INTRODUCTION

Total performance is what sets the MSD Pro-Mag® apart from all other magnetos. The Pro-Mag delivers unequaled power with the most accurate triggering and timing control in the business! The Pro-Mag generates the highest current possible and precisely controls its delivery to the coil and plugs with perfect consistency. The Pro-Mag will allow you to maximize the power production of your engine!

MSD has not only revolutionized the power output of the magneto, but has also taken reliability to a level not seen before. The Pro-Mag is the only maintenance-free magneto available. Our generator never needs to be recharged, the pickup never needs adjustment, nor do batteries ever need to be replaced. Additionally, the Pro-Mag allows you the option of running timing controls, the ability to set a rev limit, or utilize a crank trigger for the utmost in timing accuracy. As if that isn’t enough, the list of features is constantly evolving.

Never content to rest on our laurels, MSD engineers are continually pushing the performance envelope in search of more power and better consistency. Research & Development is a constant at MSD. We actively solicit feedback from top race teams and incorporate their suggestions into all of our components. This candid communication led directly to sprint car Crank Trigger components as well as the digital programmable retard controller for Top Fuel.

Take a walk through the pits at any professional race and note the dominance of MSD Pro-Mag components. This is proof positive of MSD’s superior performance. MSD is truly the epitome of performance ignition!

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**THE PRO-MAG ADVANTAGE**

MSD Pro-Mags® are the most powerful magnetos available. But did you know they’re also practically maintenance-free? You’ll never have to worry whether the magnets are fully charged because the Pro-Mag is always at full power. This allows you to concentrate on your tune-up and the race!

The Pro-Mag is available in three series: the Pro-Mag 12 for sprint cars and alcohol-burning engines, the 20 amp for blown alcohol race engines and the Pro-Mag 44 for nitro-methane applications. Each series’ spark output and electronic controls are optimized for their specific application.

Each housing is machined on state-of-the-art CNC machines to the exact tolerances that hardcore racing demands. Sealed ball-bearing assemblies support a 0.500” hardened steel shaft that drives the unique power-producing center. The generator assembly is comprised of 16 rare earth magnets and unique current-producing windings. Mounted at the base of each generator is a race-proven magnetic pickup. The magnetic pickup accurately triggers the Electronic Points Box, which sends the Pro-Mag’s energy to the spark plugs to ignite the fuel mixture.

**No Points to Adjust or Replace:**
- The Pro-Mags use a high output magnetic pickup to trigger the ignition.

**No Batteries to Replace:**
- The Pro-Mag creates and uses its own power to run the Electronic Points Box.

**Magnets Never Need to be Charged:**
- Powerful Rare Earth magnets never lose their charge so the mag is always at full output.

Optional Rev Limiter Available!
**COILS & POINT BOXES**

**Pro-Mag 44 Amp Coil**

It takes a specially-engineered coil to handle the 44 amps supplied by the Pro-Mag generator. The coil steps up the current to as much as 45,000 volts while sending over one amp across the plug gap. This high voltage is required to initialize the spark when it's up against nitro and extreme boost pressures.

The Pro-Mag 44 Coil is hand assembled in-house and features over a pound of copper, carefully wound around a unique bobbin molded from DuPont® Rynite™. These windings and internals of the coil are completely encased in epoxy for protection against vibration damage and ensure the ultimate in reliability. The entire assembly is housed in a tough, molded plastic shell with extremely high voltage isolation characteristics. Brass primary and secondary terminals ensure full-voltage delivery. Heavy-duty vibration mounts are also included.

Pro-Mag 44 Coil Red _______ PN 8142
Pro-Mag 44 Coil Black _______ PN 81423

*Note: Not for use with the Pro-Mag 12/20*

**Electronic Points Boxes for Pro-Mag 44**

The Electronic Points Box is responsible for controlling the Pro-Mag 44's energy. The magnetic pickup in the generator delivers the trigger signal while the Box takes care of the rest: namely the long duration spark and quick rise time.

The MSD electronic circuitry releases the power of the generator to the coil instantly and at full power. No other magneto can match the Pro-Mag in rise time! The coil instantly produces an incredible shot of voltage to ionize the plug gap. The current then takes over, ensuring that the nitro-methane is ignited! The Electronic Points Box keeps the electricity flowing across the plug for a full 26° of crankshaft rotation, ensuring complete combustion.

A strong cast aluminum housing provides a solid mounting foundation for the electronics, as well as an excellent heat sink. For protection against 300-mph vibrations, the circuits receive a heavy-duty coating of Humi-Seal compound.

Pro-Mag 44 Electronic Points Box,
Standard Red Box _______ PN 8145
Standard Black Box _______ PN 81453
with Rev Limiter Red Box _______ PN 8147
with Rev Limiter Black Box _______ PN 81473

*Note: Not for use with the Pro-Mag 12/20
RPM Modules must be purchased separately*
CRANK TRIGGERS

Flying Magnet™
Crank Trigger Kits

An MSD Flying Magnet Crank Trigger incorporates a trigger wheel that has four rare earth magnets mounted 90° apart. A special non-magnetic pickup is mounted near this wheel on a billet aluminum bracket. As each magnet passes it creates a trigger signal. Since only the magnets can trigger the pickup, the system cannot be false triggered. This all adds up to the most accurate and reliable way to fire your Pro-Mag.

These kits are designed for stock and replacement Chevrolet balancers. Each kit is supplied with a non-magnetic pickup, trigger wheel, brackets and hardware.

<table>
<thead>
<tr>
<th>Type</th>
<th>Diameter</th>
<th>PN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Block</td>
<td>6.25&quot;</td>
<td>8600</td>
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<tr>
<td>Small Block</td>
<td>7&quot;</td>
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<td>Chrysler Big Block</td>
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<td>Universal Kit, 4-12 cyl</td>
<td>7&quot;</td>
<td>8655</td>
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<tr>
<td>Replacement Wheels</td>
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<td>SB Chevy</td>
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<tr>
<td>BB Chevy</td>
<td>8&quot;</td>
<td>8621</td>
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</table>

Non-Magnetic Pickups

Each pickup is wound on special bobbins and terminated to our tinned conductor, Teflon-jacketed wiring. A strain relief protects the wiring where it leaves the threaded housing. Once assembled, the wiring is placed in a vacuum chamber and the windings are potted in a fracture resistant epoxy compound for durability in extreme conditions.

The Non-Magnetic Pickups are available in two housing sizes. The 3/4" diameter model is for use with MSD’s Flying Magnet Crank Trigger Kits. The 3/8" diameter model is for use with MSD’s Sprint Car Crank Trigger systems, as well as the aftermarket kits from RCD and PSI.

<table>
<thead>
<tr>
<th>Type</th>
<th>Diameter</th>
<th>PN</th>
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</thead>
<tbody>
<tr>
<td>Large Pickup</td>
<td>3/4&quot; x 12 x 2.25&quot;</td>
<td>8276</td>
</tr>
<tr>
<td>Small Armor Braided</td>
<td>3/8&quot; x 24 x 1.5&quot;</td>
<td>8154</td>
</tr>
<tr>
<td>Small Pickup</td>
<td>3/8&quot; x 24 x 1.5&quot;</td>
<td>8159</td>
</tr>
</tbody>
</table>
The Pro-Mag 44® is the King of all magneto! Producing an amazing 44 amps of primary current, it’s no wonder that the Pro-Mag 44 is the choice of top fuel dragster and funny car teams!

