MSD Direct Ignition System (DIS)
PN 6015MSD (Red), PN60153MSD (Black)

ONLINE PRODUCT REGISTRATION: Register your MSD product online. Registering helps in the event of a recall or warranty. Go to www.msdperformance.com/registration.

Parts Included:
1 – Direct Ignition ECU,
    PN 6015MSD or PN 60153MSD
1 – Main Wiring Harness
1 – Distributor Harness
1 – MSDView USB
1 – USB Cable
1 – Mounting Kit

Parts Required-If not Purchased as Kit:
1 - MSD Pro-Billet EFI Dual Sync Distributor per Table 1.
1 - 84323 Blank Distributor Cap
2 - Coil Sub-Harnesses (Recommended Holley PN 558-321)
8 - GM style smart coils (Recommended MSD PN 82658-Red, 826583-Black)

1 - Spark Plug Wires. (MSD PN 32079-Red, MSD PN 32073-Black)
Optional Accessories:
Coolant Temperature Sensor, MSD PN 2934
Recommended Parts:
Coil bracket set, Holley PN 561-122

Parts Included When Purchased as Kit:
1. DIS Ignition Control Box
2. Pro-Billet EFI Dual Sync Distributor
3. Coil Kit
4. Coil Sub-Harnesses
5. Blank Distributor Cap
6. Universal Super Conductor Wire Set

WARNING: During installation, disconnect the battery cables. Always disconnect the negative cable first and reconnect it last.
Note: Solid core spark plug wires cannot be used with an MSD Ignition Control.

APPLICATIONS

The MSD Direct Ignition System (DIS) adapts V8 engines designed to operate with a distributor to benefit from running a Coil-Per-Plug ignition system. The controller requires the use of a Dual Sync distributor instead of the original factory distributor.

Use **Table 1** on page 3 to determine the correct MSD Pro-Billet EFI Dual Sync Distributor designed for the type of engine used.

Figure 1 PN 6015MSD & 60153MSD (Black) Direct Ignition ECU

INTRODUCTION

The MSD Direct Ignition System (DIS) controller greatly simplifies the conversion of conventional distributor-type engines to a Coil-Per-Plug configuration. Benefits include the elimination of distributor cap and rotor wear, reduced spark energy losses caused by long spark plug wires, and the ability to optimize your ignition tuning parameters. The integral 2.5 Bar MAP Sensor, and optional temperature sensor input, mean you get the most power and reliability out of your Naturally Aspirated or Forced Induction engine combination. Nitrous-fed engines benefit from the included Step Retard feature. Drag racers will appreciate the 2-Step Rev Limiter and Launch Retard features.

Real-time DIS configuration and tune-up changes are a snap with easy-to-use MSDView software. Thanks to the real-time monitor feature of MSDView, and 8 MB of internal data storage in the DIS controller, data monitoring and logging have never been easier.

The clearly labeled wiring harness, along with a full line of supporting components and accessories, take the difficulty and guesswork out of converting traditional distributor-type engines to a modern and efficient Coil-Per-Plug ignition system.

Packed with Features, the MSD DIS Controller offers:

- Fully Programmable 2D and 3D Timing maps
- Individual Cylinder Timing (ICT)
- Built-in 2.5 bar Manifold Absolute Pressure (MAP) sensor
- Optional temperature sensor input
- Fully potted electronics and sealed connectors
- Mini-USB communication port
- Pre programmable Timing Maps

- Programmable Max Rev and Launch RPM limiters
- Programmable Launch Timing Retard
- Single Timing Step Retard
- On-Board Data Acquisition

INSTALLATION
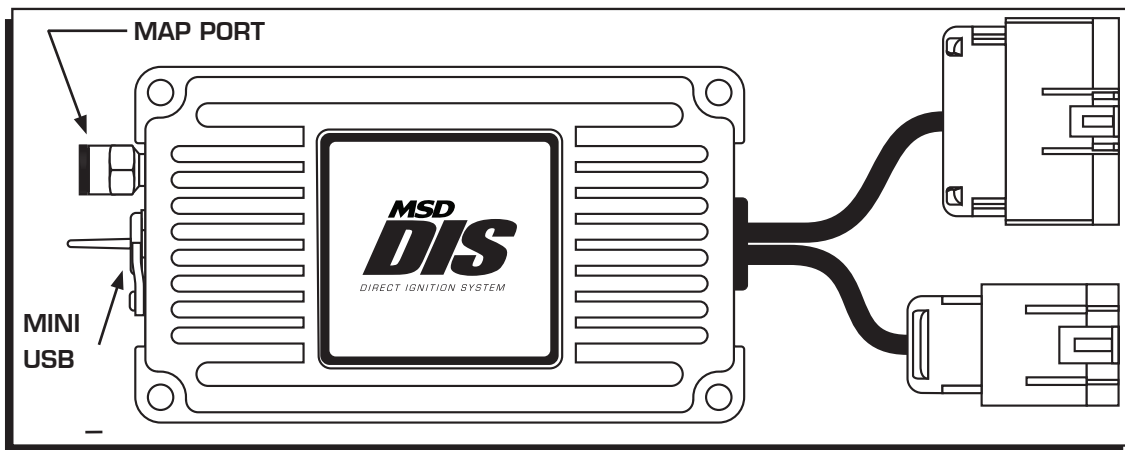
DIS CONTROL MOUNTING

Figure 2

DIS CONTROLLER MOUNTING

Mount the DIS Controller in a sturdy dry location away from extreme heat using the included vibration mounts. The placement of the controller needs to protect the internal MAP sensor from residue by mounting it (1) above the manifold and (2) facing the MAP port down or horizontal.
Note: The unit should not be immersed or subjected to direct spray from a power washer.

IGNITION COIL MOUNTING

Note: The driver and passenger side cylinders are marked A thru D in sequence with A referring to the front driver's side cylinder and rear passenger side cylinder. **(See Figure 4)**
The following instructions allow wiring the coils independent of the engine type. Group two sets of four coils for each side of the engine.
1.   Mount the two banks of coils with appropriate bracket(s).
2.   Connect each coil to its corresponding cylinder with its spark plug wire.
3.   Install the coil sub-harnesses to each bank of coils as shown in Figure 4.
4.   Using the included tags, label each coil A thru D (both banks) as shown in Figure 4.

DISTRIBUTOR/TIMING SETUP

Replace the factory distributor with the MSD Pro-Billet EFI Dual Sync Distributor per **Table 1**.
Follow the removal and installation instructions included with the applicable MSD Pro-Billet EFI Dual Sync Distributor.

