wire from this box. Cut this wire and install a female bullet connector on the CDI side of the wire and a male on the switch side. The MSD White wire will connect to the male bullet connector. The female side of this wire will not connect to anything (it is provided so the ignition can be returned to stock if ever desired).

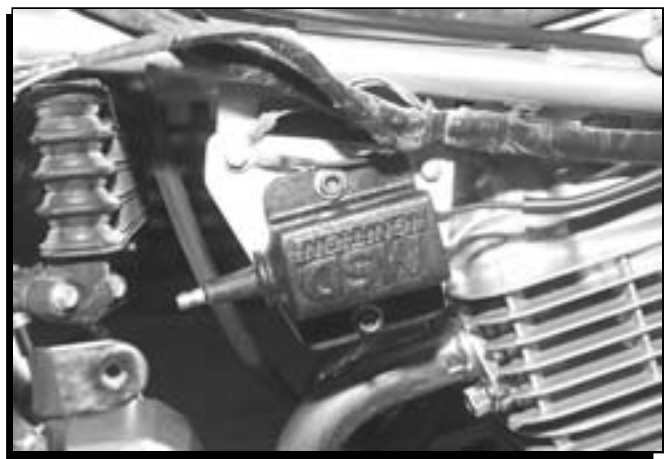


Figure 7 Installing the New Coil.

10. Cut Black wire coming from Ignition switch and install the male bullet connection on the starter switch side and female bullet on ignition switch side. Attach the MSD Black wire bullets to these two wires.

11. Connect the Red MSD wire to the battery positive side of the starter solenoid (Figure 8).
12. Connect the Black wire to the common ground connection next to the battery (Figure 9).
13. **Holeshot Wire:** The Light Blue wire of the MSD is the Holeshot Control wire and will be connected to the clutch switch with the supplied Yellow/Blue wire connector splice. When this wire is grounded, the Holeshot rpm is active (see the Wiring Diagram in Figure 11). Unplug the Yellow/Green wire in the clutch switch circuit and connect the MSD Yellow/Blue Y-splice. Next plug in the MSD Light Blue wire of the Y-splice to the MSD Light Blue holeshot wire.



Figure 8 Connecting the Main MSD Positive Wire.



Figure 9 Connecting the Main MSD Negative wire.