The 44 utilizes a proprietary combination of rare earth magnets and windings to produce its incredible energy. A magnetic pickup is mounted in the lower base of the generator to accurately trigger the eight precision paddles on the reluctor. The pickup is far superior to weak and inaccurate points and never requires adjustment or replacement. The assembly spins on a 0.500-inch shaft with sealed ball bearings for long life.

When the pickup is triggered, the signal is sent to the Electronic Points Box where the spark duration is controlled and directed to the 44’s Coil. Each coil winding contains over a pound of copper wire that is hand-wound for accuracy. The voltage is immediately stepped up and sent to the mag’s cap where it gets accurately distributed to the correct spark plugs, maximizing the explosion of heat and energy in the cylinder.

Versatility is the name of the game with the Pro-Mag 44. Its design allows you to incorporate optional accessories such as a crank trigger, for the ultimate in ignition precision. Other possibilities include a Timing Retard Control or a rev limiter for improved consistency and safety.

The Pro-Mag 44 generator is available in both clockwise and counterclockwise rotation models, with bend clamp housings. The 44 utilizes a cross drive and comes with a five-inch diameter cap, a rotor, and a wire retainer.

**Pro-Mag 44 Generators**

<table>
<thead>
<tr>
<th>CW Rotation</th>
<th>CCW Rotation</th>
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<tbody>
<tr>
<td>Standard Cap, Red</td>
<td>Standard Cap, Red</td>
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<tr>
<td>Standard Cap, Black</td>
<td>Standard Cap, Black</td>
</tr>
<tr>
<td>Pro Cap, Red</td>
<td>Pro Cap, Red</td>
</tr>
<tr>
<td>Pro Cap, Black</td>
<td>Pro Cap, Black</td>
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<tr>
<td><strong>PN 8130</strong></td>
<td><strong>PN 8140</strong></td>
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<td><strong>PN 81303</strong></td>
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<td><strong>PN 81305</strong></td>
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<tr>
<td><strong>PN 81307</strong></td>
<td><strong>PN 81407</strong></td>
</tr>
<tr>
<td><strong>Chevy Drive, Standard Cap, Red</strong></td>
<td><strong>PN 8139</strong></td>
</tr>
</tbody>
</table>

**Primary Current:** 44 Amps  
**Spark Energy:** 800 millijoules (at the gap)  
**Secondary Voltage:** 50,000 Volts  
**Secondary Current:** 1.2 Amps  
**Spark Duration:** 26° Crankshaft Rotation  
**RPM Rating:** Through 12,000 rpm
PROGRAMMABLE CONTROLS

Dual Channel Power Grid

The new Dual Channel Power Grid for Top Fuel Dragsters and Funny cars is the next evolution of our Pro Mag Digital Retard Control. The Dual Channel Power Grid incorporates a high speed 32 bit microprocessor and PC software, called MSD View via a USB Bluetooth™ wireless. It includes a high speed data acquisition recording engine RPM, timing, dual Tach signal, launch / WOT with sample rates of 100 samples per second or 10 milli seconds. It also includes a CAN-Bus connection, sending the recording to the RacePak data logger.

The MSD View software will program Timing curves with up to 30 points at 0.1 increments down to 0.01 seconds intervals. Multiple timing curves can be overlaid to choose the right one at the last minute. Other unique programs include a throttle lift timing retard, throttle inhibit timing retard and an auto pickup signal selector. This means that in the case of a crank trigger pick up failure, it will trigger the dead channel running both magnetos seamlessly.

The MSD View software includes a virtual dash board that can be configured to display engine RPM, Timing, Timing Retard, WOT, Timing Reset, Crank Trigger inputs and Output Triggers.

Dual Channel Power Grid NHRA
T/F Dragster / Funny Car ________________ PN 8771

- Mandated in NHRA / IHRA Top Fuel Dragster & Funny Car
- Provides a programmable time based timing curve with up to 32 points
- Stores different timing maps
- Easily transfer or change timing maps while in the staging lanes

Power Module

The Power Module has four high solid state switches that can be configured independently or in conjunction by Time, RPM and temperature switching On /OFF as well as by percentage for NOS systems. Each channel is capable of handling 20 amps of current without the use of a relay. It can be used to activate a fan, fuel pump, a NOS system, Throttle stop, the possibilities are endless. When connected to the Power Grid it will data log all the functions including Time from Launch, time or rpm of activation and deactivation.

Power Module ________________ PN 7764
Programmable Shifter Controller
PN 75591

For Additional Henco Hardware contact Snyder Motorsports, 219-987-2921.
POWER GRID

4 Connector Hub - PN 7740
This hub allows you to expand the Power Grid system with up to four accessory modules.

PN 7751 Can-Bus Termination Cap - 7741
Loose your cap? Here’s the one you need.

Manual Launch Control - PN 7751
Change the launch rpm limit (2-Step) on the fly to adjust for changing track conditions.

Programmable 3 Stage Delay Timer - PN 7760
This timer will activate up to three individual outputs based on time. Outputs can trigger a relay to activate a shifter, nitrous, etc. When the clutch/transbrake is released the Power Grid will start the timers through the CAN-Bus Connection. It can also display live ignition timing. Features an adjustable contrast and rotating screen.

Arc Module - PN 7761
This module gives you the ability to program a timing and/or rpm limiting map throughout the run down the track based on a Racepak driveshaft sensor. This is an extremely important and useful tuning tool for small tire cars with over-the-top power. The Slew rate rpm limit allows you to set a rate of acceleration which is controlled through retarding the timing or rev limiting. One of the most important features of the ARC is the high-speed data logger giving feedback from a driveshaft sensor, to map your parameters for the next run. (Sensor and collar available from Racepak)

Boost Retard Control - PN 7762
This Power Grid module does exactly as its names suggests: retards the ignition timing in relation to boost pressure. The software provides a timing map that allows you to program a timing curve based on the built-in 3-BAR sensor. It also has an output wire that can be used to activate another device based on boost pressure, as well as an overboost shut-down feature that will shut the ignition off if boost exceeds the overboost target.

Boost Controllers
Following suit in names and descriptions, the PN 7763 and PN 77631 allow you to control the amount of boost that is forcing air into the engine. Combined with boost control, you can also create a timing map based on boost pressure. Through the advanced View software, you can create an boost map for the entire run. Values are based on pressure sensors including a 4-BAR internal (good through 43.5 psi) PN 7763 and dual 75 psi sensors PN 77631. There is also a boost pressure activation output and a safety overboost shut-down feature. PN 77631 has an additional feature that can retard timing in order to help spool the turbos. Two Controllers are available:

4-Bar, up to 43.5 PSI: PN 7763
6-Bar, up to 75 PSI: PN 77631
HIGH SPEED STARTERS

Anyone who struggles to crank their Chevy race engine reliably because the starter can’t keep up needs to check out the new High Speed DynaForce Starter. This starter was designed for race engines using magnetos that require higher cranking speed. Its 25% extra speed will start the most stubborn of motors. Plus, the extreme durability built into these starters ensures they can handle the abuse racers dish out.

Chevy High Speed Starter
153/168 tooth ________________ PN 50952

Chevy High Speed Starter
10 Pitch/139 tooth ________________ PN 50953

Ford SB High Speed Starter
289, 302, 351W ________________ PN 50902

Ford BB High Speed Starter
351C, 400, 429, 460 ________________ PN 50922

Chrysler High Speed Starter
318-440 ________________ PN 50982

Additional 25% cranking speed!

