



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 MSD filter cap, Part # 8830, 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 meter 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:** This is not a separate menu state, but we choose to include it here. 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: The programmer must determine the new RANGE and then use the following formula to convert the new RANGE to a Dial Pointer Setting

$$\text{RPM RANGE X 10 (Dial Scale Conversion Value) = Dial Pointer Setting}$$
$$200 \text{ RPM} \times 10 = 5000 \text{ RPM Dial Pointer Setting}$$

*** SWEET SPOT RANGE:** This sets the range of engine speeds ABOVE the pace car speed setting, which are 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. If the track permits a RPM SAFE WINDOW in excess of the SWEET SPOT, the driver can take advantage of that additional speed. The Sweet Spot setting plus the Safe Window will determine the maximum RPM permitted on PIT ROAD without penalty. The tachometer dial shift lights will progressively light to tell the driver his speed in each of the three ranges

ACCESS: Press “Center” button 3 times then hold center-right. Use 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 range of engine speeds WELL ABOVE the pace car set speed, which WILL get you busted in the pit lane. In this range, one or more red lights will show in the shift arc. The whole meter face turns red. While racing well above the pace car speed, the red lights will go out and the meter will go back to just displaying RPM.

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

500 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.

ACCESS: Press “Center” button 2 times then hold center-left Set LOW PIT ROAD RPM

800 x 10 = 8000 Dial Pointer Setting

*** HIGH RED-LINE SHIFT LIGHT SETTING:**

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

ACCESS: Press “Center” button 2 times

Choose any RPM Value up to 11,000 RPM

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

* "Dial Background Color":

Use the up and down buttons to set the color of the numbers and ticks on the dial, 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.

*** 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 DONT WORK**

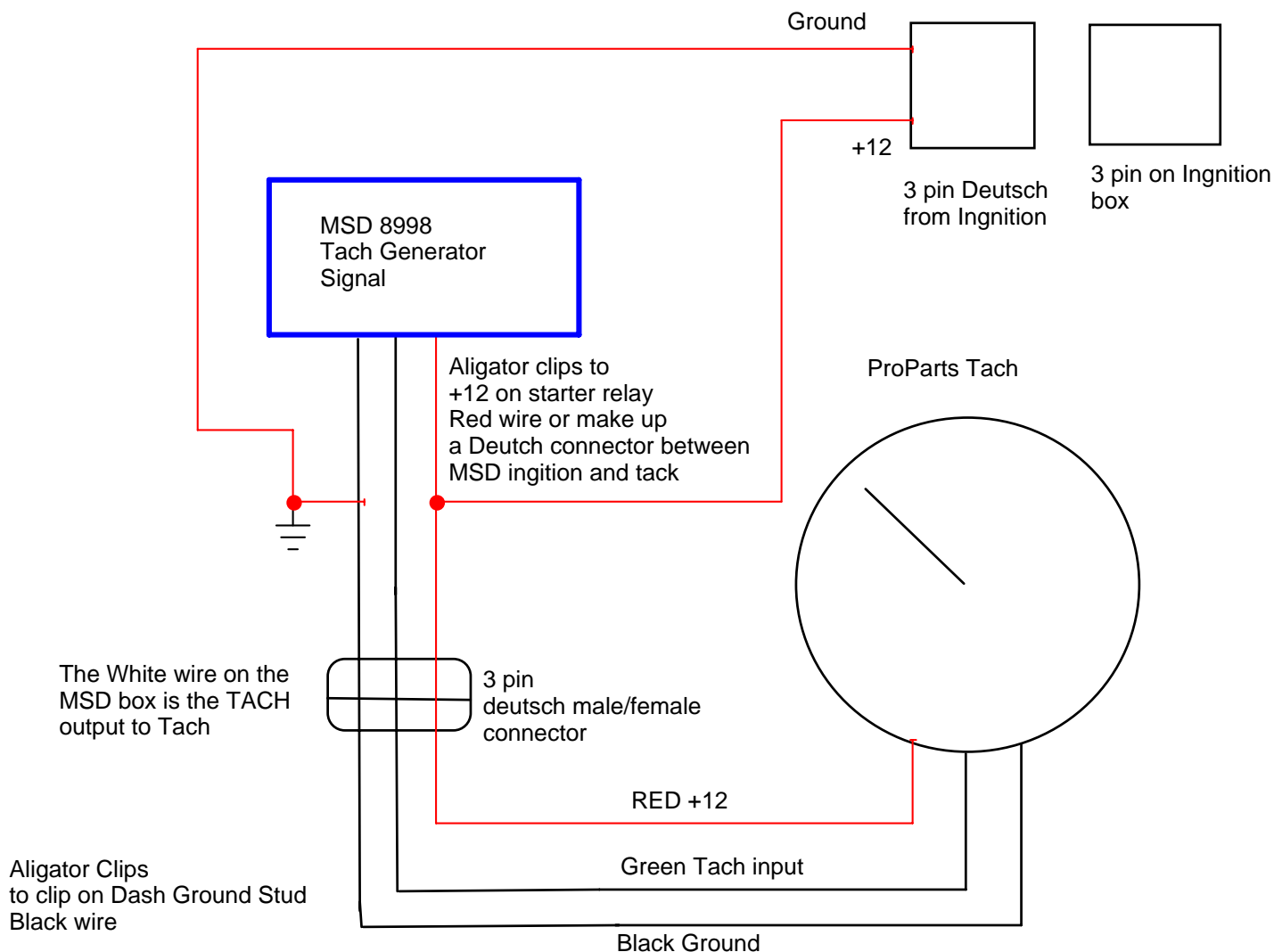
Our factory settings enable the Sweet Spot display. **Setting the width of any of the arcs to zero or Pressing the "Pit Road" button to set pace car speed while there is no tachometer signal, will disable the display.** To re-enable the display, make sure that all the arc widths are nonzero, the pace car speed is at least 2000 RPM, and the shift brightness is not zero.