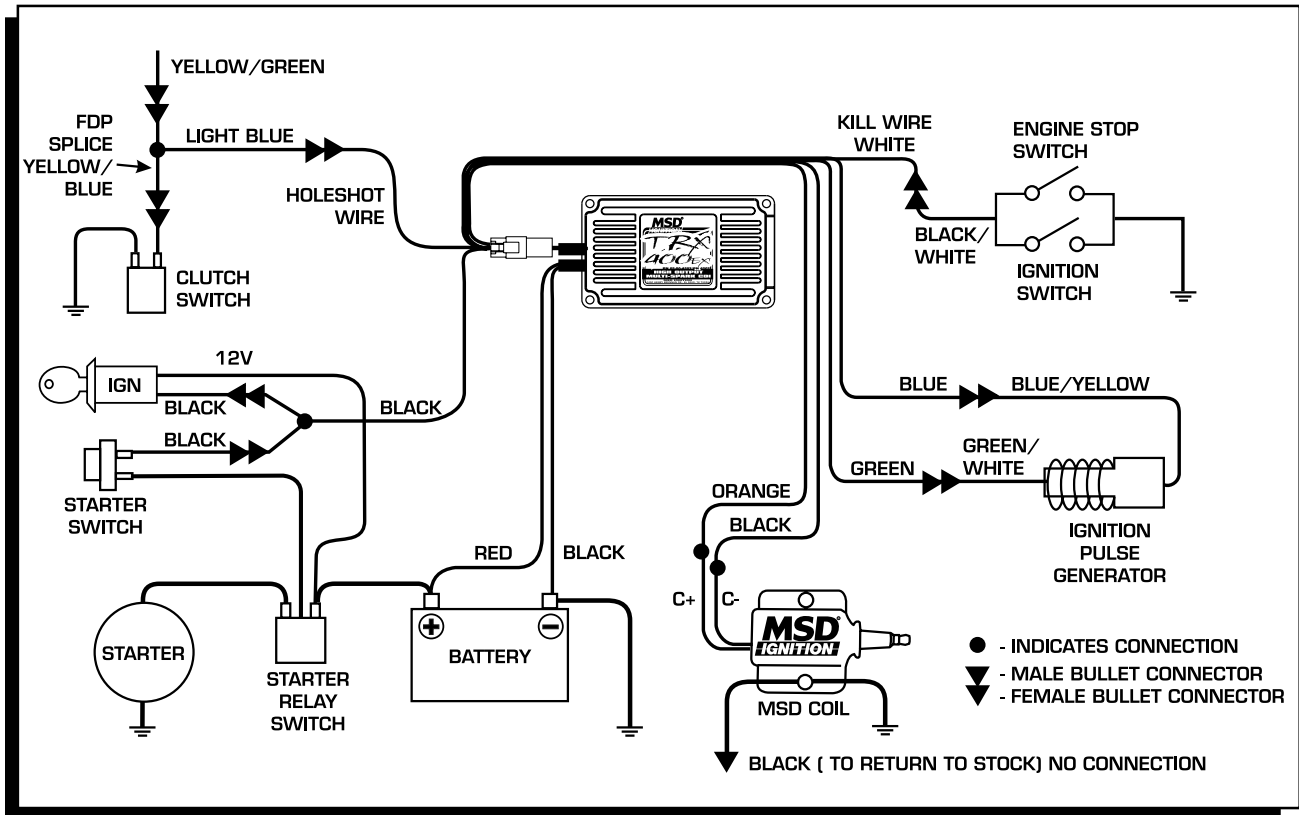


Figure 10 Main Wiring Diagram.

PROGRAMMING

One of the many advanced features of the Enhancer Ignition System is the ability to program different timing options into the ignition system. This is especially important when making any engine modifications or running special fuels.

Default Positions:

Switch Bank 1

Max Timing +5° BTDC

S1=ON, S2=OFF, S3=ON

HS Retard S4=OFF

Max Speed Rev Limit 11,000 rpm

S5=ON, S6=OFF, S7=OFF, S8=ON

Switch Bank 2

Hole Shot Rev Limit 6,000 rpm

S1=OFF, S2=OFF, S3=ON, S4=ON

Full Timing RPM 2,000 rpm

S5=OFF, S6=OFF, S7=OFF, S8=OFF

This setup will give stock max timing of 27° BTDC at a lower speed of 2,000 rpm. The timing can be increased to a maximum of 29° BTDC for a higher elevation or high octane fuel. The timing advance is set to reach full maximum advance timing at 2,000 rpm vs. 4,200 rpm stock curve for better low speed response. The MAX speed revlimiter is set for 11,000 rpm which is 1,975 rpm greater than the stock rev limiter. The Holeshot is set up for 6,000 rpm and can be adjusted from 3,000 to 6,750 rpm.

MAXIMUM TIMING				MAX SPEED REV LIMIT				CHECK TIMING WITH SWITCHES S1,S2,S3=OFF THIS IS YOUR MINIMUM TIMING (above Full Timing RPM) Any switch can be changed while engine is running.			
DEG	S1	S2	S3	RPM	S5	S6	S7				
YMT	OFF	OFF	OFF	8750	OFF	OFF	OFF	OFF			
+1	ON	OFF	OFF	9000	ON	OFF	OFF	OFF			
+2	OFF	ON	OFF	9250	OFF	ON	OFF	OFF			
+3	ON	ON	OFF	9500	ON	ON	OFF	OFF			
+4	OFF	OFF	ON	9750	OFF	OFF	ON	OFF			
+5	ON	OFF	ON	10000	ON	OFF	ON	OFF			
+6	OFF	ON	ON	10250	OFF	ON	ON	OFF			
+7	ON	ON	ON	10500	ON	ON	ON	OFF			
High Speed Retard				S4	10750	OFF	OFF	OFF	ON		
2 Deg Retard				ON	11000	ON	OFF	OFF	ON		
No Retard				OFF	11250	OFF	ON	OFF	ON		
					11500	ON	ON	OFF	ON		
					11750	OFF	OFF	ON	ON		
PN 05-00-4203					12000	ON	OFF	ON	ON		
PN 4203					12250	OFF	ON	ON	ON		
					12500	ON	ON	ON	ON		