- For use with any engine requiring higher cranking RPM
- Perfect for magneto applications
- 3.73:1 gear reduction
- Heavy duty high temp solenoid for 12-16 volt systems
- Plated disc and contacts reduce arcing and increase continuity
- Billet aluminum adjustable mounting block

Replacement Solenoid ____________ PN 5087

The DynaForce mounting block can be positioned in different locations to help clear suspension parts, the oil pan and exhaust systems.
There are two other Pro-Mags available: a 12 amp and 20 amp version. The 12 amp is designed for sprint cars, jr. fuelers and injected engines. The 20 amp design is a favorite of top sportsman and quick-8 racers. Both share the same points/coil controller as well.

To ensure the Pro-Mag’s fire reaches the spark plug at the correct instant, our engineers did away with mechanical points in favor of our race-proven magnetic pickup. This pickup is far more accurate and never requires adjustment or replacement. A precision-manufactured reluctor attached to the Mag’s shaft triggers the mag pickup at the correct time.

The trigger signal is routed to the Electronic Points Box, which also houses the coil and rev-limiting functions of the Mag. Here, the generator’s spark energy is controlled through unique electrical circuits and ultimately delivered to the epoxy-filled coil where the voltage is stepped up through specially-designed windings.

**Pro-Mag 12 and 20 Points Box**

The Points Box controls the spark duration and the unique full power firing of the Pro-Mag 12 and 20. The energy from the generator is controlled with Field Effect Transistor (FET) technology, which is far superior to mags still using points as a trigger source. FETs are much more accurate, durable and capable of handling much more current. This is why the Pro-Mag is capable of delivering full energy sparks throughout the entire rpm range of the engine, while conventional magneto’s fall short of full power at high rpm. Plus, the Electronic Points Box keeps each spark glowing for up to 26° of crankshaft rotation.

Another unique feature of the Pro-Mag 12 is a built-in Soft Touch Rev Control. The rpm limit is adjusted with plug-in modules and will save your expensive engine in the event of driveline failure or missed shift. This system provides a smooth, backfire-free limit. Plus, you can plug in an MSD Two or Three Step Module Selector to provide multiple rpm limits that can be used during warm-up laps or for consistent hole shots.

The cast aluminum housing of the Points Box provides a strong mounting foundation for the electronics and coil. All of the circuits receive a heavy-duty coating of Humi-Seal for protection against vibration and moisture.
20 AMP Generators

The increased output of the 20 Amp Pro-Mag was born of racers being racers; always asking for more power. This stemmed from drag racers that were using a 12 Amp system, but just didn’t require a 44 Amp system. The engineers at MSD found that with a few changes to the internals of the generator it would deliver the increased current through the same Electronic Points Box, PN 8106.

The 20 Amp magneto is a favorite in alcohol slurping engines such as Sportsman Dragstars and Quick-8 racers. There are three different generators available; a band clamp design in both CW and CCW rotation, plus a model built on a Chevy distributor base. All three require the PN 8106 Electronic Points Box. The band clamp versions are equipped with a large Ford style cap while the Chevy version uses a 4-inch cap and both are topped with heavy duty retainers.

20 Amp, Band Clamp, CW Rotation — PN 81502
20 Amp, Band Clamp, CCW Rotation — PN 81602
20 Amp, Chevy Drive — PN 81392

Primary Current: 20 Amps
Spark Energy: 240 millijoules (at the gap)
Secondary Voltage: 40,000 Volts
Secondary Current: 300 MilliAmps
Spark Duration: 26° Crankshaft Rotation
RPM Rating: through 14,000 rpm

Pro-Mag 20 Replacement Parts

For PN 81502, PN 81602
Large Cap and Rotor Kit — PN 8119
Cap Only — PN 8408
Rotor Only — PN 7920
Black Ring — PN 8120
Cap/Wire Retainer — PN 8121
Pro Cap Kit for Band Clamp — PN 7455
Pro-Mag — PN 8148
Band Clamp, Heavy-duty — PN 8148

For PN 81392
4” Cap and Rotor Kit — PN 7919
Cap/Wire Retainer — PN 8121
PRO-MAG 12

Chevrolet

Two taller, one-piece housings are available for Chevrolet engine blocks with taller deck heights. Each generator features an adjustable slip collar that provides easy adjustment of the magneto and cam gear alignment. This is critical for engines with varying deck heights, custom heads and modified intakes.

Chevrolet Tall Block PN 8139
Note: Supplied with a cap, rotor, wire retainer, bronze gear and a Billet Hold-Down Clamp.

Pro-Mag 12 Replacement Parts

For PN 8150, PN 8160, PN 81392
Large Cap and Rotor Kit PN 8119
Cap Only PN 8408
Rotor Only PN 7920
Black Ring PN 8120
Cap/Wire Retainer PN 8121
Pro Cap Kit for Band Clamp
Pro-Mag PN 7455
Band Clamp, Heavy-duty PN 8148

For PN 8139
4" Red Cap and Rotor Kit PN 7919
4" Black Cap and Rotor Kit PN 79193
Cap/Wire Retainer PN 8121
Adjustable Slip Collar PN 8539

Getting Started

The following are the parts you must have to get started with a 12 or 20 Amp System.

12 Generator
PN 7908, PN 7915, PN 8150 CW, PN 8160 CCW, PN 8139

Electronic Points Box
PN 8106

8.5mm Super Conductor Plug Wires
Spark Plug Wires

Cross-Over Switch

This switch allows you to start the car and toggle between pickups, so the engine only needs to be started once to get the timing dialed in. Also, by setting the generator slightly retarded over the crank trigger, the driver could switch pickups and utilize two timing settings.

Crank Trigger to Generator Cross-Over Switch PN 7990
WARNING

* MSU Pro Mag 12 LT PN 79081 and PN 79082 are designed to work in RAISED CAM ENGINE BLOCKS using a DRY SUMP OILING SYSTEM only. They will work in engine blocks with 50mm, 55mm and 60mm cam tunnels. Installation of PN 79081 or PN 79082 in any other application is not recommended and can result in engine damage.

If you have any questions or your engine does not fit this criteria please contact MSD Technical Support at (915) 855-7123 for information and the correct part number for your application.
PRO-MAG 12LT

Designed with Sprint cars in mind, the Pro-Mag 12LT is almost 30% lighter than the original Pro-Mag, but still produces the same incredible power. The compact housing sits an inch lower for improved clearance of the fuel injection, and it features a band clamp mount for easier timing adjustments.

MSD has also designed a new cap and rotor specifically for the 12LT series. The cap is injection molded from DuPont Rynite material, which possesses high dielectric properties and incredible strength. The innovative rotor design clamps to the shaft with a retaining bolt assembly and is also molded from Rynite.

Each Pro-Mag 12LT is supplied with a bronze gear, band clamp, cap and rotor.

Note: A 12LT Generator cannot be upgraded to a 20 Amp Pro-Mag.

Specifications
Primary Current: 12 Amps
Spark Energy: 120 millijoules (at the gap)
Secondary Voltage: 40,000 Volts
Secondary Current: 150 MilliAmps
Spark Duration: 26° Crankshaft Rotation through 14,000 rpm

Pro-Mag 12LT Replacement Parts
Red 4” Cap and Rotor Kit __________ PN 7919
NEW Black 4” Cap and Rotor Kit __________ PN 79193
Hold down clamps Ford ________ PN 8010
Chevy ________ PN 8110

Band Clamp, Heavy-Duty ________ PN 8148

Getting Started & Common Accessories
The following are the parts you must have to get started with a 12LT System. See warning on page 16 for PN 79081 and PN 79082.

