OPERATION

DIGITAL OPERATION

The Programmable DIS-2 uses a high speed RISC microcontroller to control the ignition’s output while constantly analyzing the various inputs such as supply voltage, trigger signals and rpm. The high speed controller can make extremely quick compensations to the timing and rpm limits while maintaining accurate timing signals to within +/- 0.1° and +/- 10 rpm. The circuits and controller of the DIS-2 have been thoroughly debounced and suppressed to create protection against Electro Magnetic Interference (EMI).

Note: The DIS-2 can be removed from power and still retain its programmed settings.

CAPACITIVE DISCHARGE

The DIS-2 features a capacitive discharge ignition design. The majority of stock and aftermarket ignition systems are inductive ignitions. In an inductive ignition, the coil must store energy and step up the supplied voltage to maximum strength between each firing. At higher rpm, since there is less time to charge the coil to full capacity, the secondary voltage falls short of reaching its maximum energy level which results in a loss of power or a top end miss.

The DIS-2 Ignition features a capacitor which is quickly charged to 490 - 505 volts and stores this energy until the ignition is triggered. With the CD design, the voltage sent to the coil is always at maximum power even at high rpm.

MULTIPLE SPARKS

The DIS-2 produces full power multiple sparks for each firing of a plug. The number of multiple sparks that occur decreases as rpm increases, however the spark series always lasts for 20° of crankshaft rotation. Above 3,300 rpm there is simply not enough time to fire the spark plug more than once, so there is only one full power spark.

PROTECTION

The Programmable DIS-2 has a built in reverse polarity protection circuit. This will protect the ignition in the event of wrong connections. It will also shut off for protection from a surge in power. The ignition will still operate once the surge or polarity is corrected.

LED INDICATOR

There is an LED that monitors the status of the Ignition. The LED will verify trigger inputs and will flash trouble codes such as a Code 2 for No Cam Sync or Code 3 for Low Battery supply voltage.
SHIFT COUNTING

The DIS-2 uses state of the art computer circuitry to determine when a shift has occurred. This eliminates having to wire in separate external switches. The DIS-2 will sense the normal rpm drop of the engine to determine that a shift has been made. The rpm drop is programmable so it can be matched to the specific engine combination being used. In addition the engine rpm has to increase by 200 rpm before the next gear can be selected to prevent double shifting.

CAMSHAFT SYNCHRONIZATION

This is used only in applications where the individual cylinder timing is going to be used. The 2-pin connector with a Light Blue and Light Green wire (Fig. 1) connects to a sensor that is used to synchronize or alert the Ignition as to when the number one cylinder is going to be triggered. With this information, the Ignition knows which cylinder is being fired allowing for the individual cylinder timing capabilities. A Universal Cam Sensor is available from MSD as PN 2346.

Note: This is an option & does not have to be used.

PROGRAMMABLE FEATURES

The Programmable DIS-2 Ignition has many features that give you more control over your timing and rev limits. For more information on programming these features, consult the supplied Programming Instruction booklet, or see the Help menu in the Pro-Data+ Software.

OPTIONAL HAND HELD PROGRAMMER, PN 7550

The Hand Held Programmer (Fig. 2) allows you to select and program the different features of the Programmable DIS-2 Ignition. The DIS-2 does not need to be connected to the programmer in order to operate because the program values are stored in an erasable memory circuit in the Ignition Control. The Programmer only needs to be connected when you want to check or change programs or to monitor different operating parameters. It connects to the Ignition with a six foot harness with a molded 9-pin connector.

LAUNCH SELECTOR/SHIFT LIGHT WITH GEAR INDICATOR

This Module (Fig. 3), PN 8736, connects to the Ignition through the 9-pin harness and allows the driver an instant way to change the Launch Rev Limit settings. There are two rotary dials that control the launch rpm only and are adjustable from 3,000 – 12,500 in 100 rpm increments. There is also an LED that indicates communication and power from the DIS-2 Ignition. A 2-pin connector allows operation of the ultra bright LED shift light when connected to the DIS-2. Also, the launch wire is monitored on the Gear 1 LED.
PRO-DATA+ (INCLUDED)
MSD has a software package for your PC that allows you to create timing and rpm programs for this ignition. All of the adjustable parameters can be reviewed and set, then uploaded to the ignition. This software program is included to allow the upload and download of programs for the Ignition Control as well as monitoring and editing of all the ignition's parameters. It will work with any PC running Windows '95, '98 or NT. More information is available in the Programming instructions. Visit our website to download the current version at www.msdignition.com.

CYLINDER SELECTION
The Ignition default is for 4-cylinder operation. It can also be programmed for 1 and 2-cylinder operation in the CylCnt menu on the Hand Held Programmer, or through the MSD Pro-Data+ Software.

RPM FEATURES

3-STEP REV CONTROL
The Programmable DIS-2 uses a unique “Smart Touch™” Circuitry that learns the exact firing distance from one cylinder to the next to ensure the rev limiters are the smoothest available. The Smart Touch™ rev limiter will learn the small difference between each cylinder as well as large differences.

You can set three different rev limits that can be used during the burnout, launch and as overrev protection. Each limit is adjustable in 100 rpm increments from 2,000 – 15,000. The different stages are selected by the Light Blue and Dark Blue wires. When 12 volts are supplied to the Light Blue wire, the Burnout limit is activated. Twelve volts on the Dark Blue wire activates the Launch rev limit (as well as the Launch Retard value, resets to Gear 1 indicator and timing curve). When 12 volts are removed from both wires, the overrev limit is in effect.

Note: If both wires are activated at the same time, the Launch limit (Dark Blue) will override the Burnout value.

RPM ACTIVATED WINDOW SWITCH
This feature can be programmed to activate and deactivate a circuit at desired rpm points. This RPM Switch will supply a ground path to a circuit through the Purple/Blue wire and then remove it at the selected rpm. It is capable of handling 3 amps continuous.

SEQUENCED SHIFT LIGHT
MSD offers a Shift Light, PN 7552, that easily connects to the 2-Pin connector of the DIS-2 Ignition Control. Five different rpm points can be programmed to turn the shift light On from 2,000 – 15,000 rpm in 100 rpm increments. The Red/Green +12V output wire is fused for 3 amp maximum fuse size.

TIMING FEATURES

Note: All retards will be added together to determine the final timing setting.

START RETARD
This program will retard the timing from cranking through 800 rpm. It is automatically enabled and is adjustable from 0° - 30° of retard. This eases the load on the starter and prevents backfires. The retard will reactivate if the engine rpm drops below 500 rpm.