Chevrolet V8;	PN 2375MSD / 23753
W/ Slip Collar	PN 2376MSD / 23763
Ford 289/302	PN 2377MSD / 23773
Ford 351W	PN 2378 / 23783
Ford 351C/460	PN 2379 / 23793
Ford FE	PN 2380 / 23803
Chrysler SB	PN 2381 / 23813
Chrysler 383/400	PN 2386 / 23863
Chrysler 426/440	PN 2383 / 23833
Pontiac V8	PN 2384 / 23843
Oldsmobile V8	PN 2385 / 23853

Table 1 MSD Pro-Billet EFI Dual Sync Distributors
Visit www.msdperformance.com for distributor color options.
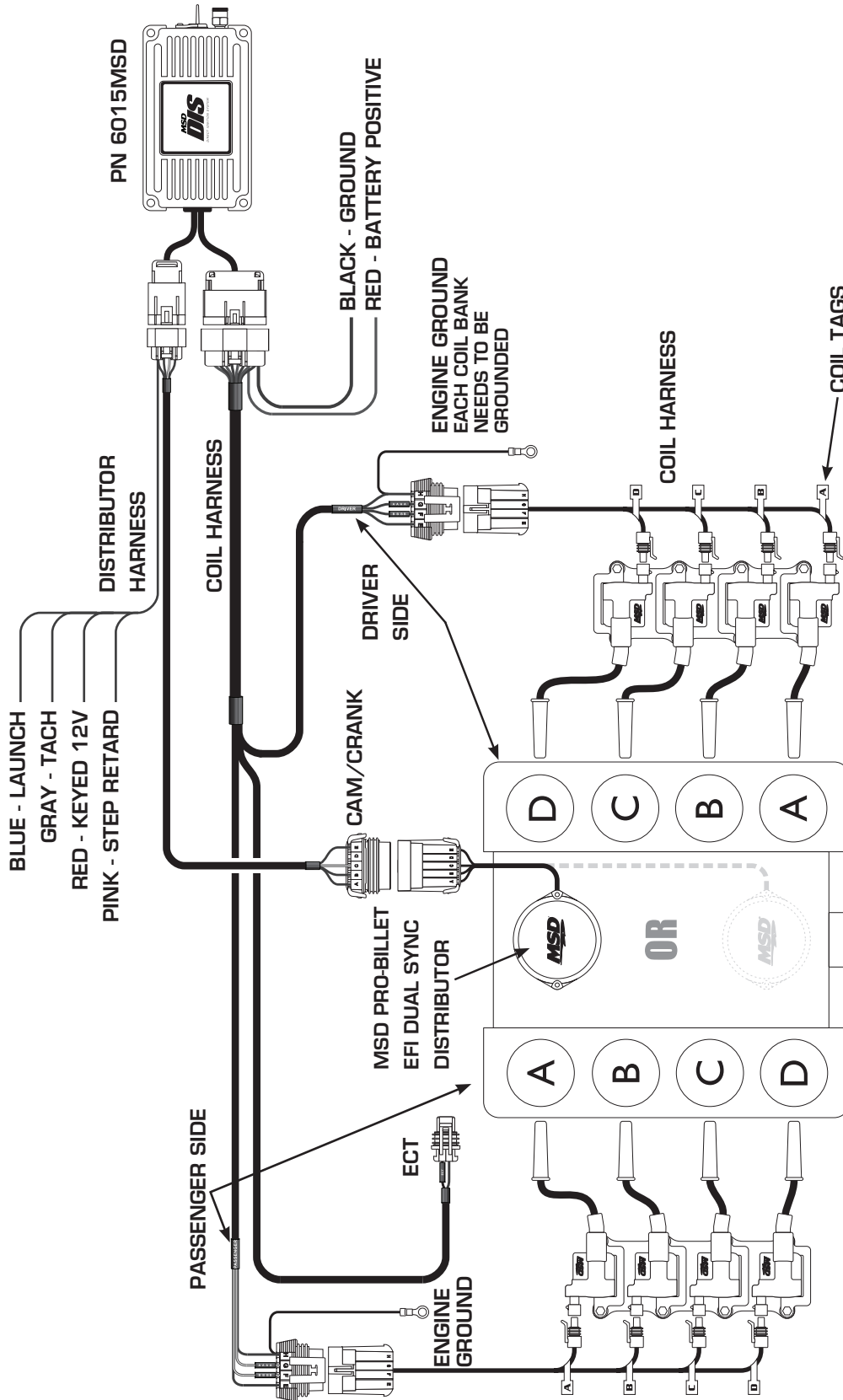

Figure 3 MSD Pro-Billet EFI Dual Sync Distributor with blank cap (PN 84323)

WIRING (See Figure 4)

1.   Route the DIS Controller coil harness pigtails labeled 'Driver' and 'Passenger' to the corresponding side of the engine and connect each to the OEM or aftermarket coil sub-harness.
2.   Connect the coil ground wires from the coil connectors to a good engine ground.
3.   Connect the DIS Controller distributor harness to the Dual Sync distributor connector.
4.   Connect the heavy gauge black wire to the battery ground terminal.
5.   Connect the heavy gauge red wire to the positive battery terminal.
6.   Connect the red wire, ,of the distributor harness, to a keyed ignition source that has 12 Volts during cranking and in the run position.
7.   Connect the Launch (blue), Tach (gray), and Step Retard (pink) as needed.
8.   Optional - Connect the ECT pigtail to the coolant temperature sensor.
WARNING - **DO NOT start the engine prior to setting the correct 'Engine Type' and 'Firing Order' using MSDView under the SETTINGS > ENGINE Tab.**

PN 6015MSD WIRING

PN 6015MSD

BLACK - GROUND
RED - BATTERY POSITIVE

ENGINE GROUND
EACH COIL BANK
NEEDS TO BE
GROUNDED

COIL HARNESS

COIL TAGS

DISTRIBUTOR
HARNESS

COIL HARNESS

DRIVER
SIDE

BLUE - LAUNCH
GRAY - TACH
RED - KEYED 12V
PINK - STEP RETARD

CAM/CRANK

MSD PRO-BILLET
EFI DUAL SYNC
DISTRIBUTOR

OR

PASSENGER SIDE

ECT

ENGINE
GROUND

D C B A

A B C D

NOTE: MSD Direct Ignition System (DIS) adapts
various engines with a distributor to operate a
coil per plug ignition system.

Figure 4 Wiring the 6015MSD Direct Ignition System

OPTIONAL CONNECTIONS

MAP INPUT: This is the Manifold Absolute Pressure sensor that is integral to the unit. It uses a 1/4" Camozzi fitting and is rated at 2.5 Bar. Using it can advance your timing under engine vacuum and retard it under boost. It is recommended that you use it, but not required unless you are using forced induction.

COOLANT TEMPERATURE: Monitors engine temperature. It can advance the timing while the engine is cold and retard it when it gets hot, helping to prevent engine damage. The sensor is not required for the unit to function correctly and leaving it disconnected does not advance or retard the timing relative to the base settings. The ECT Diagnostic will pop up, but will have no ill effect on the controller's functionality.

Warning: Initial configuration, using MSDView software, must be performed prior to the initial engine startup.

Note: The unit can be powered via the USB port – so initial setup and subsequent programming changes can be performed with the ignition off.

INSTALLATION OF THE MSDView SOFTWARE

1. Insert the installation Flash-drive into an available USB port.
2. Locate the 'autorun.exe' file on the Flash drive.
3. Click on "Install MSDView Software". Click 'Yes' when asked 'Do you want the following program to make changes to this computer?'.
4. Click 'Next' in the 'Setup - MSDView' window. Accept the License Agreement and click 'Next'. Choose to accept the desktop icon then click 'Install'. Click 'Finish' to run application.
5. Connect the Direct Ignition Control via USB and wait for it to be listed in the product window.