12LT Generator
Chevy ________ PN 7908
Chevy Black, No Drive ________ PN 7904
Chevy Black ________ PN 79083
Chevy Short ________ PN 79081*
Chevy Short Black ________ PN 79082*

Electronic Points Box Red ________ PN 8106
NEW Electronic Points Box Black ________ PN 81063
Points Box Mounting Kit ________ PN 8102

8.5mm Super Conductor Plug Wires - See Page 25

See Page 16 for additional information on PN 79081 and PN 79082.
CAPS, ROTORS & RETAINERS

12LT Replacement Cap and Rotor Kit
This replacement cap and rotor is injection-molded from DuPont Rynite material for high voltage isolation characteristics with heavy-duty construction. Inside the cap there are thick vanes to help agitate the air to prevent the chance of crossfire. Stainless terminals are used for resistance to corrosion caused by ozone in the cap. The rotor is also molded out of Rynite and features a brass/stainless steel rotor tip plus has a lock screw for secure mounting to the Mag’s shaft.

Replacement 4” Cap and Rotor — PN 7919
Black 4” Cap and Rotor ——— PN 79193

Pro-Mag 44 Replacement Cap and Rotor
This Cap and Rotor Kit is the replacement for the 44-amp, 20-amp and 12-amp Band Clamp models. The Cap is now molded from DuPont Rynite material with excellent high-voltage isolation characteristics. Spark plug-style terminals are used for solid connections and a firm grip to the plug wire terminal. The Rotor is also injection molded from Rynite and features a brass/stainless steel rotor tip that is screwed into the rotor ensuring long life at high rpm.

Large Cap and Rotor Kit ——— PN 8119
Replacement Cap Only ——— PN 8408
Rotor Only ——— PN 7920

Replacement Black Ring
Known simply as “the black ring” this is a replacement spacer that comes on full-size, band clamp Pro-Mags (PN 8130, PN 8140, PN 8150, PN 8160 Generators).

Replacement Cap Ring ——— PN 8120

Cap/Wire Retainer
Racing produces high winds and severe vibrations that can actually “whip” a plug wire causing it to fall off. With an MSD Wire Retainer this is impossible! These Retainers will securely hold the Pro-Mag’s cap in place while locking the spark plug wires to the terminal.

Band Clamp Mount Pro-Mags and the
PN 8123 Cap-A-Dapt ——— PN 8121
CAP & ROTOR OPTIONS

MSD Pro-Mags are engineered for a wide variety of racing applications. Each Mag is supplied with a durable cap and rotor that has been tested for performance. When space permits, upgrading to a larger diameter magneto cap can further prevent chances of crossfire. Also, if you're using a timing control to retard the timing, a Cap-A-Dapt is highly recommended because the retard affects the rotor phasing.

Increasing the distance between the terminals lessens the chance of spark scatter as well as the build-up of ozone inside the cap. MSD offers a full line of Cap-A-Dapts for all Pro-Mags.

**Pro-Cap™**

To go with the huge power of the Pro-Mag 44, MSD developed a huge cap and rotor, the Pro-Cap! The Cap has a big 5” terminal-to-terminal diameter, which ensures spark delivery and prevents the chance of spark scatter occurring inside the cap. The entire assembly is injection molded from DuPont Rynite material for incredible strength and high dielectric properties. The Rotor features a deep skirt and thick vanes to create turbulence inside the cap. Even the rotor screws are over molded with Rynite for increased spark isolation. The top of the Pro-Cap is crowned with a screw-down retainer to keep all plug wires firmly attached to each terminal.

The Pro-Cap is supplied with everything you need to convert your band clamp mount Pro-Mag including an aluminum base, spacer, rotor, cap, retainer and hardware.

**Pro-Cap for Band Clamp Pro-Mag** PN 7455
(for conversion from standard to Pro-Cap)

**Replacement Pro-Cap Parts**

<table>
<thead>
<tr>
<th>Part Description</th>
<th>Color</th>
<th>PN</th>
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<tbody>
<tr>
<td>Cap</td>
<td>RED</td>
<td>PN 7408</td>
</tr>
<tr>
<td>Rotor</td>
<td></td>
<td>PN 7423</td>
</tr>
<tr>
<td>Rotor Terminal Kit (4 Blades)</td>
<td></td>
<td>PN 7411</td>
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<tr>
<td>Retainer</td>
<td></td>
<td>PN 7409</td>
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<tr>
<td>Spacer</td>
<td></td>
<td>PN 7456</td>
</tr>
</tbody>
</table>

**PRO CAP** PN 7408

5”

**FORD STYLE** PN 8408

4”
PRO-MAG GEARS

The magneto's drive gear is critical to the performance of your engine. MSD has put a great deal of effort into researching and testing a variety of metallurgical compositions, heat treating and coatings in order to provide you with the strongest and most accurate gear available.

MSD engineers built a "gear dyno" and spent thousands of hours testing and evaluating the metallurgy of our gears. The result is a special iron alloy gear that is treated to a low friction coating process. For you, this means a short break-in period, long service life, and reliable performance!

Bronze Gears

MSD Bronze Pro-Mag Gears are machined from quality AMPCO 45 aluminum bronze containing 5% nickel. This special combination creates high strength gear teeth that are less prone to wear.

Standard Bronze Gears
Chevrolet _______ 0.500" ID ______ PN 8471
Ford, 351C/M, 400, 429, 460, FE,____ 0.530" ID ______ PN 8581
Ford, 351W _______ 0.530" ID ______ PN 8585

Oversize Bronze Gears

Absolute timing accuracy cannot be achieved until every mechanical detail is attended to. MSD's Oversized Bronze Gear helps obtain perfect timing by minimizing clearance with the cam gear to achieve proper meshing.

Chevrolet +0.006" (.500" ID) ______ PN 8472

Iron Gears

MSD’s Iron Gears are made from a proprietary formulated ductile iron with an increased outer hardened layer thickness (RC 55-60). They also feature a micro-polished surface and a Melonite QPQ coating for friction reduction.

Chevrolet, Standard (.500" ID) ______ PN 8531
Ford, 351C/M, 400, 429, 460, FE, 0.531”” ID ______ PN 85812
Ford, 351W, 0.531”” ID ______ PN 85852

GEAR TEST DYNO

This Gear Test Dyno features variable rpm and oil pressure control allowing MSD engineers the ability to maintain the exact conditions that they want for gear tests. Severe loads can be placed on the gear and the fixture can spin up to 10,000 rpm (crankshaft). Equipment and quality procedures like this are a big advantage to MSD and our customers.
RPM ACCESSORIES

2 and 3-Step™ Module Selectors
The built-in Soft Touch Rev Control on the MSD Pro-Mag 12 gives you the opportunity to use an MSD RPM Selector Module. These selectors give you the ability to set two or three different rpm limits that can be activated at different times. The Module Selectors install easily and plug into the rpm socket on the Electronic Points Box. The rpm limits are adjustable with plug-in modules.

2-Step Module Selector ______ PN 8739
3-Step Module Selector ______ PN 8737

Notes: Must be used with an MSD Rev Control. Requires a 12 volt source. RPM Modules must be purchased separately.

Launch Control Module Selector
To help drag racers achieve even more consistency, our engineers have incorporated an adjustable low-rpm stage into a Three Step Module Selector! This allows you to make adjustments in 100 rpm increments from the driver’s seat!

The Launch Control Module features a shielded harness for increased protection against EMI so it can be mounted within easy reach of the driver. This way, as track conditions change while you’re waiting in the staging lanes you can easily compensate by adjusting the launch rpm.

The Launch Control also features two other rpm limits; one for top end overrev protection and another to use during the burnout to achieve consistent tire temperatures. These limits are adjustable with MSD’s plug-in modules. No rpm modules are supplied.