DEFAULT SETTINGS

CUT THIS AREA OUT

HOLESHOT REV LIMIT				FULL TIMING RPM					
RPM	S1	S2	S3	S4	RPM	S5	S6	S7	S8
3000	OFF	OFF	OFF	OFF	2000	OFF	OFF	OFF	OFF
3250	ON	OFF	OFF	OFF	2250	ON	OFF	OFF	OFF
3500	OFF	ON	OFF	OFF	2500	OFF	ON	OFF	OFF
3750	ON	ON	OFF	OFF	2750	ON	ON	OFF	OFF
4000	OFF	OFF	ON	OFF	3000	OFF	OFF	ON	OFF
4250	ON	OFF	ON	OFF	3250	ON	OFF	ON	OFF
4500	OFF	ON	ON	OFF	3500	OFF	ON	ON	OFF
4750	ON	ON	ON	OFF	3750	ON	ON	ON	OFF
5000	OFF	OFF	OFF	ON	4000	OFF	OFF	OFF	ON
5250	ON	OFF	OFF	ON	4250	ON	OFF	OFF	ON
5500	OFF	ON	OFF	ON	4500	OFF	ON	OFF	ON
5750	ON	ON	OFF	ON	4750	ON	ON	OFF	ON
6000	OFF	OFF	ON	ON	5000	OFF	OFF	ON	ON
6250	ON	OFF	ON	ON	5250	ON	OFF	ON	ON
6500	OFF	ON	ON	ON	5500	OFF	ON	ON	ON
6750	ON	ON	ON	ON	5750	ON	ON	ON	ON

Figure 11 Default Settings.