Note: The DIS-2 must be used on engines with an electric starter.
MULTI-STAGE RETARD

This Ignition offers three stages of retard that can be activated at different times via three control wires and/or an rpm programmed value. Each retard is adjustable from 0°-25° in 0.1° increments (from 800-15,000 rpm). When used together the retard stages are added together. The total maximum amount of the retards is 35°.

Each stage is activated when 12 volts are supplied to the corresponding wire and the engine speed is above the rpm value. The retard value will remain active until 12 volts are removed from the wire, or the engine speed drops below the rpm value.

**Pink Wire – Stage 1**

**Violet – Stage 2**

**Tan Wire – Stage 3**

**Step Retard Deactivation Delay:** This program allows you to select a delay time when a stage of retard is deactivated. This is useful to ensure that nitrous has stopped flowing through the engine. The delay time can be set from 0 – 2.5 seconds.

**STAGE 3 RETARD RAMP**

The Stage 3 retard also has a timed ramp function for progressive nitrous applications. This time is programmable from .1 to 9.9 seconds. (Note: If this is set to zero the third stage functions exactly like stages 1 and 2.) If a value above zero time is entered then the third retard stage will progressively retard the timing over this time frame. The start point for the progressive retard can be activated by the release of the launch rev limiter, by rpm or by a separate external activation wire that can be connected to a timer or other devices.

**LAUNCH RETARD TIMING CURVE**

This program can be set from 800 – 15,000 rpm (every 100 rpm) in steps as small as 0.1° up to 25°. It is rpm dependent. When 12 volts are applied to the Dark Blue wire this program is activated. It will override the Run Timing Program until the vehicle is shifted to second gear where the Run Timing Curve is activated and in for the duration of the run.

**Note:** All retards are added together when activated. If a stage of retard is activated at the same time as the Launch Retard or Launch Timing Curve, the programmed retards are added together. It is recommended to view the Retard Sum using the Handheld Programmer or the MSD Pro-Data+ Graph View.

**LAUNCH RETARD RAMP**

This feature allows the ignition timing to ramp back to the Launch Timing Curve over a programmable amount of time from 0 – 2.5 seconds in 0.010 second increments. The retard is programmable from 0° - 30° degrees in .5° increments. This Ramp time is activated when the 12 volts are removed from the Dark Blue (Launch Retard/Launch RPM) wire.

**GEAR RETARDS**

This feature allows you to program a different retard for each gear without any extra wiring. Once the shift sequence is reset with the Launch Control Wire (Dark Blue), the DIS-2 will retard the timing automatically following each shift. Zero to 5° can be removed in each gear and the retards are cumulative, (example: 3° in 3rd, 3° in 4th and 4° in 5th, total 10°). The Launch Control Retard Curve allows 1st gear timing and 2nd gear uses the Run Retard Curve. Each additional shift can be programmed to have additional retards without the use of external switches.
RUN TIMING CURVE

This is the program for the full ignition timing curve from 800 – 15,000 rpm. The curve is adjustable in 0.1° increments every 100 rpm with 25° maximum. The Run Timing Curve is the default program and remains active at all times unless the Launch Timing Curve is activated at which point it is overridden until the first shift when the Launch Timing Curve is deactivated.

Note: The Run Timing Curve will be added to any Stage Retards and Gear Retards that are activated throughout the run. Maximum retard using the Run Curve is 25°.

INDIVIDUAL CYLINDER MANAGEMENT (ICM)

This program allows you to select a retard for each cylinder. Each cylinder can be programmed to have up to 10° of timing removed and is adjustable in 0.1° increments. This amount is added to any retard amount being used with the Run Curve or Step Retards.

To take advantage of the ICM, a Cam Sync Sensor must be incorporated. MSD offers a Universal Cam Sync Pickup, PN 2346. A Sync Sensor is necessary to alert the Ignition Control when the number one cylinder is being triggered. When the Ignition knows that the number one cylinder is firing, it starts the triggering sequence and uses the retard set for each cylinder at the correct time. Note: The firing order of the engine does not correspond to the cylinder numbers of the Pro-Data software.

The Cam Sync pickup must be phased correctly with the crank trigger. It should be adjusted initially to lead the #1 cylinder by 5° - 10°. This will get it close enough to run the engine. You then need to center the sensor signal around the trigger pickup signal for correct operation over the entire rpm range of the engine. This is set by using the Pro - Data+ or monitor mode on the Programming Unit. You can then move the Sync pickup until the monitor reads CamSync SYNC.

The Ignition monitors both ignition trigger and cam sync inputs for every revolution of the engine. Also, the LED will flash a code 2 (blink-pause-blink) and the Hand Held Programmer will read CamSync None or No CamSync if there is an error with the Cam Sync Pickup. For complete setup instructions see the Programming Instructions.

OPTIONAL BOOST RETARD CURVE

The DIS-2 has an external 3 - pin connector (Fig. 4) that will attach to one of two optional Map Sensors PN 23121 (2 Bar) 2-29 psi or PN 23131(3 Bar) 2-44 psi. When this sensor is used, a timing curve can be programmed into the DIS-2 based on the pressure within the intake manifold. This is especially useful for turbo applications. This feature is programmable from 2 - 45 psi in 0.25 psi increments, from 0-25° retard in .1° increments.
# Wiring Functions

<table>
<thead>
<tr>
<th>Power Leads</th>
<th>These are the two heavy 12 gauge wires and are responsible for getting direct battery voltage to the ignition. The ignition is load protected from reverse battery connections and will automatically shut down if there is over 27 volts input.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavy Red</td>
<td>This wire connects directly to the battery positive (+) terminal or a positive battery junction such as the starter solenoid. Note: Do not connect to the alternator.</td>
</tr>
<tr>
<td>Heavy Black</td>
<td>This wire connects to a good ground, either at the battery negative (-) terminal or to the engine. Note: Engine must be grounded to battery negative.</td>
</tr>
<tr>
<td>Ignition Switch</td>
<td>Red</td>
</tr>
<tr>
<td>Coils</td>
<td>Brown/Orange</td>
</tr>
<tr>
<td></td>
<td>Brown/White</td>
</tr>
<tr>
<td></td>
<td>Brown/Orange</td>
</tr>
<tr>
<td></td>
<td>Brown/Green</td>
</tr>
<tr>
<td>Trigger Pickups</td>
<td>White (Coil 1)</td>
</tr>
<tr>
<td></td>
<td>Green (Coil 2)</td>
</tr>
<tr>
<td></td>
<td>Gray</td>
</tr>
</tbody>
</table>

## Accessories

<table>
<thead>
<tr>
<th>2-Pin AMP Connector</th>
<th>2-Pin Connector Cam Sync</th>
<th>Lt Blue</th>
<th>Lt Green</th>
<th>This 2-pin connector plugs into a Cam Sync Sensor to indicate when the number one cylinder is triggered.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-Step Rev</td>
<td>Light Blue</td>
<td>This wire activates the Burnout rev limit when 12 volts are applied.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dark Blue</td>
<td>When 12 volts are applied, this wire activates several features including: Launch rev limit, Launch Retard value, Launch Timing Curve and will reset the Shift Light sequence to 1st gear &amp; Step 3 slope.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Wiring Functions CONT.