Launch Control Module Selector____PN 8735

RPM Activated Switch
This switch can be used to activate a solenoid, light or even an air shifter. The rpm activation point is set with MSD’s rpm modules. This switch provides two options to activate a circuit: one to provide a ground path and one to open a circuit.

RPM Activated Switch ______ PN 8950

Notes: Must be used with the MSD PN 8132 or PN 8918 Tach Converter or PN 8168 Retard Control. Requires a 12 volt source. RPM Modules must be purchased separately.

RPM Window Switch
This switch has the same activation capabilities as the PN 8950, plus you can set another rpm point to deactivate the same circuit.

RPM Window Switch ______ PN 8956

Notes: Can only supply a ground to activate a circuit. Must be used with MSD PN 8132 or Tach Converter or PN 8168 Retard Control. Requires a 12 volt source. RPM Modules must be purchased separately.
RPM Accessories

RPM Module Kits
MSD RPM Modules can be used with MSD Rev Controls, Shift Lights, RPM Switches and Module Selectors. Each RPM Module Kit includes five modules within a 1,000 rpm range in 200 rpm increments.

- 3,000 - 3,800 PN 8743
- 4,000 - 4,800 PN 8744
- 5,000 - 5,800 PN 8745
- 6,000 - 6,800 PN 8746
- 7,000 - 7,800 PN 8747
- 8,000 - 8,800 PN 8748
- 9,000 - 9,800 PN 8749
- 10,000 - 10,800 PN 8750
- 11,000 - 11,800 PN 8751

Retard Modules
- 0° PN 8773
- 1°-5° PN 8777
- 5°-10° PN 8776
- 11°-15° PN 8774
- 16°-20° PN 8775

RPM Module Selectors
These Selectors allow you to choose from 12 different rpm limits simply by turning a knob! They are designed to be mounted within easy reach of the driver so last minute rpm limits can be dialed-in. Six models are available.

- 3,000 - 5,200 PN 8670
- 4,000 - 6,200 PN 8671
- 6,000 - 8,200 PN 8672
- 7,000 - 9,200 PN 8673
- 9,000 - 11,200 PN 8674

Adjustable Shift Light
A bright cluster of LEDs illuminates bright enough to be easily seen in daylight. The shift point is easy to adjust with plug-in rpm modules.

Adjustable Shift Light PN 8952
Notes: Must be used with the MSD PN 8132 Tach Converter or PN 8168 Retard Control. Requires a 12 volt source. RPM Modules must be purchased separately.

Digital Shift Light
The tiny digital controller inside the compact housing gives you the ability to perform the rpm activation points through the easy to view LED panel and two programming buttons. When the engine reaches the activation rpm, the six red LEDs illuminate bright enough to alert your senses into throwing the shifter at the exact rpm. You can even program up to four different rpm values for different gears!

Digital Shift Light PN 89631

Adjustable Intensity Shift Light
Easily control the intensity of the LED in this simple and small shift light. Connects to the shift light output of the Programmable Pro-Mag Control, PN 8973

Adjustable Intensity LED Shift Light PN 7542
Notes: Requires 12 volts and an RPM Activated Switch.
**RPM ACCESSORIES**

**Kill Solenoid**
This heavy-duty solenoid is designed to handle the high current of the Pro-Mag 44 as well as the vibrations and harsh conditions of Top Fuel racing. The solenoid is normally closed, but when you apply 12 volts, it opens the ground path allowing the engine to run. Once the 12 volts is removed the solenoid closes to ground shutting off the magneto’s power. One per magneto is required.

44 Amp Kill Solenoid __________ PN 8134

**SPST Kill Switch, for single Mag Systems**
This heavy-duty single-pole, single-throw switch will stand up to the abuse of racing. The switch is rated at 15 amps so it can handle the power of the Pro-Mag 12. The housing is designed to survive high impacts and features a molded-in elastomer seal between the toggle lever and bushing. The beefy aluminum housing provides a secure mount to withstand extreme racing conditions. (Supplied with the PN 8106 Electronic Points Box)

SPST Kill Switch, 12 Amp Mag Only __________ PN 8111

*Note: Not for use with the Pro-Mag 44.*

**Extension Harness, Points Box to Mag**
If your application leaves the Mag cables short of reaching the Electronic Points Box, these extension harnesses should do the trick. Both feature matching connectors and wiring for their application.

44 Amp Mag, Two Feet __________ PN 8143

**Deutsch Connectors**
Deutsch connectors are used on all of the Pro-Mags and their accessories. Each housing is indexed to prevent mismatching the terminals and are molded from a durable plastic material that will not harden over time. The connectors are protected with thick seals that will keep water, mud and debris away from the contacts. The Deutsch terminals also handle more current than conventional connectors and do not require special tools to disassemble. Each Connector is supplied with the necessary terminals, seals and housings.

2-Pin 18-Gauge PN 8183
6-Pin 18-Gauge PN 8180
4-Pin 18-Gauge PN 8181
8-Pin 18-Gauge PN 8185
12-Pin 18-Gauge PN 8186
2-Pin 12-Gauge PN 8184
4-Pin 12-Gauge PN 8187

**Tach Signal GMR Pickup**
Just think of things you can easily accomplish with our GMR Pickup! This little device simply attaches, no splicing or cutting, to a current-carrying wire and turns that information into a 12-volt rpm signal. This signal can be used to activate a shift light, rpm activation switch or a tachometer.

Tach Signal GMR Pickup __________ PN 8918
RPM ACCESSORIES

**Tach Converter**

The output signal that is used to trigger magnetos differs from a conventional electronic ignition system. The Tach Converter is a compact device that converts the Pro-Mag’s coil signal into a 12 volt square wave signal, so common tachometers designed for electronic ignitions can be used with the Pro-Mag. The Converter is less than three inches in length and its circuits are encased in epoxy for water and vibration resistance.

**Pro-Mag Tach Converter**  PN 8132  
*Note: Requires a 12 volt source. Also operates with Mallory and Vertex magnetos.*

**Noise Filter/Capacitor**

Whenever an accessory such as a Timing Control is wired into a Pro-Mag system, installation of this capacitor is recommended. Not only does it act as a filter and add protection from voltage spikes, but it will also provide power to the accessory even if the circuit is accidentally opened or a switch fails. The Capacitor will store enough power to keep an accessory activated for approximately four seconds.

**Noise Filter/Capacitor 26 KFUD**  PN 8830

**Timing Tapes**

These tapes are to be placed on the generator housing. Then, with a fabricated pointer, you can more accurately change the ignition timing by moving the housing.

**Timing Tape for 44 Amp/ Band Clamp12 Generators**  PN 8126

**MSD Timing Light**

An accurate timing light is mandatory when tuning your engine. The Self Powered Timing Light is perfect for engines using the Pro-Mag because it doesn’t require a 12-volt source. Instead, it uses six AAA batteries for power!

**Self Powered Timing Light**  PN 8991  
**Replacement Cable**  PN 89911

**External powered timing light.**

**Timing Light**  PN 8992  
**Replacement Cable**  PN 89921
8.5mm SUPER CONDUCTOR SPARK PLUG WIRES

The most powerful magnetos demand the best spark plug wire: the 8.5mm Super Conductor! Our 8.5mm wire features a helically-wound copper alloy conductor which has only 40 - 50 ohms of resistance per foot. The special copper alloy conductor is strong enough to handle the high current and voltage of the magneto, plus is a much better conductor than stainless steel. Even with its low resistance, the Super Conductor retains extremely high Electro Magnetic Interference (EMI) suppression abilities. By tightly winding the conductor around a ferro-magnetic impregnated center core, the wire creates an EMI "choke" holding the noise inside the wire while delivering the strongest spark possible.

