



11.22.10

Re: Technical Notice

Spek-Pro™ Tachometer, Part # 239328

Software Revision # 24

Changing the Pit Road Default Ranges with the MSD Ignition Tester

Dear Customer,

Spek-Pro™ Tachometer, Revision # 24, permits the option to capture the RPM setting directly from the MSD Digital Ignition Tester, Part # 8998. **Tachometers will have Rev 24 and the date code on the back of the gauge.**

- Wire Tachometer and MSD tester as shown in the attached diagram
- Program the MSD Tester for 10 times the desired range width. Example: If 200 RPM is the required range, MSD Tester must be set to 2000 RPM ($200 \times 10 = 2000$ RPM)
- Select the Tachometer range value to be changed. Release the buttons. Program for that level Complete.

NOTE:

- Programming for Revision 24 software will support previous revision with flat top lens
- Use of the MSD Tester after gauge is programmed will have no affect on the gauge settings.
- All Tachometers shipped after 11.22.10 will include Revision# 24.
- Existing Tachometers with Flat Top Lens can be upgraded to Revision #24 for \$25.00. In addition, Existing Return Goods Authorization (RGA) policy applies.

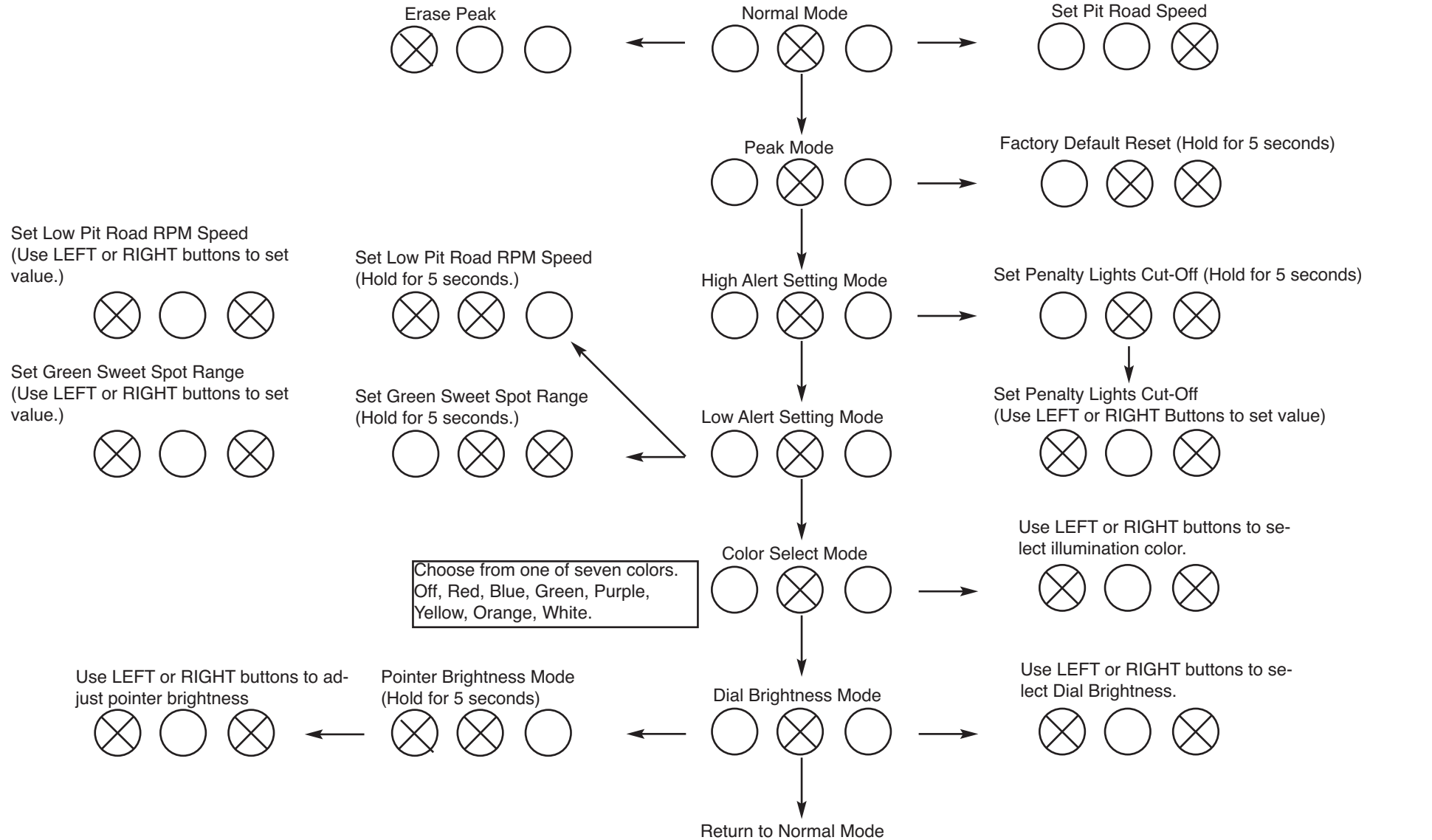
Sincerely,

Chip Kilgallen
Proparts, LLC



Tachometer Programming Quick Reference Guide

See Programming notes only for Revision 24 on the next page page



Choose from one of seven colors.
Off, Red, Blue, Green, Purple,
Yellow, Orange, White.

= Save changes and advance to next menu

= Depressed Button

= When pressed together exit menu without changes

SPEK-PRO TACHOMETER PROGRAMMING FOR SOFTWARE VERSION 24 LIMITED TO GAUGES WITH FLAT LENS INTRODUCED IN JANUARY 2009

CHANGING PIT ROAD DEFAULT RANGES WITH MSD IGNITION TESTER

- Wire gauge and MSD Ignition Tester, Part # 8998, as shown in Diagram.
- With the Tachometer in NORMAL operation mode, program the MSD for Ten times the desired RANGE WIDTH. EXAMPLE: If 800 RPM is the required range width, MSD Tester must be set to 8,000 RPM (800 x 10 = 8,000)
- Use the Tachometer command buttons to select the band default value you want to change. The pointer will step forward and then stop.
- RELEASE the buttons. The gauge will capture the RPM from the MSD Tester and RESET. Program for that RANGE is COMPLETE.
- Repeat the process for any other range adjustments you require.

NOTE:

- Programming for software Revision 24 will support previous versions with Flat Lens introduced in January, 2009.

If you do not give the Tachometer any MSD input when entering the Pit Road Sub-Menu, the gauge will accept programming as in previous versions.