It will be listed in the product window. Select the Direct Ignition Control by highlighting the line or checking the box and clicking the 'View/Hide' button.

Note: The first time the unit is connected, it may take three minutes to load the driver.

MSDView EDITING BASICS

Editable values within the MSDView software that need to be tailored to your specific application requirements can be found in the Settings Tab.

There are also plots and tables found within that can be changed.

Figure A Editable Fields

EDITABLE FIELDS

Fields can be changed by double clicking and typing the desired value, as seen in the Maximum Rev Limiter value under the Setting > Engine tab. **(Figure A)**
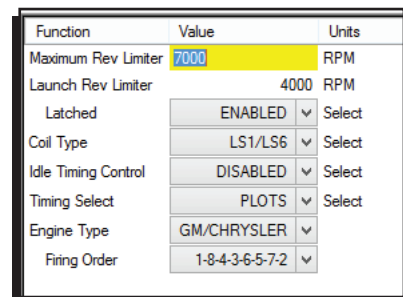
DROP DOWN MENUS

Drop down menus, such as Coils, Timing, Engine Type and Firing order are also found that show the different selections one needs to set up before starting .

To select, double click on the field and choose the setting required from the drop down menu. **(Figure B)**
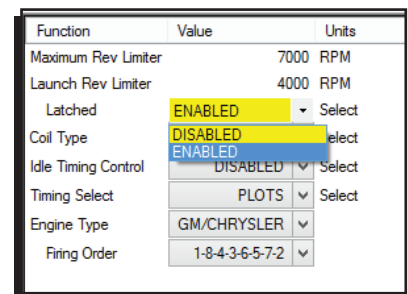

Figure B Drop Down Menu

PLOT SCREENS

In the plot screens, there are editable traces to set Ignition Timing, Control timing or Timing retards.

Traces, as found under the Timing>Plots> Engine Speed tab, be can saved and imported using the trace box. **(Figure C)**

A trace can be selected and moved by holding the shift key then clicking on a dot, this will highlight all dots on the line to move the full trace.

Trace dots can be added or removed by right clicking anywhere within the plot field.

If only a few dots from the trace need to be moved, select a dot then hold the control key to select the next point or points to be moved.

Right clicking on a dot will bring up a menu providing the following options **(Figure D)**:
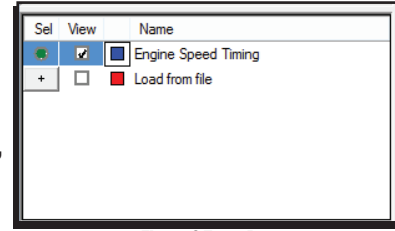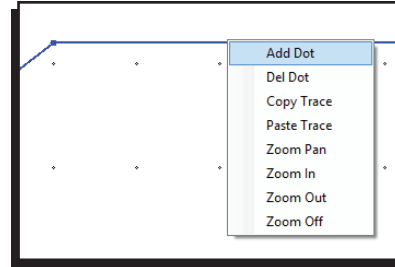
- **Add Dot:** Adds a dot at the point where clicked. Dots can be moved with the cursor or manually entered by inputting values in the text boxes found to the left of the plot. **(Figure E)**
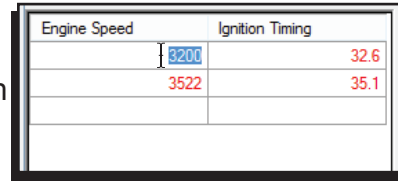- **Delete Dot:** Removes the dot closest to the point the cursor was clicked. The dot turns red indicating selection. **(Figure F)**
- **Copy Trace:** Copies a trace from a plot.
- **Paste Trace:** Pastes a trace into a plot.
- **Zoom Pan:** Activates the cursor to pan the plot.
- **Zoom In:** Magnifies the plot.
- **Zoom Out:** Reverses each step of the Zoom in feature.
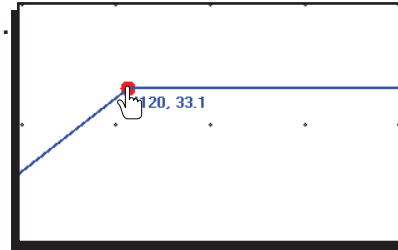- **Zoom Off:** Resets the plot to original size.

Figure C Trace Box

Figure D Plot Menu

Figure E Dot Text Box

Figure F Dot Selection

TABLE

Table cell values can be changed one at a time or in groups. To change the values, highlight a single cell or group of cells and enter the new value. **(Figure G)**

	200	600	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7100
250	13.0	11.0	3.0	3.0	5.0	6.0	8.0	10.0	11.0	10.0	9.0	10.0	11.0	12.0	12.0
200	13.0	11.0	7.0	7.0	9.0	10.0	12.0	14.0	15.0	14.0	13.0	14.0	15.0	16.0	16.0
175	13.0	11.0	9.0	9.0	11.0	12.0	14.0	16.0	17.0	16.0	15.0	16.0	17.0	18.0	18.0
150	15.0	13.0	11.0	11.0	13.0	14.0	16.0	18.0	19.0	18.0	17.0	18.0	19.0	20.0	20.0
125	15.0	13.0	13.0	15.0	17.0	18.0	20.0	22.0	23.0	22.0	21.0	22.0	23.0	24.0	24.0
105	15.0	15.0	17.0	18.0	20.0	21.0	23.0	25.0	26.0	25.0	24.0	25.0	26.0	27.0	27.0
80	15.0	16.0	17.0	19.0	22.0	25.0	27.0	31.0	31.0	32.0	31.0	31.0	32.0	32.0	32.0
65	15.0	18.0	20.0	22.0	25.0	26.0	29.0	34.0	35.0	36.0	35.0	36.0	37.0	38.0	38.0
50	15.0	20.0	20.0	20.0	25.0	32.0	34.0	38.0	38.0	41.0	41.0	41.0	41.0	41.0	41.0
35	15.0	16.0	17.0	18.0	25.0	35.0	41.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0

Figure G Tables

SAVES AND TRANSFERS

Changes made to the Direct Ignition Control via MSDView take effect immediately. You can create and save numerous different calibration files to your PC and load them back into the unit for different applications.

THE FOLLOWING WILL GO THROUGH A GENERAL DESCRIPTION OF THE SOFTWARE FOR THE DIRECT IGNITION CONTROL.

PROGRAMMING FEATURES

SETTINGS

Note: Basic settings **(Figure 5)** must be configured prior to using the unit. Setup can be performed on the bench with no external power.

Maximum Rev Limiter: This is the maximum RPM that the engine can reach before the coils will not produce spark.

Launch Rev Limiter (Blue Wire): This is the maximum RPM that the engine will reach before the coils will not produce spark while the launch wire has 12V battery power applied to it.

Latched:

DISABLED: The two step will activate any time the RPM is at or above the set Launch Rev Limiter.