The sleeve is a propriety compound of silicone and synthetic material making it resistant to high heat as well as tough against abrasions.

Chevy Sprint Car Wire Sets
Red Tight Fit/90° plug/90° cap __ PN 31549
Black Tight Fit/90° plug/90° cap __ PN 31543
Red Loose Fit/90° plug/90° cap __ PN 31579

Universal Kits
The MSD Universal Kits come with the spark plug terminal and boot installed on an extra-long wire. The terminals and boots for the magneto cap are supplied along with a special Mini-Stripper-Crimper tool to aid in their installation.

<table>
<thead>
<tr>
<th>Spark Plug</th>
<th>Magneto Cap</th>
<th>Red</th>
<th>Black</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA/Straight 90°</td>
<td>HEI</td>
<td>PN 31189</td>
<td>PN 31183</td>
</tr>
<tr>
<td>90°</td>
<td>HEI</td>
<td>PN 31229</td>
<td>PN 31223</td>
</tr>
<tr>
<td>MA/Straight 90°</td>
<td>Socket/HEI</td>
<td>PN 31199</td>
<td>PN 31193</td>
</tr>
<tr>
<td>90°</td>
<td>Socket/HEI</td>
<td>PN 31239</td>
<td>PN 31233</td>
</tr>
</tbody>
</table>

Universal Hemi Kits
The Universal Hemi Kits are designed specifically for Hemi applications.

<table>
<thead>
<tr>
<th>Single Plug Hemi Kit</th>
<th>Spark Plug</th>
<th>Magneto Cap</th>
<th>Red</th>
<th>Black</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Hemi Tubes/Red Wires 90°</td>
<td>HEI</td>
<td>PN 31529</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black Hemi Tubes/Black Wires 90°</td>
<td>HEI</td>
<td>PN 31523</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Replacement Spark Plug Wires
18", Red Wire, 90° On Each End __________________________________________ PN 84039
48", Black Wire, Multi/HEI __________________________________________ PN 34063
48", Red Wire, Multi/HEI __________________________________________ PN 34069

Spark Guard
The dielectric grease eases crimping and boot installation, prevents moisture buildup inside the boots and helps stop voltage leaks. Spark Guard will not dry up or harden.

Spark Guard __________ PN 8804
SPARK PLUG WIRE ACCESSORIES

Pro-Crimp Tool
A hardened steel frame sports comfortable molded hand grips while a slick ratchet action provides secure factory style crimps consistently. The Tool is supplied with crimp/strip jaws for MSD’s 8.5mm Dual Crimp Terminals only. It also accepts interchangeable jaws allowing for a variety of different style crimps with one heavy duty tool.

Pro-Crimp Tool — PN 35051
Note: See page 24 for replacement dies.

Replacement Dies
Pro-Crimp Jaws for use with the Pro-Crimp Tool only.

- Amp Pin Terminal Jaws — PN 3506
- Amp Lug Terminal Jaws — PN 3507
- Plug Wire Terminal Jaws — PN 3508
- Weathertight Connector Jaws — PN 3509
- Deutsch Connector Jaws — PN 351

Bulk Wire, Boots and Terminals

- 100 90° MSB Boots — PN 34515
- 100 90° Retainer Boots — PN 34555
- 100 Multi-Angle Boots — PN 34565
- 50 Hemi Boots (for tubes) — PN 3467
- 50 Non-Logo Coil Boots — PN 34757
- 100 Multi-Angle Terminals for Hemi Boots — PN 34605
- 100 90° Terminals — PN 34615

<table>
<thead>
<tr>
<th>Wire Length</th>
<th>Red</th>
<th>Black</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Feet</td>
<td>PN 34039</td>
<td>PN 34033</td>
</tr>
<tr>
<td>25 Feet</td>
<td>PN 34019</td>
<td>PN 34013</td>
</tr>
<tr>
<td>100 Feet</td>
<td>PN 34049</td>
<td>PN 34043</td>
</tr>
<tr>
<td>300 Feet</td>
<td>PN 34059</td>
<td>PN 34053</td>
</tr>
</tbody>
</table>

MSD Hemi Tubes
MSD worked closely with Top Fuel racers to design our Hemi Tubes. They are molded from Rynite material for its high dielectric properties and are very durable for severe racing conditions.

- Hemi Tubes, Set of 8
  - PN 34759 - Red
  - PN 34753 - Black

Pro Stock Hemi Tubes
New for Ford and Chrysler Hemi style pro stock heads.

Pro Stock Hemi Tubes, Set of 8, Red — PN 3476
Not for blower motors.

PROFESSIONAL RACING BOOTS
These spark plug boots are designed for extreme racing applications. Using a proprietary blend of materials, the boots can handle much higher temperatures over an increased amount of time. Three designs are available.

90° Pro Temp Boots
- 2 PER CARD — PN 3325
- PACK OF 8 — PN 8852

Straight Pro Temp Boots
- 2 PER CARD — PN 3327
- PACK OF 8 — PN 8854

115° Pro Race Boots
- 2 PER CARD — PN 3326
- PACK OF 8 — PN 8853
SPARK PLUG WIRE ACCESSORIES

Pro-Boot Guard
MSD Pro-Heat Boot Guard will protect the spark plug boot from extreme exhaust temperatures. The Boot Guard is a thick, glass-woven sleeve with a heavy silicone coating that provides protection against heat and abrasion.

Pro-Boot Guard, Six feet ______ PN 3412

Pro-Heat Sleeve
When header clearance is tight, the MSD Pro-Heat Sleeve gives you extra insurance. This tough sleeve is made of a thick glass woven core that resists temperatures up to 1,000°F. A silicone rubber coating adds extra protection against abrasion and tearing. The sleeve simply slides over the plug wire for easy installation.

Pro-Heat Sleeve, 25 feet ______ PN 3411

Shrink Sleeve
This sleeve will seal the Pro-Heat Sleeve to the plug wire or boot. It will not split and is designed to withstand high underhood temperatures.

Shrink Sleeve, Set of 18 for Pro-Heat Sleeve ______ PN 3407

Cylinder Markers
Marking the cylinder number of each plug wire can save you time and ensure that the wire is installed in the right place. MSD offers a set of numbers that grip onto each sleeve or Heat Shrink sleeves with numbers.

Cylinder Markers ______ PN 3414
Shrink Sleeve Cylinder Numbers ______ PN 3415

Pro-Clamp Separators
This kit will keep the plug wires in the proper order and secure from engine heat sources. Each assembly features secure grooves for each wire and a top bracket that snaps in place for a firm grip. Each Pro-Clamp can be free standing or bolted to a bracket. The kit is supplied with two 4-wire assemblies, two 3-wire assemblies and four 2-wire assemblies.

MSD Pro-Clamp Kit ______ PN 8843

Dual Wire Separators
These Separators are molded from strong, heat resistant polyacetal that will not crack or harden. Designed for easy removal and installation, the Separators firmly hold the wires away from the hot engine and moving components.