<table>
<thead>
<tr>
<th>3-Step Retard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pink</td>
<td>This wire activates the first retard stage when it is applied to 12 volts. When 12 volts are removed the retard is deactivated.</td>
</tr>
<tr>
<td>Violet</td>
<td>This wire activates the second retard stage when it is applied to 12 volts. When 12 volts are removed the retard is deactivated.</td>
</tr>
<tr>
<td>Tan</td>
<td>This wire activates the third retard stage when it is applied to 12 volts. When 12 volts are removed the retard is deactivated if ramp value = 0. Step 3 retard ramp can be activated by this wire providing a progressive retard ramp that is programmable from .1 to 9.9 seconds.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8 - Pin Deutsch Connector</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shift Light/Shifter</td>
<td>Shift Light activation wire. Connects to the Shift Light PN 7552 or to any device with a 3 amp or less current draw. A 3 amp fuse is in line on the Red/Green wire.</td>
</tr>
<tr>
<td>RPM Switch</td>
<td>RPM Activation Switch. This wire will supply a ground to complete a circuit at a desired rpm. It will handle up to 3 amps continuous.</td>
</tr>
<tr>
<td>Black</td>
<td>Not Used</td>
</tr>
</tbody>
</table>

### General Information

#### Battery
The DIS-2 Ignition Control will operate on any negative ground, 12 volt electrical system. The DIS-2 can be used with 16 volt batteries and can withstand a momentary 24 volts in case of jump starts. The DIS-2 Ignition will deliver full voltage with a supply of 11-18 volts and will operate momentarily with a supply voltage as low as 7 volts. If your application does not use an alternator, allow at least 15 amp/hour for every half hour of operation. The DIS-2 uses about .7 Amps for every 1,000 rpm. If the engine is cranked with the same battery or other accessories such as an electric fuel or water pump are used, the amp/hour rating should be higher.

#### Coils
The MSD DIS-2 Ignition can be used with most stock coils and most aftermarket coils that are designed to replace the stock coils. For more information on recommended coils, contact our Customer Support Department at (915) 855-7123.

#### Tachometers
The DIS-2 Ignition features a Tach Output Wire (Gray). This wire provides a trigger signal for tachometers, a shift light or other add-on rpm activated devices. The Tach Output Terminal produces a 12 volt square wave signal with a 30° duty cycle. Some vehicles with factory tachometers/fuel pumps may require a Tach Adapter to operate with the DIS-2. For more information on Tachometers and Tach Adapters, see the Tachometer Section on page 9.
SPARK PLUGS AND WIRES

Spark plug wires are very important to the operation of your ignition system. A good quality, helically wound wire and proper routing are required to get the best performance from your ignition, such as the MSD 8.5mm Super Conductor Wire. Helically wound wires provide a good path for the spark to follow while keeping Electro Magnetic Interference (EMI) to a minimum. Excessive EMI, such as the amount that solid core wires produce, will interfere with the operation of the DIS-2. **Solid Core spark plug wires cannot be used.**

Routing: Correct routing of the plug wires is also important to performance. Wires should be routed away from sharp edges and engine heat sources. If there are two wires that are next to each other in the engine’s firing order, the wires should be routed away from each other to avoid inducing a spark into the other wire.

Spark Plugs: Choosing the correct spark plug design and heat range is important when trying to get the best performance possible. Since there are so many engine combinations and manufacturers, MSD cannot recommend which plug or gap is exactly right for your application.

It is recommended to follow the engine builder or manufacturer’s specification for spark plugs. With that, you can then experiment with the plug gap to obtain the best performance. The gap of the plugs can be opened in 0.005" increments, then tested until the best performance is obtained.

Sealing: The DIS-2 is potted completely with a polyurethane compound for vibration and water resistance.

Welding: If you are welding on your vehicle, to avoid the chance of damage always disconnect all power and ground cables of the DIS-2. (You should also disconnect the tach ground wire too).

MOUNTING

The DIS-2 can be mounted in any location as long as it is away from direct engine heat sources. It is not recommended to mount the unit in an enclosed area.

WIRING

Wire Length: All of the wires of the DIS-2 Ignition may be shortened as long as quality connectors are used or soldered in place. To lengthen the wires, use one size bigger gauge wire (10 gauge for the power leads and 16 gauge for the other wires) with the proper connections. All connections must be sealed.

Grounds: A poor ground connection can cause many frustrating problems. When a wire is specified to go to ground, it should be connected to the battery negative terminal, engine block or chassis. There should always be a ground strap between the engine and the chassis. Always securely connect the ground wire to a clean, paint free metal surface.

Routing Wires: The DIS-2 wires should be routed away from direct heat sources such as exhaust manifolds and headers and any sharp edges. The trigger wires should be routed separate from the other wires and spark plug wires. It is best if they are routed along a ground plane such as the block or frame.
PRESTART CHECK LIST
- The only wires connected to the coil terminals are the DIS-2 wires to coil positive and coil negative.
- The small Red wire of the DIS-2 is connected to a switched 12 volt source.
- Confirm the cylinder select is in the proper position for your application.
- The power leads are connected directly to the battery positive and negative terminals.
- The battery is fully charged.
- The engine is equipped with at least one ground strap to the chassis.

TROUBLESHOOTING

Every MSD Ignition undergoes numerous quality control checks including a four hour burn-in test. If you experience a problem with your DIS-2, our research has shown that the majority of problems are due to improper installation or poor connections. The Troubleshooting section has several checks and tests you can perform to ensure proper installation and operation of the DIS-2. If you have any questions concerning your DIS-2, call our Customer Support Department at (915) 855-7123, 8 - 5 Mountain Time, or e-mail at: msdtech@msdignition.com.

LED
The LED on the side of the DIS-2 monitors several operating conditions of the DIS-2. If the LED indicates that there is a problem with the ignition system, follow the steps through the Troubleshooting section. The LED will appear to be on steady at above idle speeds when everything is functioning properly.
- A Code 2 (flash flash) will flash if there is a problem with the Cam Sync Signal.
- A Code 3 (flash flash flash) will flash if the supply voltage drops below 12 volts, when operating below 3300 rpm.
- The LED will flash for every trigger signal from the crank trigger. You can take advantage of this when statically setting the timing of the engine.