ENABLED: The launch rev limiter cannot become active unless the RPM falls below 7/8 of the set RPM. For example: If set at 4000 RPM and the launch wire is activated, the launch limiter can only come on if the RPM falls below 3500. This prevents accidental activation while at high RPM (such as a faulty launch switch activating or activating it with the clutch during the run).

Coil Type: This selects the dwell or charge time of the coils.

LS1/LS6: This sets the dwell time of the LS1/6 coils.

LS2/LS3/LS7: This sets the dwell time of the LS2/3/7 coils.

Use this setting with the recommended MSD 82658 or 826583 coils.

Idle Timing Control: This uses timing to help stabilize the idle speed of your motor.

It should be set to "ENABLED" on any motor that also used a computer controlled IAC.

Enabling it will cause idle timing to be dynamic, and it may appear to jump around at idle when using a timing light.

Figure 5 Settings Tab

Timing Select: This setting allows the user to select one of the two methods to control timing: Plots or Table.

PLOTS: Select the two 2-D plots under the TIMING->PLOTS tab to control timing.

TABLE: Select the 3-D table under the TIMING->TABLE tab to control timing. This timing curve is based on engine speed and manifold pressure. **(Figure 6)**

Engine Type: This setting allows the user to select the engine manufacturer to determine the correct cylinder numbering system.

GM/CHRYSLER: Cylinders 1-3-5-7 are on the driver side and 2-4-6-8 on the passenger side.

FORD: Cylinders 1-2-3-4 are on the passenger side and 5-6-7-8 on the driver side.

Firing Order: Firing sequence can be viewed under this tab.

Custom Firing Order: When the Firing Order drop-down menu is set to 'Custom', the firing sequence can be entered manually. See **Figure 12** for known application firing orders.
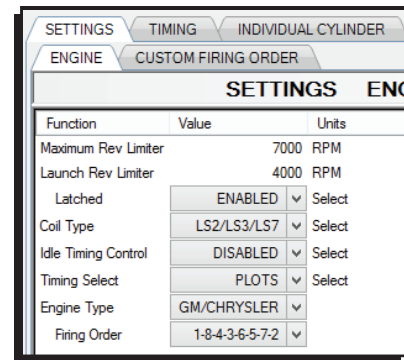
TIMING VERIFICATION

WARNING - Do not start the engine prior to setting the correct 'Engine Type' and 'Firing Order'

NOTE - The following steps will correct any minor distributor indexing issues and ensure accurate ignition timing.

1. Connect the DIS Controller to the PC via the USB cable and start MSDView.
   Prior to cranking the engine, set the 'Engine Type' and 'Firing Order' for your engine.
2. Attach a timing light to the spark plug wire of cylinder number 1.
3. Press the Timing button on the MSDView tool bar to display "Timing Locked 15°" and orange color.
4. Verify the timing is 15° Before Top Dead Center (BTDC).
5. If necessary, loosen the distributor clamp and rotate the distributor until the timing reads 15° BTDC.
6. Tighten the distributor clamp. Press the Timing button on the MSDView tool bar to display "Normal Timing" and green color.
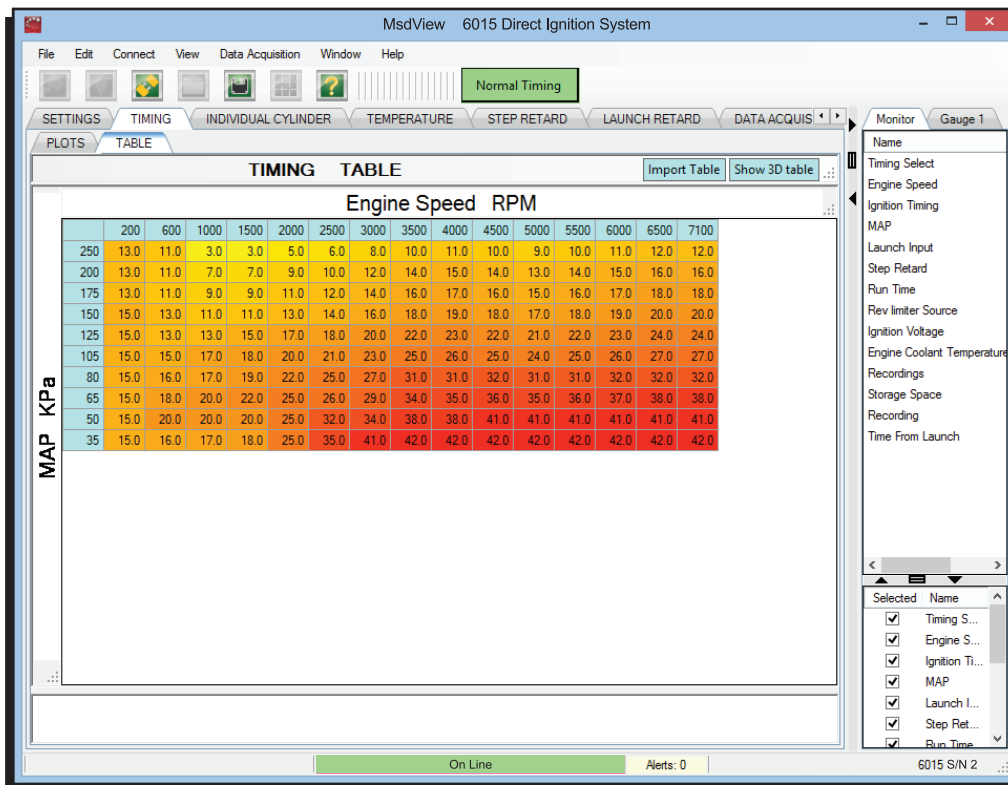

Figure 6 MAP vs. Engine Speed

TIMING

There are two methods available to control the ignition timing. One method, under the "PLOTS" tab uses 2D plots that function similar to a distributor. The second method, under "TABLE" uses a 3D table to allow for a greater flexibility as found in most EFI controllers. The "Timing Select" setting determines which method is used.

PLOTS: This tab contains two sub tabs with 2D plots that are similar to the operation of a distributor with vacuum advance. The DIS is pre-programmed with an engine speed and MAP timing curve as shown if Figure 8 and Figure 8.