Up to 8.8mm, Set of 16 ______ PN 8841
Wires w/Sleeving, Set of 16 ______ PN 8842
**ACCESSORIES**

**TYPICAL BULK HEMI WIRE KIT**

<table>
<thead>
<tr>
<th>Bulk Wire</th>
<th>Red</th>
<th>Black</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 ft.</td>
<td>PN 34019</td>
<td>PN 34013</td>
</tr>
<tr>
<td>100 ft.</td>
<td>PN 34049</td>
<td>PN 34043</td>
</tr>
<tr>
<td>300 ft.</td>
<td>PN 34059</td>
<td>PN 34053</td>
</tr>
</tbody>
</table>

**STAINLESS STEEL TERMINALS**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>HEMI Spark Plug</td>
<td>PN 34605</td>
<td>100 Each</td>
</tr>
<tr>
<td>Generator (Cap)</td>
<td>PN 34615</td>
<td>100 Each</td>
</tr>
</tbody>
</table>

**REPLACEMENT BOOTS**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>HEMI Spark Plug</td>
<td>PN 3467</td>
<td>50 Each</td>
</tr>
<tr>
<td>Generator (Cap)</td>
<td>PN 34555</td>
<td>100 Each</td>
</tr>
<tr>
<td>Coil</td>
<td>PN 34575</td>
<td>50 Each</td>
</tr>
</tbody>
</table>

**REPLACEMENT BOOTS**

Hemi Tubes, 8 Red/8 Black

<p>| | | |</p>
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<thead>
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<tbody>
<tr>
<td></td>
<td>PN 3475</td>
<td></td>
</tr>
</tbody>
</table>
**ACCESSORIES**

**Dunn Cross Drives**

All of the MSD band clamp style Pro Mags are supplied with a standard "Dunn Cross Drive." The MSD Dunn Drive is CNC-machined from 1018 steel then receives a corrosion resistant GPQ coating. The replacement drive mechanism is supplied with a new locknut for installation.

- **Cross Drive for Band Clamp**
  - **Pro Mags 0.900"**
  - PN 8107

**Hold Down Clamps**

These clamps are CNC-machined from chrome-moly steel to produce maximum strength without excessive bulk. The clamp features a unique three-point mounting system that "bites" into the housing ensuring a firm hold. Each clamp is supplied with a mounting stud, lock washer and stainless nut.

- **Chevy**
  - PN 8110
- **Ford**
  - PN 8010

**12LT Chevy Slip Collar & Clamp**

The Chevrolet Pro Mag 12LT features a unique Slip Collar and Anti-Rotation Clamp assembly. The clamp features MSD’s three-point clamp design plus its straight edges match to the Slip Collar, completely eliminating rotation.

- **Anti-Rotation Clamp Steel, .22 lbs**
  - PN 7905

**Band Clamp**

This extra strong, locking band clamp is required when using a Band Clamp magneto mount. The stainless steel clamp tightly locks and holds the generator to its drive housing.

- **Band Clamp**
  - PN 8146
- **Heavy-Duty Band Clamp**
  - PN 8148

**Points Box Vibration Mounts**

Racing produces a tremendous amount of vibration. Tire shake and engine power, not to mention the occasional bump and grind in the corners all contribute to shortened component life. These Vibration Mounts are just the thing to help isolate severe racing vibrations from the Pro Mag Points Box or other accessories. Four mounts and hardware are included in each kit.

- **Vibration Mounts, 12 and 44 Amp Points Box**
  - 0.75" x 0.63" - 4 each (recommended for use in oval track racing)
  - PN 8823

- **Vibration Mounts, 44 Amp Coil**
  - 0.79" x 1.0" - 4 each (recommended for use in drag racing)
  - PN 8822
The following information will address some of the questions you may come across concerning the Pro-Mag. If you need further assistance, please contact our Customer Support Department at (915) 855-7123 or drop an email to msdttech@msdignition.com. You can also review frequently asked questions and other tech info at www.msdpromag.com.

CONVENTIONAL TIMING VS. THE PRO-MAG

When converting from a “conventional” (non-MSD) magneto to a Pro-Mag, it may be necessary to review your tune up. It is common for the ignition timing to accept a few degrees of retard or an increase in fuel to prevent lean mixtures. Taking the time to test and tune with small incremental changes will prove very beneficial.

INITIAL TIMING SETUP

A traditional “Buzz Box” cannot be used to set the timing of a Pro-Mag because there are no mechanical points. The Pro-Mag incorporates a high output magnetic pickup that ensures accurate timing and never requires adjustment.

MSD offers a Timing Setup Tool to assist in setting the timing prior to starting the engine. The PN 8122 is for use on generators with the Ford-style cap while PN 7405 is for use with the Pro-Cap. You can also follow these steps:

1. Position the crankshaft to your desired timing.
2. Position the generator in the engine with the rotor tip leading into the #1 terminal of the cap.
3. Start the engine and verify the timing with a quality timing light such as MSD’s PN 9991 and adjust the timing as needed.

SPARK PLUG GAP

Spark plug gaps should be kept to a minimum. The chart to the right shows average plug gaps for different applications.

<table>
<thead>
<tr>
<th>Spark Plug Gap</th>
<th>High</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normally aspirated</td>
<td>.030&quot;</td>
<td>.035&quot;</td>
</tr>
<tr>
<td>Alcohol</td>
<td>.025&quot;</td>
<td>.030&quot;</td>
</tr>
<tr>
<td>Supercharged Alcohol</td>
<td>.012&quot;</td>
<td>.016&quot;</td>
</tr>
</tbody>
</table>

CRANKING RPM

MSD Pro-Mags require a minimum cranking speed of 250 RPM to start (at the crank). If a block-mounted starter is used, a 16-volt battery will be required to produce reliable starting rpm. Aircraft starters may require 48 volts on Alcohol applications due to pulley drive ratios. Most 12-volt starters will not achieve the required cranking rpm. Many Pro Mod engines are using up to 32-volt systems just during cranking.

SPARK PLUG WIRES

MSD recommends use of our 8.5 Super Conductor spark plug wire. This wire features a copper-alloy conductor with a low resistance of 40 to 50 ohms per foot. The core and winding of the conductor produce a highly effective Electro Magnetic Interference (EMI) choke, so it also has extremely high EMI suppression capabilities.

Your spark plug wires should be inspected for cuts, abrasions, resistance and continuity. Note that spark plug wires are maintenance items of the ignition system and should be replaced at least three times per season (in drag racing applications). Short circle track racers should change wires after 15 - 25 events and every 5 - 10 races for long courses. Note that the coil wire should be replaced more frequently than the entire wire set as it handles eight times the work.

To ensure a quality crimp when building spark plug wire sets, use the MSD Pro-Crimp Tool, PN 35051. This Crimp Tool is supplied with the correct crimp dies for the Dual Crimp terminals of the 8.5mm Wire.

CAP AND ROTOR MAINTENANCE

Due to the spark energy that MSD Pro-Mags produce, it is recommended to inspect the cap, rotor and spark plug wires at closer intervals. The components that are supplied with the Pro-Mags are designed for strength and reliability but still require routine maintenance. Visually inspect for excessive wear or carbon tracking. Cap and rotors are available as a kit from your MSD Dealer.
CROSS DRIVES
Band clamp style Pro-Mag generators are equipped with cross drives for their superior strength, but existing two- and four-pin drives can be interchanged. If the drive is replaced, we recommend replacement of the lock nut. Also use blue Loc-Tie and torque to 20 lbs-ft.

TACHOMETERS AND ACQUISITION
Most tachometers and data acquisition systems require either a 12-volt square wave signal or a current-style inductive pickup. MSD has components that can provide both signal types:

TACH CONVERTER
The MSD Tach Converter, PN 8152 and GMR pick-up, PN 8910, converts the Pro-Mag’s signal to a 12-volt square wave with a 20% duty cycle. It will work on all Pro-Mag systems and requires a 12-volt battery source. See page 30.