A

B

C

D



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 MDS filter Cap below that 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.
Part number 8830

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

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A

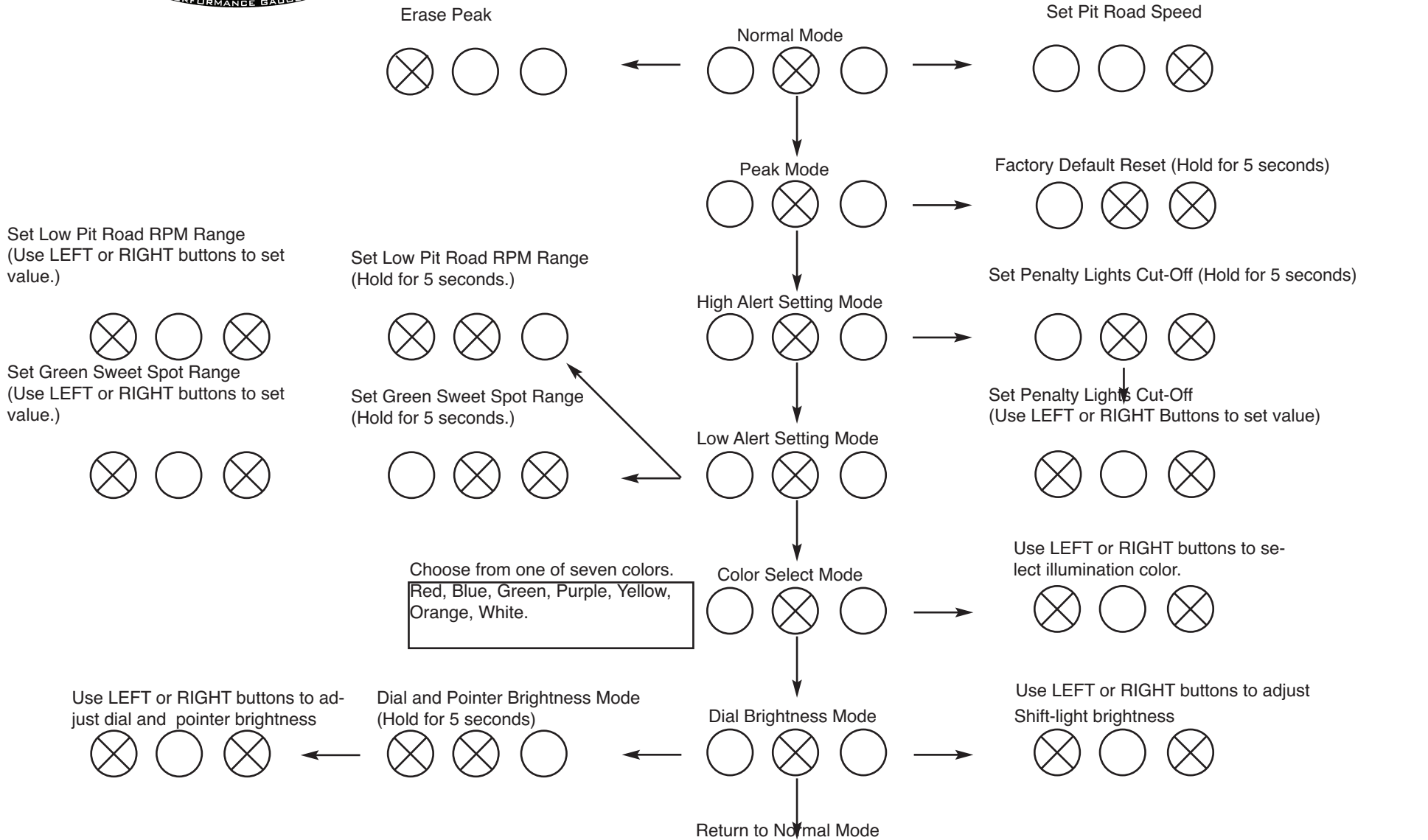
B

C

D



Tachometer Programming Quick Reference Guide



() (X) () = Save changes and advance to next menu

(X) = Depressed Button

RED BLUE YELLOW
 () () ()

(X) () (X) = When pressed together exit menu without changes