- Use of the MSD Tester after gauge programming will have no affect on the tachometer setting.



QUICK REFERENCE PROGRAM

Spek-Pro™ Racing 5” Tachometer

Tech Notes:

1. **Peak value can not be reset unless you press the LEFT erase button while PEAK value is displayed. Power reset will not clear the PEAK value.**
2. **The Pulses-Per-Revolution (PPR) factory default is an eight (8) cylinder motor. To change number of PPR cylinders, wire the Tachometer and add +12 VDC on Pin #7 of the 10 pin J6 Connector. Then follow the instructions on pages 4-6 of the “Programming Instructions for RPM Tachometer”**
3. **If a menu is inactive for 60 seconds, the gauge will reset to NORMAL OPERATION, except for the PEAK. The PEAK will reset in 4 seconds.**
4. **Never disconnect the main battery while gauge panel is energized. Doing so could cause a voltage dump and damage the gauge.**
5. **It is highly recommended that a Proparts Electronics Snubber (Part # 13149) be installed to filter against voltage spikes when switching from one MSD ignition box to another. The filter prevents the electronics from receiving a voltage dump up to 60 volts.**
6. **Always run a MSD box, Part # 8998, directly to the Tachometer. Never run it through the ignition box. Doing so, would cause your RPM and Sweet-spot range to be off by 1000 RPM. (Drawing # 1)**
7. **Do not install the White/Dimmer or Purple/Output wire if using Pit Road application.**
8. **Default Settings:**
 - a. **Pit Road software applications enabled**
 - b. **Shift-Light program disabled**
 - c. **Set Red Penalty Lights cut-off 500 RPM above set point**
 - d. **Set Green Sweet-spot Lights cut-out 200 RPM above pace car setting**
 - e. **Set Low Pit Road RPM 800 RPM below Sweet-spot Range**
 - f. **Pulses Per Revolution (PPR) set for 8 cylinder motor**

SETUP MENU ITEMS

The following operating values may be adjusted by entering a "Menu" option state and using the up and down buttons to adjust the setting to your preferred value. When you have finished your adjustment, press the center button to store your setting. Then, just to be sure, press UP and DOWN together. All ACCESS advice below starts from the gauge's normal operating state.

..... SYSTEM" OPERATIONS.....

***REBOOT / ESCAPE:** To be sure you are in the normal operating state, you can press the UP and DOWN buttons, simultaneously, at any time. The pointer will swing and then settle on the engine's current operating RPMs. In most menu states described below, pressing UP and DOWN together will end a menu state without writing your adjustment.