IGNITION ADAPTERS
If your vehicle does not operate correctly or if you experience a no-run situation you probably need an MSD Ignition Adapter. Some vehicles with electronic fuel injection systems may require an MSD Ignition Adapter to run properly. This is because many of these systems use the same trigger source to operate the MSD, the tachometer and the fuel injection. This results in a voltage signal that is too low to accurately trigger the fuel injection. If your vehicle's engine starts and then shuts off after a short period of time or the check engine light turns on then your vehicle will require an Ignition Adapter. An MSD Ignition Adapter, PN 8912, will usually remedy the problem.

The chart in Figure 5 lists most of the vehicles that require an Ignition Adapter. It is very important that the Adapter(s) be installed at the same time that the DIS Ignition is installed to prevent activation of the check engine light.

<table>
<thead>
<tr>
<th>VEHICLE</th>
<th>IGNITION ADAPTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>MITSUBISHI ECLIPSE, GALANT, MIRAGE, MONTERO, PRECIS, EXPO</td>
<td>PN 8912 REQUIRED</td>
</tr>
<tr>
<td>EAGLE TALON, SUMMIT</td>
<td>PN 8912 REQUIRED</td>
</tr>
<tr>
<td>DODGE AVENGER, NEON, STRATUS, CARAVAN, PT CRUISER</td>
<td>PN 8912 REQUIRED</td>
</tr>
<tr>
<td>CHRYSLER SEBRING, CIRRUS</td>
<td>PN 8912 REQUIRED</td>
</tr>
<tr>
<td>PLYMOUTH BREEZE, VOYAGER, ACCLAIM, COLT, SUNDANCE, LASER</td>
<td>PN 8912 REQUIRED</td>
</tr>
</tbody>
</table>

Figure 5 Required Adapters.
MISSES AND INTERMITTENT PROBLEMS

Experience at the races has shown that if your engine is experiencing a miss or hesitation at higher rpm, it is usually not directly ignition. Most probable causes include faulty wiring, a coil or plug wire failure, arcing from the boot plug to ground. Several items to inspect are:

- Always inspect the plug wires at the plug for a tight connection and visually inspect for cuts, abrasions or burns. Dielectric grease such as Spark Guard, PN 8804, is also recommended.
- Inspect the Primary Coil Wire connections.

**CAUTION:** During cranking or while the engine is running, very high voltage will be present on the coil positive (+) terminal. Never touch the coil terminals or connect test equipment to the coil terminals.

- Make sure that the battery is fully charged and the connections are clean and tight. If you are not running an alternator this is an imperative check. If the battery voltage falls below 11 volts during a race, the DIS-2 current draw will increase.
- Is the engine running lean? Inspect the spark plugs and complete fuel system.
- Inspect all wiring connections for corrosion or damage. Remember to always use proper connections followed by soldering and seal the connections completely.

**WARNING:** Do not touch the coil terminals during cranking or while the engine is running.

If everything checks positive, use the procedure on page 11 to test the ignition for spark.

MSD also offers a Multi-Channel Ignition Tester (Fig. 6), PN 8996. This tool allows you to check your complete ignition system while it is on the vehicle as well as the operation of rpm limits, activated switches and shift lights and the Cam Sync Signal.

![Figure 6 MSD Multi-Channel Ignition Tester, PN 8996.](image-url)
CHECKING FOR SPARK
1. Make sure the ignition switch is in the “Off” position.
2. Remove the coil wires from the spark plug and set them approximately 1/2” from ground.
3. Disconnect the DIS-2 wires from the points or trigger.
4. Connect the Green wire to ground.
5. Turn the ignition to the On position. Do not crank the engine.
6. Tap the white wire to ground quickly several times (Figure 7). Each time you pull the wires from ground, a spark should jump from the coil wires to ground. If spark is present, the ignition is working properly. Do the same test using the Green Trigger wire. If there is no spark skip to step 7 below:
   A. Inspect all of the wiring.
   B. Substitute another coil and repeat the test. If there is now spark, the coil is at fault.
   C. If there is still no spark, check to make sure there are 12 volts on the small Red wire from the DIS-2 when the key is in the On position. If 12 volts are not present, find another switched 12 volt source and repeat the test.
   D. If, after following the test procedures and inspecting all of the wiring, there is still no spark, the DIS-2 Ignition is in need of repair. See the Warranty and Service section for information.

The following wiring diagrams illustrate numerous installations on different vehicles and applications. If you experience difficulties when installing your MSD, contact our Customer Support Department at: (915) 855-7123 (8 - 5 Mountain time) or e-mail us at: msdtech@msdignition.com
Figure 8 - FACTORY WIRING - Typical 4 Cylinder application

Figure 9 - DIS-2 SYSTEMS 4 - Cylinder WSON (Waste Spark ON - ECU Triggered)
1. Stage car in the lights, then push the momentary push button switch and hold.

2. Push the clutch pedal down to activate the clutch switch.

3. Release the momentary push button switch. Engine rpm will be limited until clutch pedal is released.

**Figure 11 - MSD SYSTEMS Using a Sync Signal or Map Sensor.**

- **DIS-2 Programmable Ignition Control** PN 6212
  - 3 Pin Connector
    - Brown/Violet
    - Dark Brown
    - Brown/Yellow
  - 2 Bar 2-29 PSI (PN 23121)
  - 3 Bar 2-44 PSI (PN 23131)
  - Map Sensor

**Figure 10 - MSD SYSTEMS Wiring Diagram for Burnout/Launch Rev Limits.**

- 12 V
  - (+) 12V
  - Relay MSD PN 8860
  - Jumper Wires
  - Momentary Push Button Switch
  - To Ground
  - 2 Pin Connector
    - Clutch Switch
    - Lt Blue [Burnout]
    - Dk Blue [Launch]
  - PN 8807 Single Pole Double Throw
  - 2 Position
  - Launch Rev Limit
  - Burn Rev Limit

**Figure 11 - MSD SYSTEMS Using a Sync Signal or Map Sensor.**

- DIS-2 Programmable Ignition Control PN 6212
  - (+) 12V
  - Relay MSD PN 8860
  - Jumper Wires
  - Momentary Push Button Switch
  - 12 V
  - To Ground
  - 2 Pin Connector
    - Clutch Switch
    - Lt Blue [Burnout]
    - Dk Blue [Launch]
  - PN 8807 Single Pole Double Throw
  - 2 Position
  - Launch Rev Limit
  - Burn Rev Limit

**Figure 10 - MSD SYSTEMS Wiring Diagram for Burnout/Launch Rev Limits.**

- 12 V
  - (+) 12V
  - Relay MSD PN 8860
  - Jumper Wires
  - Momentary Push Button Switch
  - To Ground
  - 2 Pin Connector
    - Clutch Switch
    - Lt Blue [Burnout]
    - Dk Blue [Launch]
  - PN 8807 Single Pole Double Throw
  - 2 Position
  - Launch Rev Limit
  - Burn Rev Limit
**Figure 12 - DIS SYSTEMS** Wiring PN 8870 Coil Spacers with GM Ignitions.