Engine Speed: The "Engine Speed" tab is similar to springs and weights that would normally be found in a distributor. Set the base timing at your idle RPM and draw the advance curve as a normal distributor would. **(Figure 7 shows the default advance curve that is factory programmed in the DIS Control)**

Map Plot: The "MAP" Plot represents a vacuum advance canister as well as a boost retard. Under a vacuum, it should advance the timing (positive values), and under boost it should retard values (negative numbers). **(Figure 8 shows the default MAP-based curve that is factory programmed in the DIS Control)**
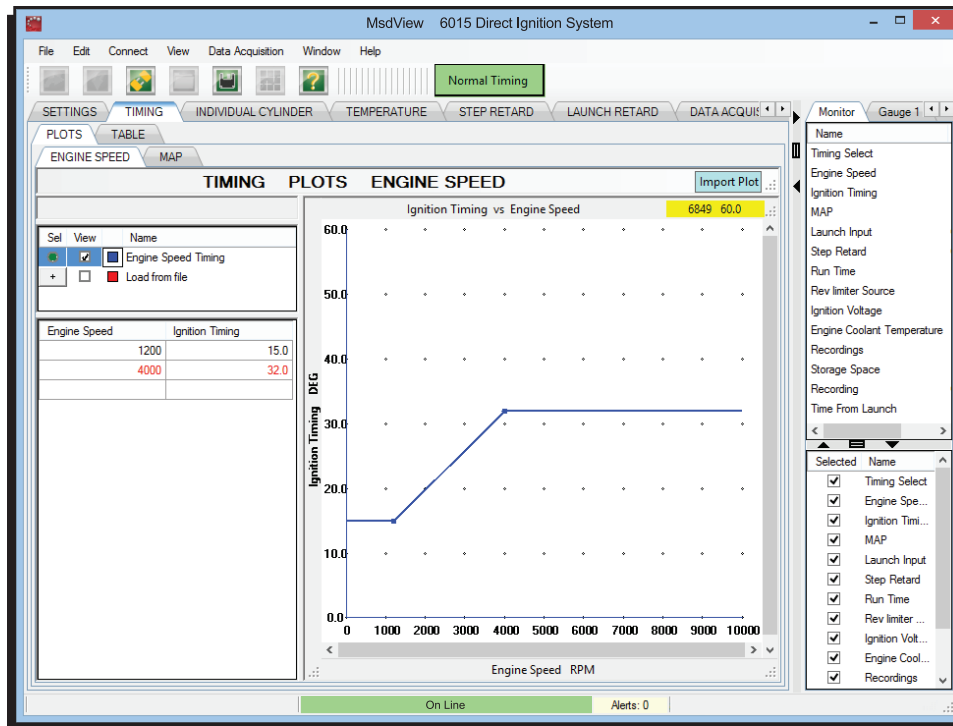
Figure 7 Default Timing Curve in MSD DIS Controllers (6015MSD and 60153MSD)

INDIVIDUAL CYLINDER

These tables represent the individual cylinder timing offset. The user can add (advance) or subtract (retard) up to 10 degrees of timing. **(Figure 9)**

Each CYL # is the actual cylinder number of the engine **(See Figure 12 on page 16)**.

TEMPERATURE

Running an engine coolant temp sensor is optional, but recommended for optimum operation and engine protection. When the coolant temperature is high, the engine can generally not withstand quite as much timing as when the temperature is low. The default graph is a little more aggressive than in an OEM application, but should work well. If the sensor is not installed or is faulted (shorted or open) the temperature in the graph will default to 50C (122F).

Note: The timing at 50C should be set to 0. **(Figure 10)**

Note: The Timing vs. Temperature table values are based on the use of the stock GM coolant temp sensor.

Warning: **Do not use a different sensor unless the calibration is the same**.

STEP RETARD (PINK WIRE)

The "Step Retard" (nitrous) input, retards the ignition timing when it is activated with +12V power. It is helpful if you are using a power adder and need to retard the timing while it is active. The following describes how the activation/deactivation works:

> **Total Retard:** The maximum amount of timing that is be removed after the "ON Ramp Time" has been passed.

> > **Minimum Engine Speed:** The minimum engine speed that must be met to retard the timing. If the "Step Retard" wire is activated below this RPM, it has no effect and does not retard the timing. When set to 0 (zero) the step retard will activate regardless of engine speed.

> > **ON Ramp Time:** The time it takes to ramp ignition timing to "Total Retard". This allows for a gradual timing retard over time. For example, for 10 degrees of Total Retard and a 1 second ramp time, the controller will retard 1 degree every 0.1 seconds until the full 10 degrees of timing has been pulled out. This timer will not begin until the "Minimum Engine Speed" is met. Setting On Ramp Time to 0 (zero) will cause an immediate timing retard corresponding to the Total Retard.
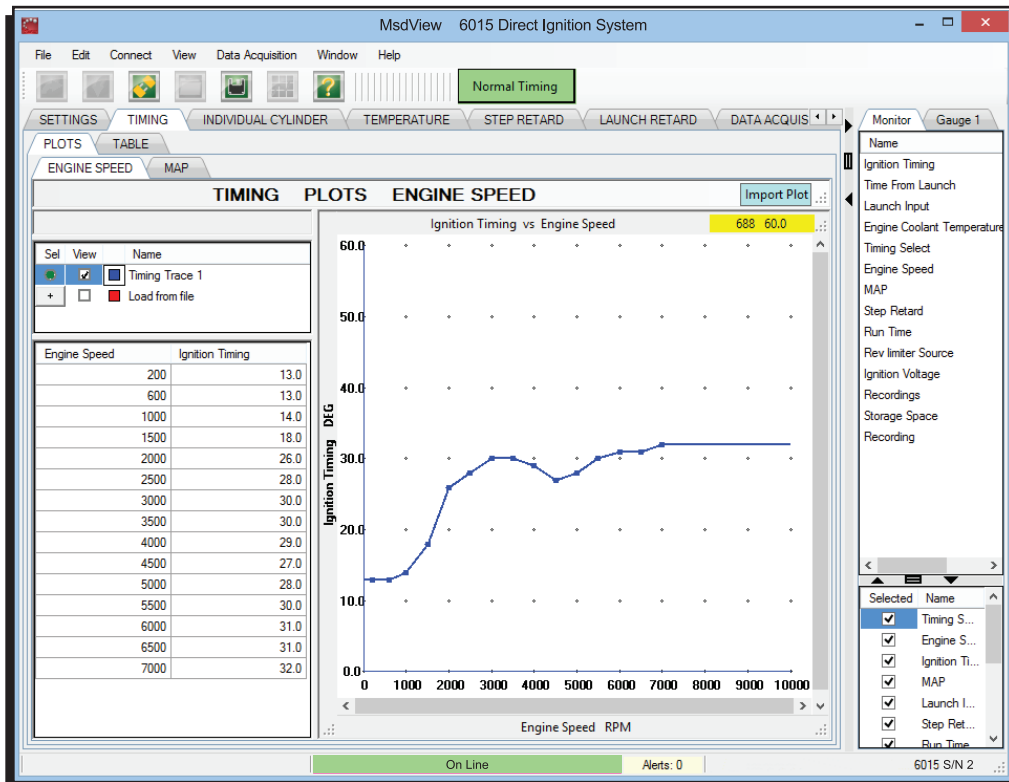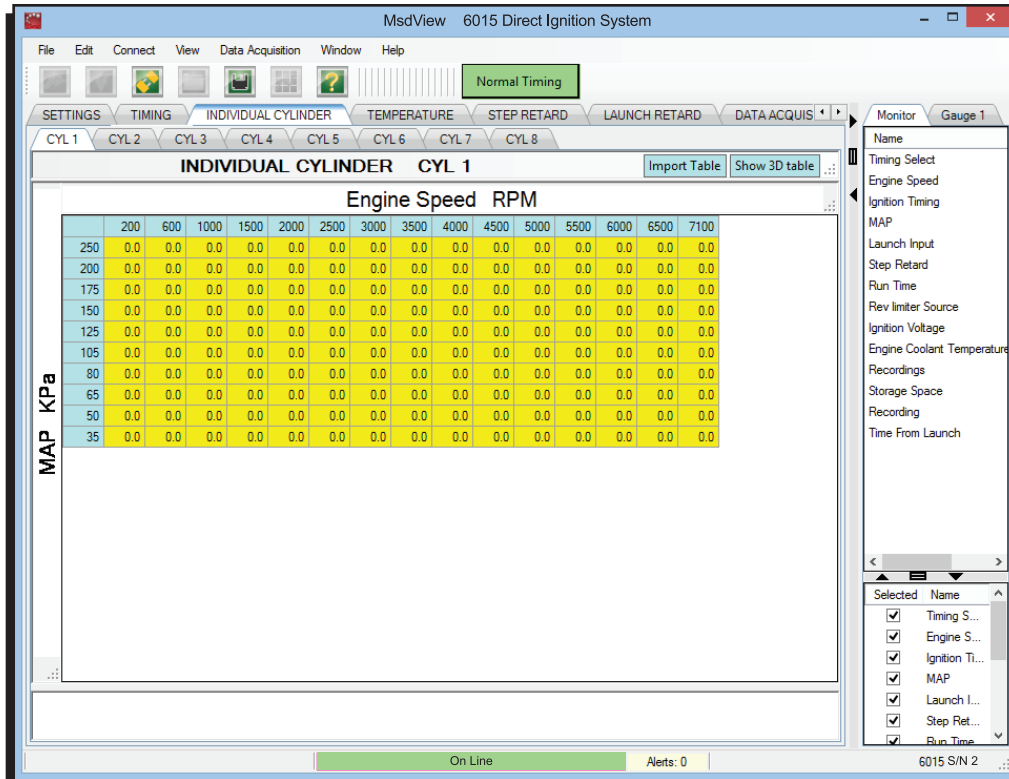
Figure 8 Ignition Timing VS Engine Speed

