

# Wiring Installation Instructions for : RPM Tachometer 2 1/16" Nitrous Oxide Controller

## **SPEK™ MONITOR AND CONTROL PERFORMANCE GAUGE TACHOMETER WITH NITROUS OXIDE INJECTOR CONTROL**

### **PACKAGE CONTAINS:**

- Tachometer Gauge 2 1/16"
- J6 & J5 Wiring Harness
- Mounting Cup (Not required for pod installation)
- (2) Neoprene EDPM Grommets
- Digital Control Driver, part #14612

### **Single Stage Release**

- Tachometer Gauge 2 1/16"
- J6 Wiring Harness
- Mounting Cup (Not required for pod installation)
- Output Control Module (Part #14829)

### **Dual Stage Release**

- Tachometer Gauge 2 1/16"
- J6 & J5 Wiring Harness
- Mounting Cup (Not required for pod installation)
- 2 Output Control Modules (Part #14829)

### **OPTIONAL:**

- Arming Switch, Part #14606
- Output Relay & Wiring Harness, part #14820
- Output Heavy Duty & water resistant relay part # 14829

## **FEATURES:**

### **SPEK PERFORMANCE GAUGE TACHOMETER FEATURES:**

- INTELLIGENT ELECTRICAL GAUGES.
- GAUGES ARE PROGRAMMED THROUGH COMMAND KEYS ON FACEPLATE.
- STEPPER MOTOR DRIVES THE GAUGE POINTER OVER 280 DEGREE SWEEP.
- WIDE-ANGLE-DIAL™ HAS A 15% LARGER VIEWING AREA ON A 2 1/16" GAUGE.

# Wiring Installation Instructions for : RPM Tachometer 2 1/16" Nitrous Oxide Controller

- PROGRAMMABLE 7 COLOR DIAL AND RED POINTER ILLUMINATION.
- OPTIONAL OUTPUT CONTROL MODULE.