Start by indicating which terminal is the 12 Volt side of Module

![Diagram showing wiring connections]

**Figure 13 - DIS-2 SYSTEMS** 4 - Cylinder WSON (Waste Spark ON - GM Ignition)

- Lt Blue: Burnout Limit
- Dk Blue: Launch Rev Limit
- Lt Green: Cam Sync Pickup
- Brown/Yellow: Map Sensor 2-Bar 2-29 PSI (PN 23121)
- Brown/Violet: 3 Pin Boost Sensor
- Dark Brown: 3-Bar 2-44 PSI (PN 23131)
- Lt Blue: Lt Green

![Diagram showing wiring connections]

*NOTE 12 Volt Terminal

Original 12 Volt Side of Module
Pro-Data+ Programming Instructions
Programmable DIS-2, PN 6212

These instructions will walk you through the different programming features of the Programmable DIS-2 Ignition using the Pro-Data+ Software. If you need help with the installation of the DIS-2 please refer to the Installation Instruction that came with your unit or you can download a new set from our web site at www.msdignition.com

INSTALLATION

1. Insert the installation disk into your disk drive.
2. In Windows click “Start” then Select “Run”.
3. In the box type "A:\Setup" Press Enter
4. Follow the on screen instructions.
5. At this point you should have two new icons on your desk top.
6. Select the one that says “MSD Graph View”
7. At this point you should see several timing graphs.
8. In the upper left corner of your screen select “File”
9. Scroll down and select “Open”
10. Select the folder that says “6212”
11. Highlight the file that says “6212vxx.IGN” (xx = The latest version #; Example "01")
12. Click Open

At this point you are in the default setting for the Programmable DIS-2 Ignition. When you make a change to this file always select the “Save As” option and rename the new file.

SAVES AND TRANSFERS

Whenever a change is made to a program, it either must be saved to your PC as part of the file you are programming or it must be saved/transferred to the MSD. The software gives you the choice of automatically transferring the change to the MSD or the PC.

Save to MSD: By saving the change right to the MSD, the new change is automatically put into the Controller.

Save to PC: This saves the changes on your PC screen only. The information still must be transferred to the MSD before it becomes active or saved to a file.

You can create numerous files with different options on our PC and download them at the track for testing.

MONITOR

The rpm meter is a graphical interface that allows you to monitor the rpm and retard functions of the DIS-2 while the engine is running. The dial on the left side will indicate the rpm in real time. The dial on the right side will show the total degrees retard.

Figure 8  RPM and Retard Monitor.
The first step is going to tell the DIS-2 what application you are using it on and what optional features you are using, if any. The default settings are for a four cylinder engine with a Waste Spark (two spark plugs fire at the same time). This is the most common configuration. The default transmission is five gears. The Programmable DIS-2 can also be used on 1, 2, or 4-cylinder engines and can be programmed for these applications. Use the chart on the next page to help you figure out your settings.

**ENGINE CONFIGURATION**

**CylCnt** – (Default 4-Cyl.)

**Ws** – (Default WSON – Waste spark On)

This tells the ignition if you are using a distributor or if you are firing a wasted spark application. The options are:

- **Ws – None** – This means you are using only the White trigger wire and you are using a distributor. **Note:** This would only be used for two or four cylinder applications using a distributor and only the White trigger wire.

- **WsON** – This means “Waste Spark On” – This means you are firing a wasted spark system. **Note:** This would be used for Single Cylinder engines with the trigger pickup off the crankshaft or Two Cylinder applications using one trigger pickup or Four Cylinder applications triggering from the vehicles Electronic Control Module (ECM/ECU) (Both the White and Green trigger wires.)

- **WsOFF** – This means “Waste Spark Off” – This means you are firing each cylinder independently. **Note:** This would only be used for single cylinder applications or two cylinder applications using two trigger pickups triggering off the camshaft. (Both the White and Green trigger wires.)

- **1 – One Cylinder Applications** – Use the white trigger wire only.

- **2 – Two Cylinder Applications** – You will have the option of selecting either the White trigger wire (if you have a waste spark or distributor) or both the White and Green trigger wires (if you are firing each cylinder independently).

- **4 – Four Cylinder Applications** – You will have the option of selecting either the White trigger wire (if you have a distributor) or both the White and Green trigger wires (if you are firing a waste spark)
SECTION 2

TRANSMISSION CONFIGURATION

The next step will tell the DIS-2 how your transmission is setup to determine the correct shift light points.

Last Gear – (Default 5 - 5 Gears)
This tells the DIS-2 how many gears your transmission has.
The options are: 2-3-4-5-or 6 – Select the appropriate number of gears for your transmission.

Drop RPM – (Default 600 RPM)
This will tell the DIS-2 how far the engine rpm will drop in order to recognize a shift. Keep in mind the engine speed has to increase by at least 200 rpm before the next gear change can be made to prevent double shifting. The options Are: 500 – 1,500 rpm in 100 rpm increments.