***FACTORY DEFAULTS:** This feature is useful if you "get lost" and need to bring the gauge back to a known state, where all the settable values are restored to the factory settings as shipped.

ACCESS: Press "Center" button once then hold center-right

..... SPECIAL RACING FEATURES.....

This tachometer has features that allow you to tell how hard you are pushing the envelope as you enter the pit road. Below the speed example set by the pace car, the arc of "shift lights" is yellow. As you pass the speed of the pace car, you get one green light, then more as your speed increases. At the top of the allowable speed range, the whole dial face turns green, then red as you get into "gonna get busted" territory. Because of the color changes, you can tell your speed status with precision without taking your eyes off the road for long.

..... TO SET THE PACE CAR RPM.....

In NORMAL mode, press the UP button for about two seconds. The RPM at the time the button was first pressed will become the new pace car speed setting, and determine the beginning of the green "sweet spot" arc. The tachometer dial shift lights will progressively light to tell the driver his speed in each of three ranges. Ranges are:

1. Set GREEN SWEET SPOT RANGE.....DEFAULT 200 RPM
2. Set YELLOW PIT ROW RANGEDEFAULT 800 RPM
3. Set HIGH RED PIT ROAD RANGE.....DEFAULT 500 RPM

The default values for these ranges are automatically programmed when the SWEET SPOT is set by the driver.

..... CHANGING THE DEFAULT VALUES

Software version 24 offers two (2) Programming methods used to change the default values. One uses a MSD Digital Tester, Part # 8998 and the other does not.

PROGRAMMING WITHOUT A MSD TESTER:

SWEET SPOT RANGE: This sets the range of engine speeds ABOVE the pace car speed setting, which is not supposed to get you busted. In this range, one or more green lights will show in the shift arc. At the top, the whole meter face turns green. A smidgeon more speed and the gauge face turns red. At this point you are in the penalty span. The tachometer dial shift lights will progressively light to tell the driver his speed in each of the three ranges

RPM RANGE x 10 (Dial Scale Conversion Value) = Dial Pointer Setting

Example: 200 RPM x 10 = 2000 RPM Dial Pointer Setting

Press “Center” button 3 times, Then press and hold both center/right buttons. The gauge will flash GREEN. Press the right or left button to move the pointer to the new Dial Pointer Setting. Press the Center button to save the setting.

PENALTY RANGE CUT-OFF: This sets a RPM Rrange between the start of RED PENALTY SPEED and PENALTY LIGHTS CUT-OFF. While racing above this range the RED lights will turn off.

ACCESS: Press “Center” button 2 times then hold Center/Right. Set RED PENALTY LIGHTS CUT-OFF

Example: 500 RPM (Red Penalty Speed) x 10 = 5000 Dial Pointer Setting

LOW PIT ROAD SPEED: A band of yellow lights indicates when you are below the pace-car speed. In this range one or more yellow lights will show in the shift arc. Press “Center” button 2 times then hold Center/Left

Set LOW PIT ROAD RPM . **Example: (800 RPM x 10 = 8000 RPM Dial Pointer Setting)**

HIGH RED-LINE SHIFT LIGHT SETTING:

This sets the RPMs where you are reminded that the engine may be damaged.

Press “Center” button 2 times

Choose any RPM Value up to 11,000 RPM

.....SET PIT ROAD SPEED BEFORE RACE.....

Press the center button twice and then press and hold the CENTER/LEFT. buttons. The pointer will step forward and stop. Release the buttons. The pointer will go to the current setting. Use the UP or Down button to select the desired pit road speed.

Press the CENTER button to save. PIT ROAD SPEED is now set.

..... CHANGING DEFAULT RANGES WITH MSD TESTER - Part # 8998.....

MUST HAVE SOFTWARE REV - 24 AND FLAT TOP LENS INTRODUCED JANUARY, 2009

To resize the RED, AMBER or GREEN Pit Road Default Ranges: With the gauge in NORMAL mode, program the MSD FOR TEN (10) TIMES THE DESIRED BAND WIDTH. Use the gauge buttons to select the band default values you want to change.

Example: To set the SWEET SPOT RANGE to 200 RPM, First set the MSD to 2000 RPM (10 x 200 RPM). After this rate is set up, press the center button three (3) times, then press and hold the Center/Right buttons. The pointer will step upwards and then stop. Release the buttons. The gauge will return to NORMAL. The program is saved. Repeat the process for the other ranges. (Default Range x 10 = MSD Setting)

Use of the MSD TESTER after the range is saved will have no affect on the gauge settings.

..... Appearance Management.....

* "Dial Background Color":

Use the up and down buttons to color illumination of the faceplate according to your preference.