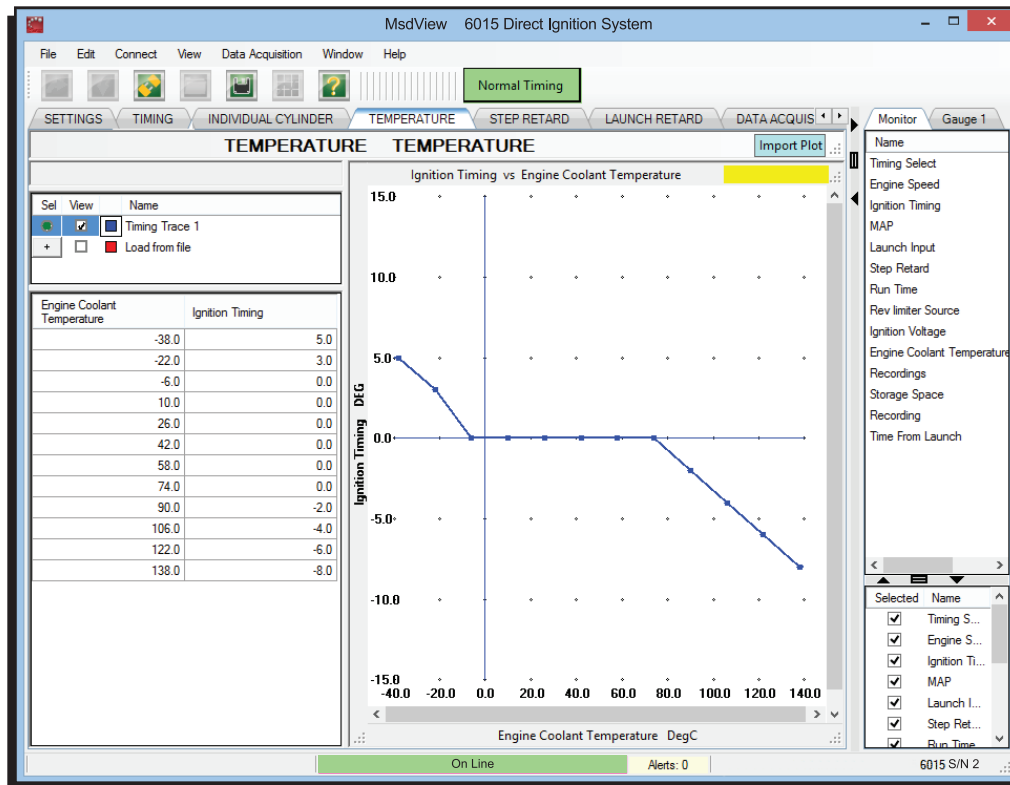**Figure 9 MAP vs. Engine Speed RPM**

Figure 10 Ignition Timing vs. Engine Coolant Timing

OFF Delay: The time the Total Retard remains in effect after the "Step Retard" is deactivated. The off delay ensures that the intake manifold is void of residual nitrous. This will also delay the "Off Ramp Time" from starting - meaning that it is additive with respect to the Off Ramp Time.
OFF Ramp Time: This will decay the effect of the Total Retard - effectively ramping timing back into the motor instead of removing it instantaneously. Full timing will be ramping back in after the "Off Delay" has expired.

LAUNCH RETARD
The LAUNCH RETARD is used to offset the ignition timing during the 10 seconds after the launch wire is released. It can optimize traction immediately after launch. The Time From Launch is used by the LAUNCH RETARD plot and can be monitored in a gauge. **(Figure 11 on page 12)**

DATA ACQUISITION
The internal data recorder on the Direct Ignition Control Ignition system is a programmable 8MB storage system. It is meant to be a recording device to observe RPM, timing, input activations and a number of other different parameters while racing down the track. Once the memory is full, the system stops recording data until the user deletes some of the recordings.