FOURSTROKE Engine Configuration Chart

<table>
<thead>
<tr>
<th>Four Cylinder - Automotive &amp; Motorcycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste Spark None (WsNONE) - Use on engines with distributors.</td>
</tr>
<tr>
<td>Note: An external Cam Sync must be used.</td>
</tr>
<tr>
<td>• All automotive and motorcycle applications that have a distributor rotated by the camshaft.</td>
</tr>
<tr>
<td>Waste Spark On (WsON) - This is the most common four stroke application. This means you have two trigger signal wires from the factory or aftermarket ECM/ECU module and two dual output coils.</td>
</tr>
<tr>
<td>Note: An external Cam Sync must be used to identify cylinder one.</td>
</tr>
<tr>
<td>Waste Spark Off (WsOFF) - This is not a valid option with the Programmable DIS-2.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Single Cylinder - Small Engines, Briggs &amp; Stratton, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Note: A cam sync will not be used.</td>
</tr>
<tr>
<td>Waste Spark None (WsNONE) - Use with single cam triggered pickup.</td>
</tr>
<tr>
<td>Waste Spark On (WsON) - Use with Crank Trigger pickup.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Twin Cylinder - Motorcycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste Spark None (WsNONE) - Use on engines with distributors.</td>
</tr>
<tr>
<td>Note: An external Cam Sync must be used to identify cylinder one.</td>
</tr>
<tr>
<td>Waste Spark On (WsON) - Use with single pickup triggered from the crankshaft. This would use one double ended coil which fires both cylinders at the same time (Waste Spark) at TDC of each stroke.</td>
</tr>
<tr>
<td>Note: This must be an even fire engine. Harley odd fire engines will not work in this mode.</td>
</tr>
<tr>
<td>Note: An external cam sync must be used to identify cylinder one.</td>
</tr>
<tr>
<td>Waste Spark Off (WsOFF) - Use with engines with two trigger pickups that are triggered from the camshaft. This also applies to distributor applications that have two trigger pickups and two coils.</td>
</tr>
<tr>
<td>Note: The Cam Sync input can be set to Channel 1.</td>
</tr>
<tr>
<td>• All Harley applications using two triggers and two coils.</td>
</tr>
</tbody>
</table>
SECTION 3

INDIVIDUAL CYLINDER MANAGEMENT

If you are going to take advantage of the DIS-2's Individual Cylinder Management timing control then you will need to complete the following steps.

**Note:** If you are not using the Individual Cylinder Management then use the “Extern” option. It is also recommended that you turn the alert feature OFF (Skip) for this option so you won't get the blink code. See below to configure.

*CamSync* – *(Default - External)*

This will tell the DIS-2 what type of Cam Synchronization you will be using. The options are:

- **Extern** – This means you are using an external source such as our Cam Sync Sensor, PN 2346. This sensor will be mounted off the camshaft and synched to the number one cylinder.

- **Chan1** – This means you are running a single cylinder application or a two cylinder application with two trigger pickups using both the White and Green trigger wires. This will reference the White trigger pickup wire as the number one cylinder.

**Note:** This option cannot be used with either four cylinder engines or engines running waste spark.

*CamDeg* – *(Default 0°)*

This is where you actually program the individual retard for each cylinder. These are labeled by spark sequence since the firing order varies between engines. There are four adjustment sequences. These are labeled SparkSEQ1 thru 4. The options for all four are: 0°-10° in .1° increments.

- **SparkSEQ1** is going to refer to the cylinder that has the Cam Sensor on it or the cylinder attached to the White wire in non-waste spark engines.

- **SparkSEQ2** is going to be the next cylinder that is under compression and ready to fire. Note that this may not be the #2 cylinder.

- **SparkSEQ3** is the Cylinder that will be under compression third in the firing order of the engine.

- **SparkSEQ4** is the Cylinder that will be under compression last in the firing order of the engine.

**Note:** This sequence number does not reflect the firing order of the engine. For example if your engine has a firing order of 1,3,2,4 then Cylinder 1 will be SEQ1, Cylinder 3 will be SEQ2, Cylinder 2 will be SEQ3, and Cylinder 4 will be SEQ4.
**SECTION 4**

**BOOST CURVE CONFIGURATION**

If you are using a turbo or supercharger and you would like to map out a timing curve based on the intake manifold pressure then you will need to complete the following steps.

**BoostSensor – (Default 3Bar)**

The Boost Sensor tells the DIS-2 which Boost Sensor range you are using. There are two options for you to choose from.

- **2Bar** - This is our PN 23121 Pressure sensor. This unit will range from 2 psia up to 29 psia. Use this sensor if you want a timing curve between these two pressure extremes.

- **3Bar** - This is our PN 23131 Pressure sensor. This unit will range from 2 psia up to 44 psia. Use this sensor if you want a timing curve between these two pressure extremes.

**BoostCurve – (Default - See Map)**

The Boost curve is a graphical map that allows you to drag the timing curve to the different settings in order to achieve the desired curve.

The easiest way to achieve this is to maximize the box that contains the Boost Curve. In order to move the curve you will need to place your mouse pointer over the portion of the graph that you would like to move. Right click your mouse and select “Add Dot”. This produces a red dot that you will be able to position anywhere along the curve. Continue to do this until your curve is completely mapped out. After the curve is edited, then transfer it to the MSD by selecting "Plot to MSD" to load the new curve into the DIS-2 Ignition, or File-Save As to save the change in a file on the PC.
SECTION 5

SHIFT LIGHT / SEQUENTIAL SHIFTER OPTIONS

The shift light output wires can be used one of two ways. It can be attached directly to our PN 7552 Shift light or the PN 8736 Launch Selector/Shift light and then programmed to turn on at a different rpm for each gear.

The programmable options are:
- Gear1 - with an adjustable RPM value from 2000 rpm to 15000 rpm. (Default 12,500)
- Gear2 - with an adjustable RPM value from 2000 rpm to 15000 rpm. (Default 12,300)
- Gear3 - with an adjustable RPM value from 2000 rpm to 15000 rpm. (Default 12,100)
- Gear4 - with an adjustable RPM value from 2000 rpm to 15000 rpm. (Default 11,900)
- Gear5 - with an adjustable RPM value from 2000 rpm to 15000 rpm. (Default 11,700)

SECTION 6

REV LIMITER OPTIONS

There are three Rev Limiter options with the DIS-2. Two are activated by external wires and the third is active when the other two are not activated.

RevBurn – (Default 7,000)
This is the burnout rev limiter. It is activated when you supply 12 volts to the Light Blue wire.
The options are: 2,000 rpm to 15,000 rpm in 100 rpm increments.

RevLaunch – (Default 6,200)
This is the Launch rev limiter. This rev limiter will be active when you supply 12 volts to the Dark Blue wire. Note: This rev limiter takes precedence over all other rev limiters if it is active.
The options are from 2,000 rpm to 15,000 rpm in 100 rpm increments.
Note: This Dark Blue wire also resets any counters such as gear retards, shift lights, time delays, Etc.

RevMax – (Default 9,500)
This is the Max Rev Limiter. This option is active when no other rev limiter is active. The options are from 2,000 rpm to 15,000 rpm in 100 rpm increments.

Note: The MSD's Max Rev Limit will not override the factory ECM's setting.
SECTION 7

START RETARD OPTION

Start retard is used to ease the load on the starter and to prevent backfires. This option is in effect from 0 to 800 rpm on start up. If the engine drops below 500 rpm, it will activate again. It is adjustable in 1° increments from 0° - 30°. The default is 0°.