## INSTALLATION INSTRUCTIONS:

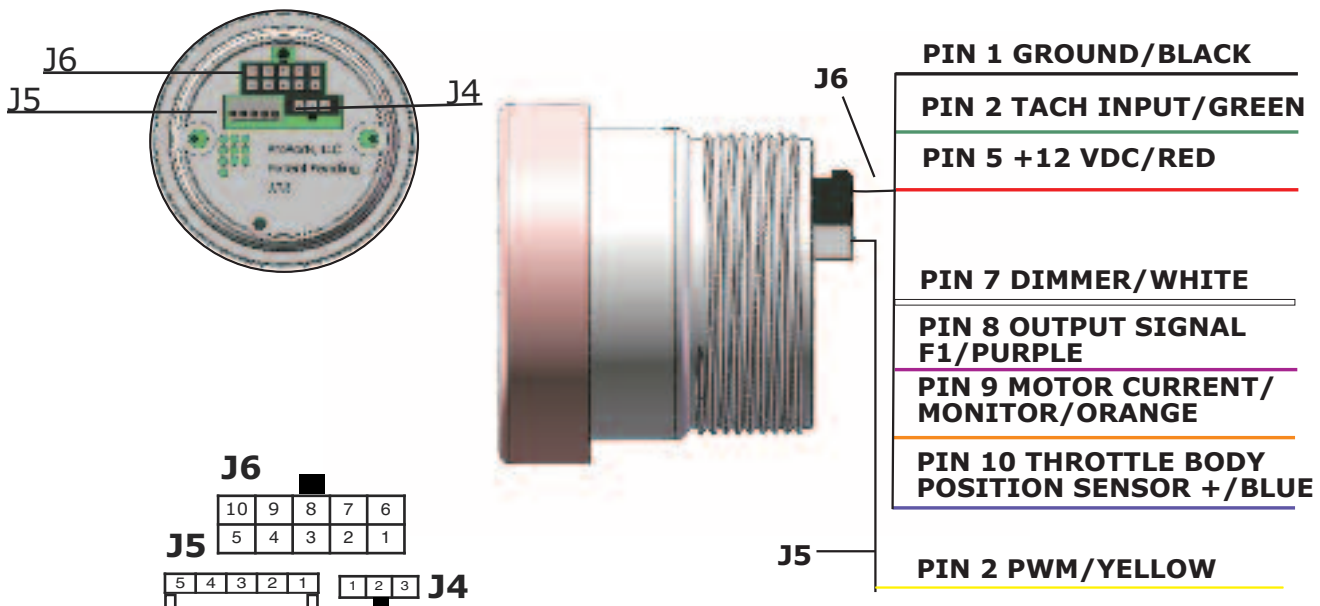
- 1 DISCONNECT NEGATIVE (-) BATTERY TERMINAL.
  - 2 VARIOUS MOUNTING SOLUTIONS ARE PRESENTED BY PROPARTS, LLC ON THEIR WEBSITE AT [www.ProPartsLLc.com](http://www.ProPartsLLc.com)  
DASH INSTALLATION: SELECT LOCATION IN THE DASH TO MOUNT GAUGE AND CUT A 2 1/16" HOLE. USE A FILE TO INCREASE THE HOLE SIZE IF REQUIRED. BE SURE THERE IS SUFFICIENT ROOM BEHIND THE HOLE FOR THE METER CASE AND THE CONNECTORS YOU WILL USE.
  - 3 IF A SUITABLE HOLE IN THE FIRE WALL IS NOT AVAILABLE, CUT AN 11/16 HOLE.
  - 4 TWO GROMMETS MUST BE CUT TO PERMIT INSTALLATION OF WIRING HARNESS. (SEE DIAGRAM 2)
  - 5 INSTALL THE TWO (2) GROMMETS AND MOUNTING CUP ON THE WIRING HARNESS AS SHOWN IN DIAGRAM #1. ONE GROMMET IS FOR THE HOLE IN THE FIREWALL AND THE SECOND IS FOR THE BACK OF THE GAUGE MOUNTING CUP.
  - 6 DO NOT CONNECT WIRING HARNESS TO THE GAUGE UNTIL THE OTHER CONNECTIONS HAVE BEEN MADE AND TESTED.
  - 7 CONNECT THE **RED** (+ 12 VOLT SUPPLY) WIRE TO "ON" CIRCUITS THAT GET POWER WHEN THE IGNITION IS TURNED-ON. THIS CIRCUIT MUST BE FUSED BEFORE THE IGNITION SWITCH (1 AMP, 3AG FAST ACTING LITTLE FUSE® #312001 OR EQUIVALENT).
  - 8 CONNECT THE **BLACK** WIRE TO A GOOD GROUNDING POINT ON THE CAR'S CHASSIS.
  - 9 CONNECT THE **WHITE** WIRE TO THE DIMMER VOLTAGE GOING TO THE DASH LIGHTS. THIS WILL CAUSE THE METER BRIGHTNESS TO TRACK THE BRIGHTNESS OF THE REST OF THE INDICATORS.
  - 10 CONNECT THE SENSING WIRE TO THE PRIMARY TERMINAL ON THE IGNITION COIL (STANDARD-TYPE COIL) OR TO THE AUXILIARY TERMINAL MEANT FOR THE TACH WIRE (AFTER MARKET, HIGH PERFORMANCE COIL). DO NOT CONNECT TO COIL ON MSD IGNITION. ATTACH ONLY TO TACH TERMINAL.
  - 11 CONNECT THE **BLUE** THROTTLE SENSOR WIRE TO THE THROTTLE MONITOR.
  - 12 MOUNT DIGITAL CONTROL DRIVER TO FENDER OR FIREWALL AND WIRE AS SHOWN IN DIAGRAM #1.
- IF INSTALLING WIRING FOR OPTIONAL OUTPUT CONTROL MODULE PART #'S 14820, 14826, OR 14829 FOLLOW INSTRUCTIONS # 13 THROUGH #17.**
- 13 CONNECT 12V POWER SUPPLY WIRE TO THE POSITIVE TERMINAL ON THE N2O SOLENOID.
  - 14 CONNECT A FET OUTPUT WIRE FROM THE GAUGE TO OUTPUT CONTROL RELAY GROUND TERMINAL (86).

## Wiring Installation Instructions for : RPM Tachometer 2 1/16" Nitrous Oxide Controller

- 15** CONNECT RELAY OUTPUT WIRE FROM TERMINAL (87) TO THE NEGATIVE (-) TERMINAL OF THE NITROUS OXIDE GAS RELEASE SOLENOID.
- 16** CONNECT AN IN LINE FUSED 12V POWER SUPPLY WIRE TO RELAY TERMINAL 85.
- 17** CONNECT A 14 AWG WIRE FROM THE POSITIVE END OF THE DISPENSING SOLENOID VALVE TO THE IGNITION BUS.
- 18** PLUG THE WIRING HARNESSES INTO THE GAUGE AND MOUNT IN POD OR DASH.
- 19** IF DASH INSTALLATION, ATTACH MOUNTING CUP OVER THE BACK OF THE GAUGE AND HAND TIGHTEN. DO NOT OVER TIGHTEN. MOUNT CUP BEFORE INSTALLING GROMMET. FAILURE TO DO SO WILL TWIST WIRES CAUSING A SHORT CIRCUIT.
- 20** POWER UP THE GAUGE AND INSPECT ALL CONNECTIONS. IF GAUGE IS OPERATING NORMALLY, PROCEED TO "PROGRAMMING MANUAL".