SETTINGS
DATA ACQUISITION: Master Enable/Disable switch.
Start Recording Above: The engine speed must be higher than this entry to begin recording.
Activate with Launch Input: If this is enabled, recordings will not start unless the "Launch" wire is activated. If it is disabled, recordings can start whenever the RPM conditions are met.
Stop Recording Below: If the engine speed falls below this, the recording stops.
Max Recording Time: This is the longest any single recording can be. If the time is expired and all other conditions are still met a new recording will automatically begin.
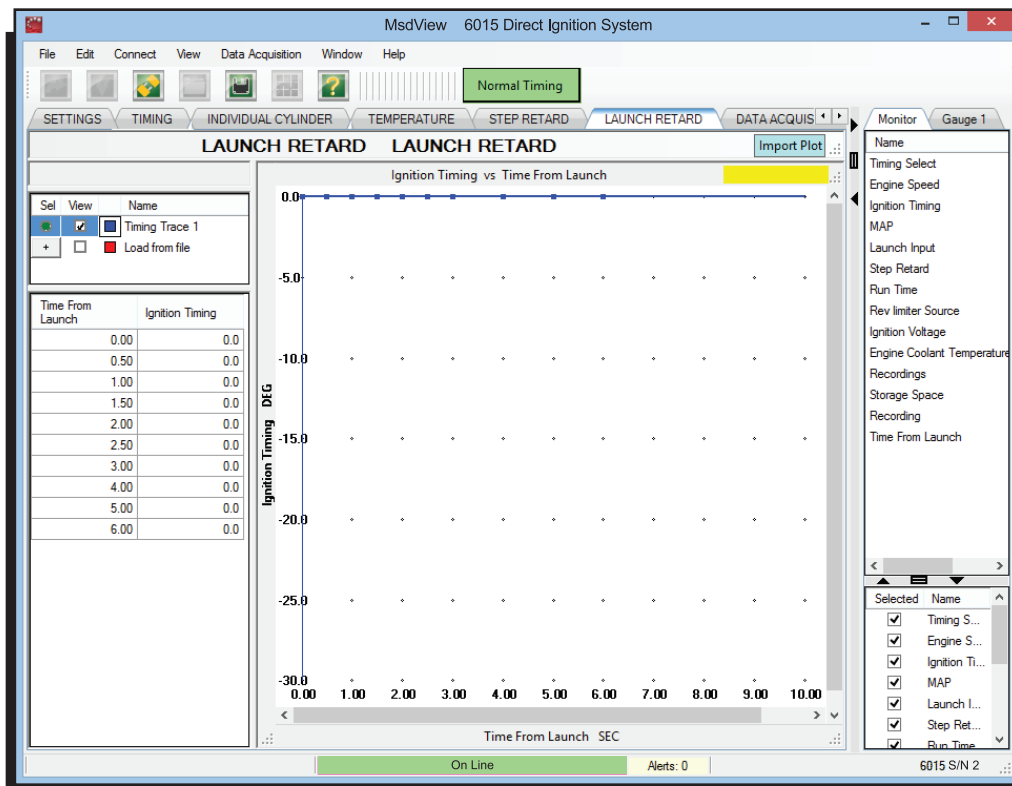
Figure 11 Ignition Timing vs. Time from Launch

ALERTS

FAULTS	DESCRIPTION / CAUSE
MAP SENSOR FAULT	MAP sensor problem (open or shorted).
BATTERY	Activates if voltage drops below 9V or goes above.
ECT SENSOR	Displays -40°C if temp sensor is not connected; the controller will default it to 50°C in the temperature timing control table.
CAM FAULT	RPM is detected but no cam sensor signal is present.
CRANK FAULT	Camshaft sensor signal is present, but no engine speed is detected.
EEPROM READ ERROR	EEPROM data corrupted.
EEPROM WRITE ERROR	Error writing to EEPROM.
FLASH READ ERROR	Flash data corrupted.
FLASH WRITE ERROR	Error writing to flash.
FLASH FULL	The flash is out of memory. Data acquisition is stopped. The user needs to delete recordings.
DATA ACQUISITION BUFFER WARNING	The data acquisition buffer is 90% full.
DATA ACQUISITION BUFFER FULL	The data acquisition buffer is full.

CHANNELS

CHANNEL	DESCRIPTION
ENGINE SPEED	The Speed of the motor in RPM.
IGNITION TIMING	Ignition timing referenced to Top Dead Center (TDC).
MAP	The Intake Manifold Absolute Pressure in kPa or PSIA
LAUNCH	Launch Wire: Activated = 1: Not Activated = 0
STEP RETARD	Step Retard wire: Activated = 1: Not Activated = 0
ECT	Engine Coolant Temperature. It will show -40°C if not connected, but the controller will default it to 50°C in the temperature timing control.
IGNITION VOLTAGE	The voltage being supplied to the unit and the coils. It is important that is remains over 12V to supply proper power to them.
MAP FAULT	Indicates the MAP sensor is open or shorted.
ECT FAULT	Indicates the ECT sensor is missing, open or shorted.
BATTERY FAULT	Activates if the voltage drops below 9V or goes above 18V.
CAM FAULT	Indicates a problem with the camshaft position sensor (CMP). It will activate if RPM is detected but no cam sensor signal is detected
CRANK FAULT	Indicates a camshaft sensor (CMP) signal is detected, but no engine speed is detected - likely resulting from a Crankshaft Position Sensor (CKP) fault

Note: Maximum Data Acquisition recording time is ten minutes each.

MONITORS

CHANNEL	DESCRIPTION
TIMING SELECT	Indicate which of the two methods to control timing is selected
ENGINE SPEED	Engine speed in RPM
IGNITION TIMING	Ignition timing referenced to Top Dead Center (TDC)
MAP	Intake Manifold Absolute Pressure in kPa or PSIA
LAUNCH INPUT	Launch Wire (blue) status (active or inactive)
STEP RETARD	Step Retard Wire (nitrous) status (active or inactive)
RUN TIME	The length of time the engine has been running (resets with every power on cycle)
REV LIMIT SOURCE	Indicates the rev limiting source. It will be Key Off when connected via USB while the ignition key is off, Launch when the launch wire is activated or Maximum any other time.
IGNITION VOLTAGE	This is the voltage being supplied to the unit. This is also the voltage being supplied to the coils - so it is important that it remains over 12V to supply proper power to them.
ENGINE COOLANT TEMPERATURE	This is the engine coolant temperature in Celsius or Fahrenheit. It will display -40°C if the sensor is not connected or open and 130°C if it is shorted.
RECORDINGS	Number of recordings stored on the device
STORAGE SPACE	Amount of free storage space for the recordings
RECORDING	Indicates if the unit is currently recording a data file
TIME FROM LAUNCH	Indicates the length of time since the Launch Input was de-activated. Used for Launch Retard.

WIRING FEATURES

	PIN	FUNCTION	COLOR		
			ECU SIDE		
	PIN	FUNCTION	COLOR		
16-PIN CONNECTOR	A	ECT	BLACK	2-pin connector connects to Engine Coolant Temp (ECT) sensor.	
	B	REF GROUND	BROWN	Coil connector.	
	C	COIL	RED/GREEN		
	D	COIL	BROWN/GREEN		
	E	COIL	WHITE/BLUE		
	F	COIL	VIOLET/BLUE		
	G	12V SUPPLY	PINK		
	H	BATTERY (+)	RED	Battery (+)	
	J	GROUND	BLACK	Ground	
	K	12V SUPPLY	PINK	Coil connector.	
	L	COIL	RED		
	M	COIL	GREEN		
	N	COIL	BLUE		
	P	COIL 1	PURPLE		
	R	REF GROUND	BROWN		
	S	ECT	YELLOW	2-pin connector connects to ECT sensor.	

	PIN	FUNCTION	COLOR		
10-PIN CONNECTOR	A	12V SUPPLY	RED	Distributor pigtail.	
	B	REF GROUND	GREEN		
	C	CAM	PURPLE		
	D	CRANK	PURPLE/WHITE		
	E	-	-	NOT USED	
	F	-	-	NOT USED	
	G	SW IGNITION	RED	Keyed 12V	
	H	NITROUS	PINK	Step Retard (12V activated)	
	J	LAUNCH REV LIMITER*	BLUE	Launch Rev Limiter (*Two Step) (12V)	
	K	TACH	GRAY	Tach output	

WIRING FEATURES cont.