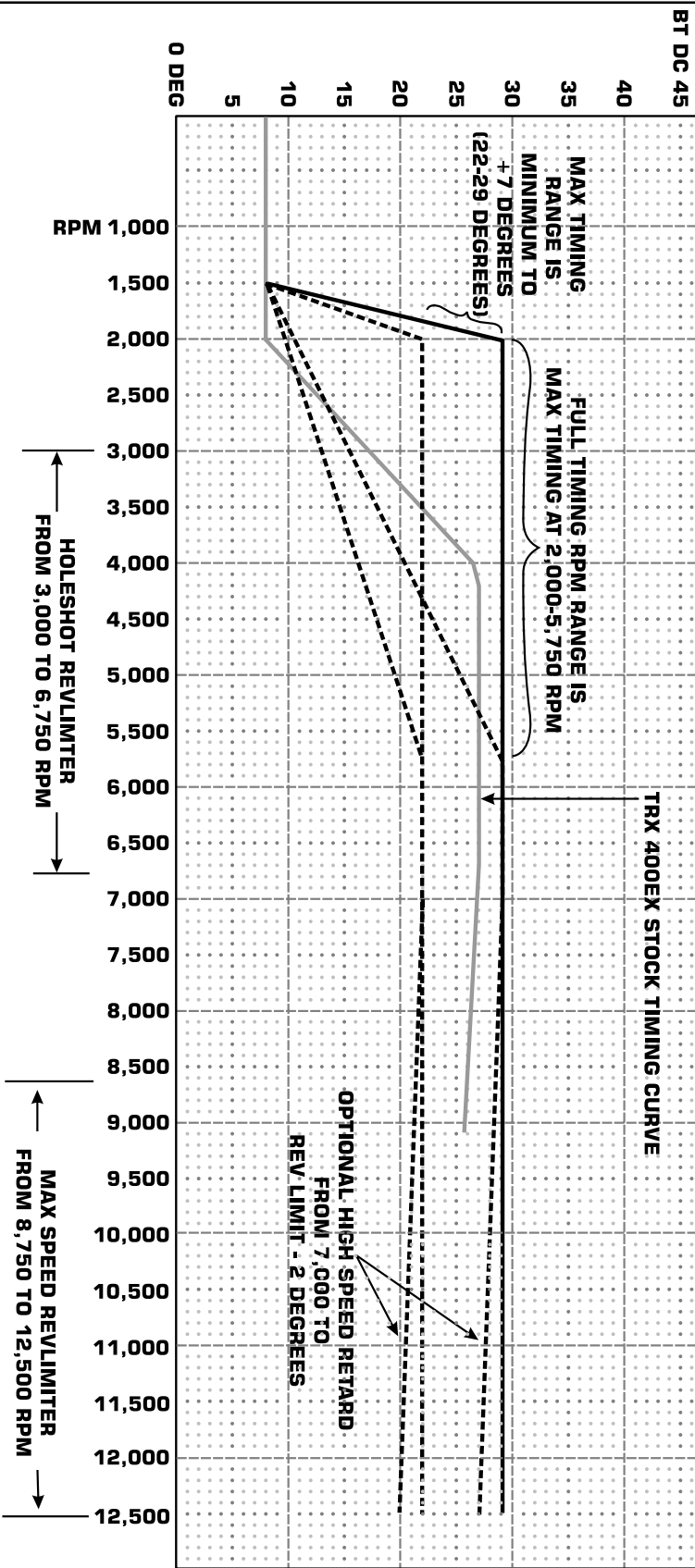


Figure 12 Timing Range and Rev Limiters.

INSTALLATION INSTRUCTIONS

TECH NOTES

Service

In case of malfunction, this component will be repaired free of charge according to the terms of the warranty. When returning components for service, Proof of Purchase must be supplied for warranty verification. After the warranty period has expired, repair service is charged based on a minimum and maximum charge.

Send the unit prepaid with proof of purchase to the attention of: **Customer Service Department, MSD Powersports, 1490 Henry Brennan Dr., El Paso Texas 79936.**

When returning the unit for repair, leave all wires at the length in which you have them installed. Be sure to include a detailed account of any problems experienced, and what components and accessories are installed on the vehicle.

The repaired unit will be returned as soon as possible after receipt, COD/Cashiers Check for any charges. For more information, call the MSD Powersports Customer Service Line **(915) 858-3365**. MSD Powersports technicians are available from 8:00 a.m. to 5:00 p.m. Monday - Friday (Mountain Time).

Limited Warranty

MSD Powersports warrants this product to be free from defects in material and workmanship under its intended normal use* and if properly installed, for a period of one year from the date of original purchase. If found to be defective as mentioned above, it will be repaired or replaced at the option of MSD Powersports. Any item that is covered under this warranty will be returned free of charge through standard shipping methods. If faster service is required the customer has the option of paying for this service.

This shall constitute the sole remedy of the purchaser and the sole liability of MSD Powersports. To the extent permitted by law, the foregoing is exclusive and in lieu of all other warranties or representations whether expressed or implied, including any implied warranty of merchantability or fitness. In no event shall MSD Powersports or its suppliers be liable for special or consequential damages.

*Intended normal use means that this item is being used as was originally intended and for the original application as sold by MSD Powersports. Any modifications to this item or if it is used on an application other than what MSD Powersports markets the product, the warranty will be void. It is the sole responsibility of the customer to determine that this item will work for the application they are intending. MSD Powersports will accept no liability for custom applications.