Kill Switches

12 AND 20 Amp Pro-Mags
Kill switches are supplied with the Electronic Points Boxes for the 12 and 20 Amp Pro-Mags. Each Points Box requires a Kill Switch. Never use one kill switch for two Points boxes. MSD Switches, PN 8134 and PN 8111, are the only Kill Switches recommended for use with the Pro-Mag 12 and 20.

MSD 44-Amp Pro-Mags
For the MSD 44-amp Pro-Mags, there are two Kill Switches. The PN 8134 is a heavy-duty solenoid that can be operated from a dash-mounted switch and is recommended for pullers that require a breakaway switch. See page 6 for more information. Jumper wires across the coil terminals are required when starting the engine.

GENERATOR SUPPORT
In some applications, it is recommended that a generator support bracket be fabricated. Due to the variety of mounting applications, MSD does not offer a single mag bracket.

WIRING AND CONNECTORS
MSD uses Deutsch connectors with the Pro-Mag. These connectors should be inspected due to frequent disconnecting. Lightly pulling on the wires near the connector will make certain they have not worked loose. It is recommended to have your magnetos returned to MSD where the wiring can be repaired completely. The connectors can be disassembled as follows:
1. Remove the orange wedge lock with a small flat blade screwdriver.
2. Pry the spring lock back to unlock the wire, and pull it through.
3. Inspect the wire crimps and reassemble.

Note that the connectors have numbered terminal locations. Match the color wire with the position as shown.

<table>
<thead>
<tr>
<th>12 and 20 Amp</th>
<th>44 Amp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Violet #1</td>
<td>Violet #1</td>
</tr>
<tr>
<td>Green #2</td>
<td>Green #2</td>
</tr>
<tr>
<td>Black #3</td>
<td>Black #3</td>
</tr>
<tr>
<td>Yellow #4</td>
<td>Red #4</td>
</tr>
</tbody>
</table>
TECH TIPS

44-AMP GROUND PATH
When running a complete Pro-Mag 44-amp system, proper grounding of the system is imperative to proper operation. Check the diagram below for the recommended ground path. Both heads must be grounded to a point on the chassis that is shared with the negative coil terminals. The Points Boxes should share ground with the PN 8158 Retard box (if used), which is also grounded to the battery and chassis.

PRO-MAG TO POWER GRID

[Diagram showing wiring connections and components]
Below are the Pro-Mag components used in typical racing applications. If you have any questions about your exact requirements or accessories please contact our magneto Customer Support Department at (915) 856-2785 or e-mail: msdtech@msdignition.com.

### TYPICAL DUAL PLUG 12 OR 20 AMP MAG FOR ALCOHOL DRAG RACING

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 - PN 8160 (CCW)</td>
<td>12 Amp Band Clamp Generator (or PN 81602, 81502)</td>
</tr>
<tr>
<td>2 - PN 8106</td>
<td>Points Box w/Built-in Rev Limiter</td>
</tr>
<tr>
<td>1 - PN 8122</td>
<td>Pro Set Up Cap, Tool</td>
</tr>
<tr>
<td>1 - PN 36051</td>
<td>Pro-Crimp Tool</td>
</tr>
<tr>
<td>1 - PN 31559</td>
<td>Universal Wire Set Dual Plug Hemi Set.</td>
</tr>
</tbody>
</table>

### TYPICAL DUAL PLUG 44 AMP MAG FOR FUEL

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 - PN 8140 (CCW)</td>
<td>44 Amp Band Clamp Generator (or PN 8130, CW)</td>
</tr>
<tr>
<td>2 - PN 8142</td>
<td>44 Amp Coil</td>
</tr>
<tr>
<td>2 - PN 8145 or 8147</td>
<td>44 Amp Points Box with Built-In Rev Limiter</td>
</tr>
<tr>
<td>1 - PN 8122</td>
<td>Pro Set Up Cap, Tool</td>
</tr>
<tr>
<td>1 - PN 36051</td>
<td>Pro-Crimp Tool</td>
</tr>
<tr>
<td>1 - PN 31559</td>
<td>Universal Wire Set Dual Plug Hemi Set.</td>
</tr>
<tr>
<td>1 - PN 8134</td>
<td>44 Amp Kill Switch</td>
</tr>
</tbody>
</table>

### OPTIONAL ACCESSORIES

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - PN 8168</td>
<td>Pro-Mag Timing Control (Dual Channel)</td>
</tr>
<tr>
<td>1 - PN 8158</td>
<td>Six Shooter (Module Selector)</td>
</tr>
<tr>
<td>1 - PN 8973</td>
<td>Pro-Mag Controller</td>
</tr>
<tr>
<td>1 - PN 8971</td>
<td>Digital Retard and Interface</td>
</tr>
<tr>
<td>1 - PN 8830</td>
<td>Capacitor</td>
</tr>
<tr>
<td>1 - PN 7455</td>
<td>Pro-Cap Kit (1 Per Generator)</td>
</tr>
<tr>
<td>1 - PN 8159</td>
<td>Crank Trigger Pickup (For RCD or PSI Crank Triggers)</td>
</tr>
<tr>
<td>1 - PN 8134</td>
<td>44 Amp Kill Switch</td>
</tr>
</tbody>
</table>

### TYPICAL 12 AMP CIRCLE TRACK

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generator 12LT:</td>
<td></td>
</tr>
<tr>
<td>PN 7906</td>
<td>Chevy</td>
</tr>
<tr>
<td>PN 7915</td>
<td>Ford</td>
</tr>
<tr>
<td>1 - PN 8106</td>
<td>Points Box w/ Rev Limiter</td>
</tr>
<tr>
<td>1 - PN 31549</td>
<td>Wire Set Chevy</td>
</tr>
<tr>
<td>or PN 31229</td>
<td>Wire Set Universal</td>
</tr>
<tr>
<td>1 - PN 8102</td>
<td>Quick Release Mounting Panel Kit</td>
</tr>
</tbody>
</table>
TECH TIPS

WIRING THE 12 AMP PRO MAG

16 GAUGE GROUND WIRE
GROUND TO CYLINDER HEADS

PRO MAG 12

KILL SWITCH PN 8111
BLACK ORANGE

SHORT HARNESS TO CRANK TRIGGER
MID-LENGTH HARNESS TO GENERATOR
LONG HARNESS TO GENERATOR'S MAGNETIC PICKUP

WIRING THE CROSS-OVER SWITCH

CROSS-OVER SWITCH PN 7990
TO ENGINE GROUND

GREEN VIOLET GREEN VIOLET

PRO MAG 12

POINTS BOX PN 8106
Solving the wiring complexity of the modern race car, the Racepak SmartWire is a fully programmable power control module. While traditional wiring provides control of vehicle electronic components through the routing of wiring to single or multiple fuses, relay and circuit breaker panels, the Racepak Smartwire functions as a central “command center” for all vehicle wiring.

Based on Racepak’s exclusive single cable V-Net technology, the Racepak SmartWire module is the electronic “starting point”, with a direct main power connection from the vehicle battery to the module. Each input/output is then user defined, both in function, power requirements and current exceeding limits via a USB connection to the user’s PC. The design of the module functions to both reduce overall installation weight / clutter, while providing a quicker reacting electronic system, through the solid state switching design.

The V-Net compatibility insures a seamless integration with existing Racepak data logger or displayed equipped vehicles, while also providing a future upgrade path for additional inputs, control modules and instrumentation, when utilized as a standalone power control module.

PRO-MAG SHIRT
Medium  PN 95117
Large    PN 95127
X-Large  PN 95137
XX-Large PN 95147

Larger images shown on back cover.