ACCESS: Press "Center" button 4 times

* "Pointer brightness":

Set the brightness of the red pointer.

ACCESS: Press "Center" button 4 times then hold center-left

* "Shift light" brightness:

Set the brightness of the arc of amber, green or red lights that indicate speed compared to the pace car's example.

ACCESS: Press "Center" button 5 times

* "Dial" or "Background" brightness:

Set the brightness of the numbers and ticks on the dial

ACCESS: Press "Center" button 5 times then hold center-left

..... Calibration Management.....

* "PPR": This adjustment allows you to set up the gauge for various kinds of tachometer signal inputs. Typically, the input comes from the ignition system, but you can also set it up to work from electrical fuel injectors or an alternator. To prevent accidental changes, we require +12V on the "DIM" input (Pin #7) before you can reach this mode.

ACCESS: From normal, Press and hold center-right

* "Pointer Zero": If zero RPM does not bring the pointer exactly to the middle of the "0" tick mark, you may need to readjust the pointer offset value. The pointer will move a very small amount around the zero tick as you hold the up or down buttons) To prevent accidental changes, we require +12V on the "DIM" input before you can reach this mode.

ACCESS: Press "Center" button 5 times then hold center-right

..... Miscellaneous.....

* "Read Peak RPM":

The pointer displays the highest RPM measured by the meter since the last peak reset. To reset the highest RPM value, press the DOWN button while in NORMAL or READ PEAK mode.

ACCESS: Press "Center" button once

* "Set Low Speed Warning":

The amber "low" LED will come on when the RPMs drop below your setting. This is not often useful, but is included just in case.

ACCESS: Press "Center" button 3 times

* "DEMO" mode: This puts the display through its paces, moving the pointer up and down and changing the light colors. This is useful in a sales display, or to check the hardware functions. The meter will remain in demo mode, even if power is removed and restored. But pressing any button will immediately restore the meter to normal operation.

ACCESS: Press "Center" button 4 times then hold center-right

..... ADDRESSING COMMON PROBLEMS.....

* OFF-CALIBRATION

Various cars produce different types of tachometer signal. The properties of these signals are usually referred as PPR (Pulses per Revolution.) They range from 1/2 PPR (for a single cylinder four-stroke engine) to 6 PPR (for a 12-cylinder single-spark-coil distributed ignition system.) NASCAR usually uses an eight cylinder distributed system, which yields 4 PPR, and the meters are shipped set for that. If you have a different ignition system, or a diesel, the RPMs on the dial will not be accurate, You will need to change your setting. For more detail, see page 4-6 the "Programming Instruction" manual