<table>
<thead>
<tr>
<th>Retards</th>
<th>Start</th>
<th>StartRetard</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Deg</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

SECTION 8

PROGRAMMABLE LAUNCH RETARD RAMP BY TIME

This feature allows you to program from 0° - 30° of retard that will be active when the Dark Blue launch wire receives 12 volts. When the 12 volts are removed this retard will be progressively removed over the time period that is programmed into the DIS-2. This is especially useful for controlling tire spin at the line. The options are:

Deg – (Default .0°)
This is the total retard that will be taken out. This is programmable from 0° - 30° in .5° increments.

<table>
<thead>
<tr>
<th>Launch</th>
<th>LaunchRetard</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Deg</td>
<td>.0</td>
</tr>
<tr>
<td>*Ramp</td>
<td>.50</td>
</tr>
</tbody>
</table>

Ramp – (Default .50 seconds)
This is the total time it takes for the timing to be progressively put back in. This is programmable from 0 to 2.5 seconds in .010 second intervals.

SECTION 9

THREE STEP RETARD

There are three separate steps of retard that can be activated by rpm or an external 12 volt source. The third step can also progressively retard the timing over time by the release of the launch wire (Dark Blue), by rpm or by the external 12 volt source on the Tan wire. The options are:

Step1 – (Default 2° - 800 RPM)
This is the first step retard. The programmable values are from 0° - 25° in .1° increments from 800 to 15,000 rpm. The external activation wire is the Pink wire.

<table>
<thead>
<tr>
<th>Step1</th>
<th>Step1</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Deg</td>
<td>2.0</td>
</tr>
<tr>
<td>*Rpm</td>
<td>800</td>
</tr>
</tbody>
</table>

Step2 – (Default 3° - 800 RPM)
This is the second step retard. The programmable values are from 0° - 25° in .1° increments from 800 to 15,000 rpm. The external activation wire is the Violet wire.

<table>
<thead>
<tr>
<th>Step2</th>
<th>Step2</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Deg</td>
<td>3.0</td>
</tr>
<tr>
<td>*Rpm</td>
<td>800</td>
</tr>
</tbody>
</table>
Step3 – (Default 5° - 800 RPM)
This is the Third step retard. The programmable values are from 0° - 25° in .1° increments from 800 to 15,000 rpm in 100 rpm. The external activation wire is the Tan wire.

Ramp – (Default .0 seconds)
This is only for the Step 3 retard. By putting a value from .1 to 9.9 seconds this option will progressively increase the timing retard set in Step 3 over the course of the time value programmed. This is especially important for progressive nitrous applications. This feature is reset when the Launch wire (Dark Blue) is activated. This feature will also pause the timing if the power is interrupted from the Tan wire or the rpm drops below the Step 3 rpm value, and will pick up where it left off when power is reapplied to the Tan wire, or if the rpm climbs above the Step 3 value.

Note: Each step is independent & can be activated in any order.
Note: All step retards are added together for the total timing retard. Maximum retard sum is 35°

SECTION 10

GEAR SELECTABLE RETARD
This option will retard the timing a different value in gears 3 through 6. The options are:

Gear3 – (Default 0°)
When a retard value between 0° and 5° in .1° increments is programmed the timing will retard by that setting in this gear.

Gear4 - (Default 0°)
When a retard value between 0° and 5° in .1° increments is programmed the timing will retard by that setting in this gear, plus the Gear3 value.

Gear5 - (Default 0°)
When a retard value between 0° and 5° in .1° increments is programmed the timing will retard by that setting in this gear, plus the Gear3 + Gear4 value.

Gear6 - (Default 0°)
When a retard value between 0° and 5° in .1° increments is programmed the timing will retard by that setting in this gear, plus the Gear3, Gear4 and Gear5 value.

Note: Gear retards are added together with any other retard values.

SECTION 11

STEP OFF DELAY BY TIME

StepOffDelay – (Default .50 Seconds)
The Step Off Delay feature is active when any of the step retards (3-Step Retards or Launch Retard) are deactivated. This option will provide a time delay from 0 to 2.50 seconds in .010 second increments before the timing returns to normal. This ensures that any nitrous has stopped flowing before the timing returns to normal.
SECTION 12

LAUNCH TIMING CURVE

LaunchCurve – (Default - See Graph)

The DIS-2 allows you to program a timing curve that is only active when the transmission is in first gear. When this curve is active the word active appears on the bottom of this graph. This curve is programmable by the graphical map. The easiest way to achieve this is to maximize the box that contains the Launch Curve. In order to move the curve you will need to place your mouse over the portion of the graph that you would like to move. Right click your mouse and select “Add Dot”. This will give you a red dot that you will be able to position anywhere along the curve. Continue to do this until your curve is completely mapped out. After this curve has been edited, save it in the DIS-2 with a transfer - Plot to MSD or File-Save As to save it in a file on the PC.

SECTION 13

RUN TIMING CURVE

RunCurve – (Default - See Graph)

The DIS-2 gives you the ability to map out a complete timing curve from 800 rpm all the way to 15,000 rpm. This timing curve can increase or decrease at any point along the graph. The easiest way to achieve this is to maximize the box that contains the Run Timing Curve. In order to move the curve you will need to place your mouse over the portion of the graph that you would like to move. Right click your mouse and select “Add Dot”. This will give you a red dot that you will be able to position anywhere along the curve. Continue to do this until your curve is completely mapped out. After this curve has been edited, save it in the DIS-2 with a transfer - Plot to MSD or File-Save As to save it in a file on the PC.

Note: Any graph can be printed by selecting Transfer-Print. Also all other parameters can be printed from the Data Editor-Select-Print.
**SECTION 14**

**RPM ACTIVATED WINDOW SWITCH**

RPMSW – (Default - On: 2,000 RPM; Off: 6,000 RPM)

This feature will supply ground to the Purple/Blue wire when the On rpm value is reached, then it will remove the ground when the Off rpm value is reached. This wire will handle a maximum 3 amp continuous draw.

The options are: ON 2,000 - 15,000 in 100 RPM increments
OFF 2,000 - 15,000 in 100 RPM increments

### Data Editor Window

- **RpmSw**
  - *On* 2000
  - *Off* 6000
SECTION 15

ALERTS

Alerts – (Default - (1) Scan -

The Alerts will provide a flash code to the LED on the outside of the DIS-2.
- This indicates a Low Battery situation. This will blink the LED two times.

The Options are: Scan (to enable)
Skip (to disable)

DEFAULT SETTING S AND ADJUSTMENTS

The following list shows all of the default values and adjustable increment of the DIS-2 Ignition.