ENGINE SIDE			
LOOSE WIRES	**WIRE COLOR**	**FUNCTION**	
	PINK	Step Retard. (12V activated)	
	BLUE	Launch Rev Limiter RPM (12V activated)	
	GRAY	Tach.	
	RED	Ignition 12V supply.	
	BLACK (16GA)	Battery Negative	
	RED (16GA)	Battery Positive	
ENGINE COOLANT TEMPERATURE SENSOR (ECT)			
2-PIN CONN	**WIRE COLOR**	**PIN**	**FUNCTION**
	BLACK	PIN-1	Sensor Ground
	YELLOW	PIN-2	Engine Coolant Temperature Signal
COIL CONNECTOR - PASSENGER			
7-PIN CONNECTOR	BLACK	Pin-A	Engine Ground
	RED/GREEN	Pin-B	Coil D (2 - GM, 1 - Ford)
	BROWN/GREEN	Pin-C	Coil C (4 - GM, 2 - Ford)
		Pin-D	Not Used
	BROWN	Pin-E	Reference Ground
	WHITE/BLUE	Pin-F	Coil B (6 - GM, 3 - Ford)
	VIOLET/BLUE	Pin-G	Coil A (8 - GM, 4 - Ford)
	PINK	Pin-H	12V power for passenger side coils
COIL CONNECTOR - DRIVER			
7-PIN CONNECTOR	BLACK	Pin-A	Engine Ground
	RED	Pin-B	Coil D (7 - GM, 8 - Ford)
	GREEN	Pin-C	Coil C (5 - GM, 7-Ford)
		Pin-D	Not Used
	BROWN	Pin-E	Reference Ground
	BLUE	Pin-F	Coil B (3 - GM, 6 - Ford)
	PURPLE	Pin-G	Coil A (1 - GM, 5 - Ford)
	PINK	Pin-H	12V power for driver's side coils

GLOSSARY OF ABBREVIATIONS	
BTDC	Before Top Dead Center
CKP	Crankshaft Position Sensor
CYL	Cylinder
DIS	Direct Ignition System
ECT	Engine Coolant Temperature
ECU	Electronic Control Unit
EFI	Electronic Fuel Injection
IAC	Idle Air Control
MAP	Manifold Absolute Pressure
OEM	Original Equipment Manufacturer
PC	Personal Computer
PN	Part Number
RPM	Revolutions Per Minute
USB	Universal Serial Bus
EEPROM	Electrically Erasable Programmable Read-Only Memory

Figure 12 Common Engine Firing Orders

CHEVY (EXCEPT LS)
1-8-4-3-6-5-7-2

FORD 289, 302
FE, 429, 460
1-5-4-2-6-3-7-8

FORD 5.0L EFI
351W, 351C,
351M, 400M
1-3-7-2-6-5-4-8

PONTIAC MOST V8
1-8-4-3-6-5-7-2

CHRYSLER
SMALL BLOCK
1-8-4-3-6-5-7-2

CHRYSLER BIG
BLOCK AND HEMI
1-8-4-3-6-5-7-2

OLDSMOBILE
1-8-4-3-6-5-7-2
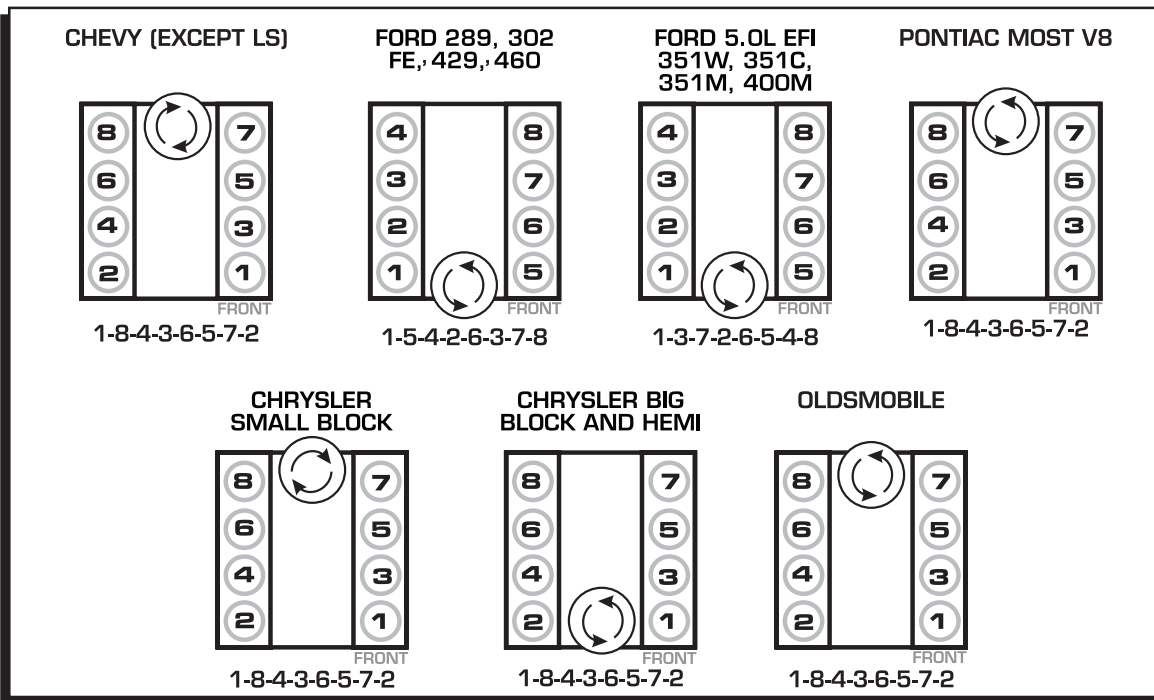
Service

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

All returns must have a Return Material Authorization (RMA) number issued to them before being returned. To obtain an RMA number please contact MSD Customer Service at 1 (888) 258-3835 or visit our website at www.msdperformance.com/rma to automatically obtain a number and shipping information.

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 using Ground shipping methods (ground shipping is covered by warranty). For more information, call MSD at (915) 855-7123. MSD technicians are available from 7:00 a.m. to 5:00 p.m. Monday - Friday (mountain time).

Limited Warranty

MSD warrants this product to be free from defects in material and workmanship under its intended normal use*, when properly installed and purchased from an authorized MSD dealer, for a period of one year from the date of the original purchase. This warranty is void for any products purchased through auction websites. If found to be defective as mentioned above, it will be repaired or replaced at the option of MSD. Any item that is covered under this warranty will be returned free of charge using Ground shipping methods.

This shall constitute the sole remedy of the purchaser and the sole liability of MSD. To the extent permitted by law, the foregoing is exclusive and in lieu of all other warranties or representation whether expressed or implied, including any implied warranty of merchantability or fitness. In no event shall MSD 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. Any modifications to this item or if it is used on an application other than what MSD 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 will accept no liability for custom applications.