* ZERO IS OFF

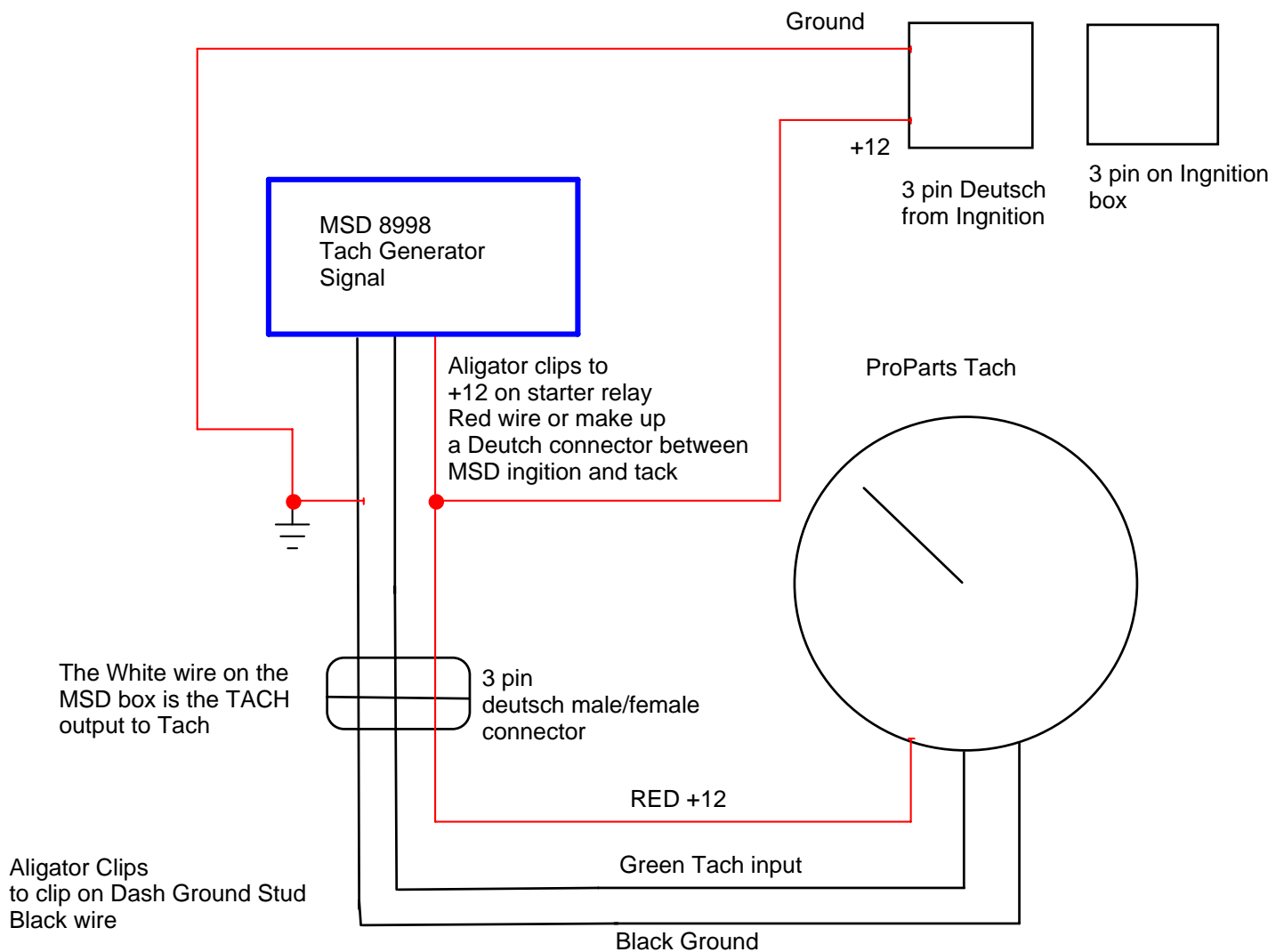
Set the pointer zero to the middle of the zero tick mark. See "Pointer Zero", page 3.

* NO READING

Some tachometer signal sources are very low voltage, but our meters are able to work with all known signals. Anything less than 3.5 volts may cause problems. Check your connections.

* SHIFT (SWEET SPOT) LIGHTS DO NOT WORK

Our factory settings enable the Sweet Spot display. **Setting the width of any of the arcs to zero will disable the PIT ROAD display.** To re-enable the display, make sure that all the arc widths are nonzero, the pace car speed is at least 1200 RPM, and the shift brightness is not zero. Resetting factory defaults or selecting nonzero speeds, will re-enable pit road.



Unplug the 3 pin deutsch connector from the MSD ignition box to the Tack. Replug the MSD 8998 Digital box to test or set the PIT ROAD setting. Use 3 foot wire with RED (+12) and Black (-) Ground Aligator clips to get power from the starter hot side relay and the dash ground stud. Wire a 3 pin Deutsch connector to plug into the Tach without removing the Tach from the dash mount. After testing is complete remove the test box and reinstall tach to ignition box. DO NOT RUN MSD 8998 through the Ignition circuit to set pit road. Always connect the MSD 8998 directly to the SPEK TACH. We recomend using a silicone McMaster Carr part number 74935A45 Non-Corrosive adhesive between the wire and the connector to hold the wires steady as a strain relief. (www.mcmastercarr.com) Phone: 609 689 3000

Always run the MSD box 8998 Directly to the TACK never run it through the ingnition box or your RPM reading could be off by 1,000 RPM's.

It is highly recommended that you install the ProParts LLC Electronic Snubber (Part # 13149) It will filter against Voltage spikes when switching from one MSD ignition box to another. The filter could prolong the electronics from receiving Voltage surges in excess of 60 Volts.

NEVER DISCONNECT MAIN BATTERY WHILE GAUGE PANEL IS ON IT COULD SEND A 60 VOLT LOAD DUMP AND DAMAGE GAUGE.

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Electric Snubber Noise Filter, Part # 13149

This is an over voltage protection circuit for automotive load dump. The noise filter will limit voltage spikes above +16 VDC and all negative voltage below (-) ground caused by inductive loads such as battery changeover switch, starter solenoids, fan motors, etc. The negative counter EMF spikes will be filtered to ground.

Install noise filter between the (-) ground terminal and the +12 VDC power on the gauge panel power supply to filter all harmful transient spikes.

APPLICATION: The noise filter, or an appropriate microfarad capacitor, must be used if a battery changeover switch is included in the electrical system.