<table>
<thead>
<tr>
<th>Display</th>
<th>Default</th>
<th>Data Low-High (step by)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ShiftLt1 ###00 Rpm</td>
<td>12,500</td>
<td>2,000-15,000 (100)</td>
</tr>
<tr>
<td>ShiftLt2 ###00 Rpm</td>
<td>12,300</td>
<td>2,000-15,000 (100)</td>
</tr>
<tr>
<td>ShiftLt3 ###00 Rpm</td>
<td>12,100</td>
<td>2,000-15,000 (100)</td>
</tr>
<tr>
<td>ShiftLt4 ###00 Rpm</td>
<td>11,900</td>
<td>2,000-15,000 (100)</td>
</tr>
<tr>
<td>ShiftLt5 ###00 Rpm</td>
<td>11,700</td>
<td>2,000-15,000 (100)</td>
</tr>
<tr>
<td>LastGear #</td>
<td>5</td>
<td>2-6</td>
</tr>
<tr>
<td>RevBurn ###00 Rpm</td>
<td>7,000</td>
<td>2,000-15,000 (100)</td>
</tr>
<tr>
<td>RevLaun ###00 Rpm</td>
<td>6,200</td>
<td>2,000-15,000 (100)</td>
</tr>
<tr>
<td>RevMax ###00 Rpm</td>
<td>9,500</td>
<td>2,000-15,000 (100)</td>
</tr>
<tr>
<td>RetStart ## Deg</td>
<td>0</td>
<td>0-30</td>
</tr>
<tr>
<td>Retard1 ##.## Deg</td>
<td>2.0</td>
<td>0-25.0 (.1)</td>
</tr>
<tr>
<td>Retard2 ##.## Deg</td>
<td>3.0</td>
<td>0-25.0 (.1)</td>
</tr>
<tr>
<td>Retard3 ##.## Deg</td>
<td>5.0</td>
<td>0-25.0 (.1)</td>
</tr>
<tr>
<td>Retard1 ###00 Rpm</td>
<td>800</td>
<td>800-15,000 (100)</td>
</tr>
<tr>
<td>Retard2 ###00 Rpm</td>
<td>800</td>
<td>800-15,000 (100)</td>
</tr>
<tr>
<td>Retard3 ###00 Rpm</td>
<td>800</td>
<td>800-15,000 (100)</td>
</tr>
<tr>
<td>StepOffDelay##.##</td>
<td>.50</td>
<td>0-2.50 (.01)</td>
</tr>
<tr>
<td>RetLaun ##.## Deg</td>
<td>0.0</td>
<td>0-30.0 (.5)</td>
</tr>
<tr>
<td>RampTim ##.## Sec</td>
<td>.50</td>
<td>0-2.50 (.01)</td>
</tr>
<tr>
<td>Spark1 ##.## Deg</td>
<td>0</td>
<td>0-10.0 (.1)</td>
</tr>
<tr>
<td>Spark2 ##.## Deg</td>
<td>0</td>
<td>0-10.0 (.1)</td>
</tr>
<tr>
<td>Spark3 ##.## Deg</td>
<td>0</td>
<td>0-10.0 (.1)</td>
</tr>
<tr>
<td>Spark4 ##.## Deg</td>
<td>0</td>
<td>0-10.0 (.1)</td>
</tr>
<tr>
<td>CylCnt $</td>
<td>4</td>
<td>1/2/4</td>
</tr>
<tr>
<td>Ws $$$$$$</td>
<td>WsOn</td>
<td>WsNone/WsOff/WsOn</td>
</tr>
<tr>
<td>DropRpm #00</td>
<td>600</td>
<td>500-1500 (100)</td>
</tr>
<tr>
<td>RunCurve Rpm #00</td>
<td>800</td>
<td>800-15,000 (100)</td>
</tr>
<tr>
<td>RunCurve Deg #.##</td>
<td>0</td>
<td>0-25.0 (.1)</td>
</tr>
<tr>
<td>LaunchCurve Rpm #00</td>
<td>800</td>
<td>800-15,000 (100)</td>
</tr>
<tr>
<td>LaunchCurve Deg #.##</td>
<td>0</td>
<td>0-25.0 (.1)</td>
</tr>
<tr>
<td>BoostCurve Psi##.##</td>
<td>2.0</td>
<td>2.0-45.0 (.25)</td>
</tr>
<tr>
<td>BoostCurve Deg #.##</td>
<td>0</td>
<td>0-25.0 (.1)</td>
</tr>
<tr>
<td>BarType #Bar</td>
<td>3</td>
<td>2-3</td>
</tr>
<tr>
<td>AlertsPer #</td>
<td>0</td>
<td>0-1</td>
</tr>
<tr>
<td>RpmSw On</td>
<td>2000</td>
<td>2000-15,000 (100)</td>
</tr>
<tr>
<td>RpmSw Off</td>
<td>6000</td>
<td>2000-15,000 (100)</td>
</tr>
<tr>
<td>Gear3 Retard Deg #.##</td>
<td>0</td>
<td>0-5.0 (.1)</td>
</tr>
<tr>
<td>Gear4 Retard Deg #.##</td>
<td>0</td>
<td>0-5.0 (.1)</td>
</tr>
<tr>
<td>Gear5 Retard Deg #.##</td>
<td>0</td>
<td>0-5.0 (.1)</td>
</tr>
<tr>
<td>Gear6 Retard Deg #.##</td>
<td>0</td>
<td>0-5.0 (.1)</td>
</tr>
<tr>
<td>CamSync $$$$$$</td>
<td>Extern</td>
<td>Extern/Chan1</td>
</tr>
<tr>
<td>Step3 Ramp</td>
<td>0</td>
<td>0-9.9 (.1 sec)</td>
</tr>
<tr>
<td>RpmDrop</td>
<td>600</td>
<td>200-1500 (100)</td>
</tr>
<tr>
<td>Alert 1</td>
<td>Scan</td>
<td>Scan/Scan/Skip</td>
</tr>
<tr>
<td>Alert 2</td>
<td>Scan</td>
<td>Scan/Scan/Skip</td>
</tr>
</tbody>
</table>
The following menu tree shows the different screens and programs of the PN 6212 and Monitor.

**PN 6212 Flow Chat with Hand Held Monitor**
Limited Warranty

Autotronic Controls Corporation warrants MSD Ignition products to be free from defects in material and workmanship under normal use and if properly installed for a period of one year from date of purchase. If found to be defective as mentioned above, it will be replaced or repaired if returned prepaid along with proof of date of purchase. This shall constitute the sole remedy of the purchaser and the sole liability of Autotronic Controls Corporation. 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 Autotronic Controls Corporation be liable for special or consequential damages.