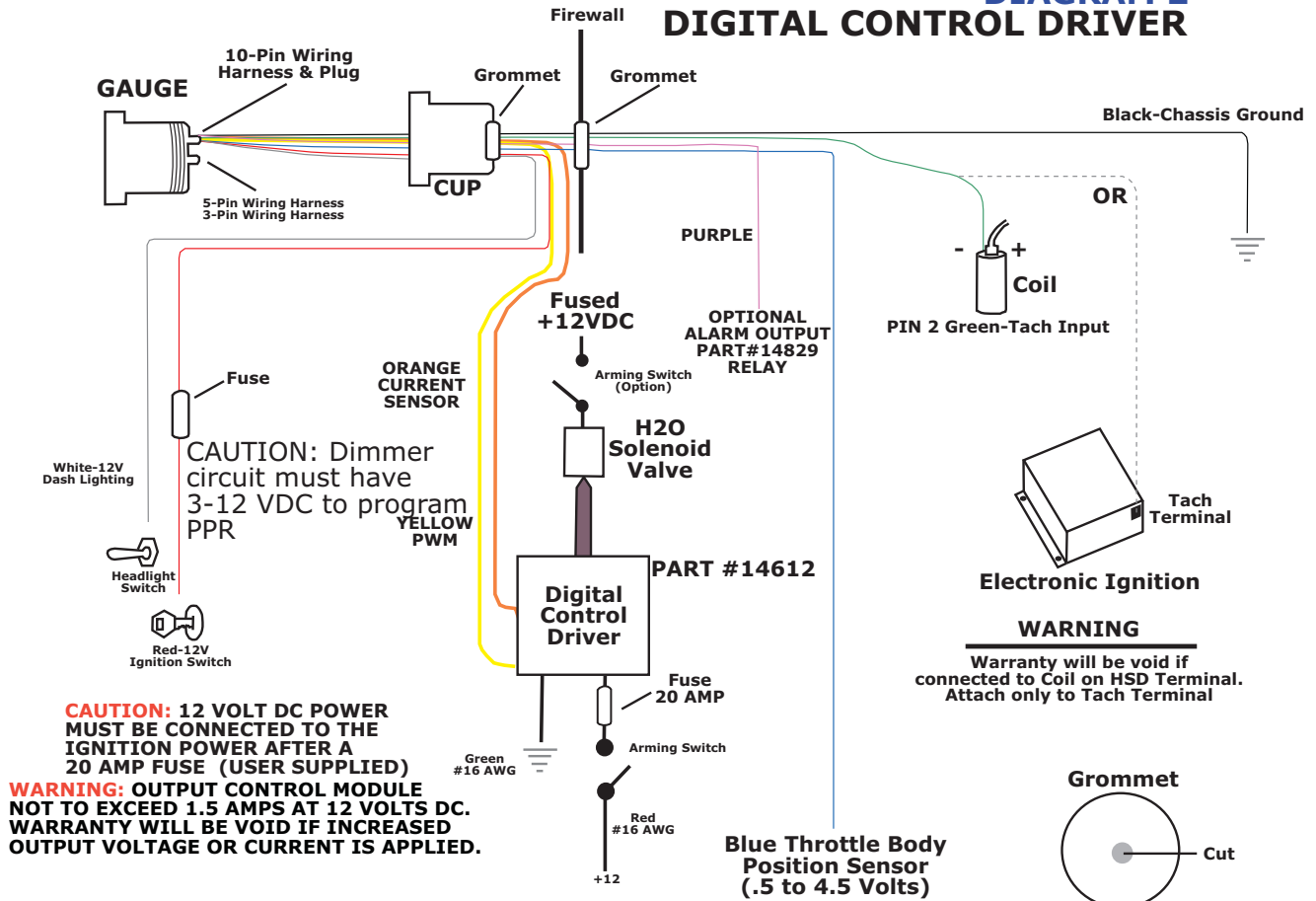
### DIAGRAM 1

### WIRING FOR 2" SPEK TACHOMETER WITH DIGITAL CONTROL DRIVER FOR NITROUS OXIDE CONTROL



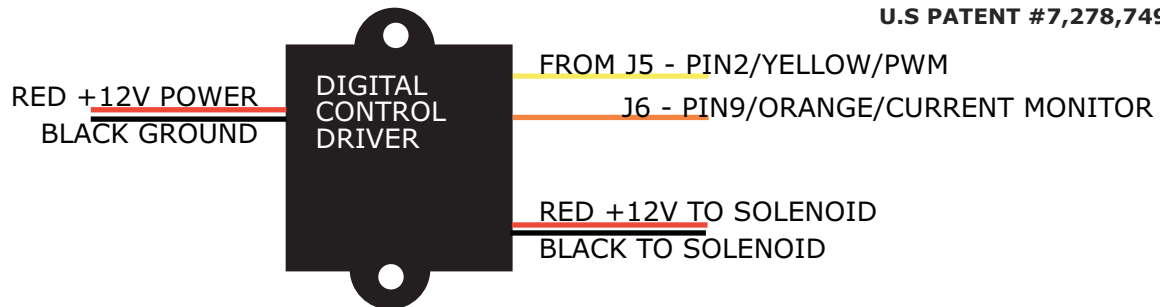
# Wiring Installation Instructions for : RPM Tachometer 2 1/16" Nitrous Oxide Controller

**DIAGRAM 2  
DIGITAL CONTROL DRIVER**



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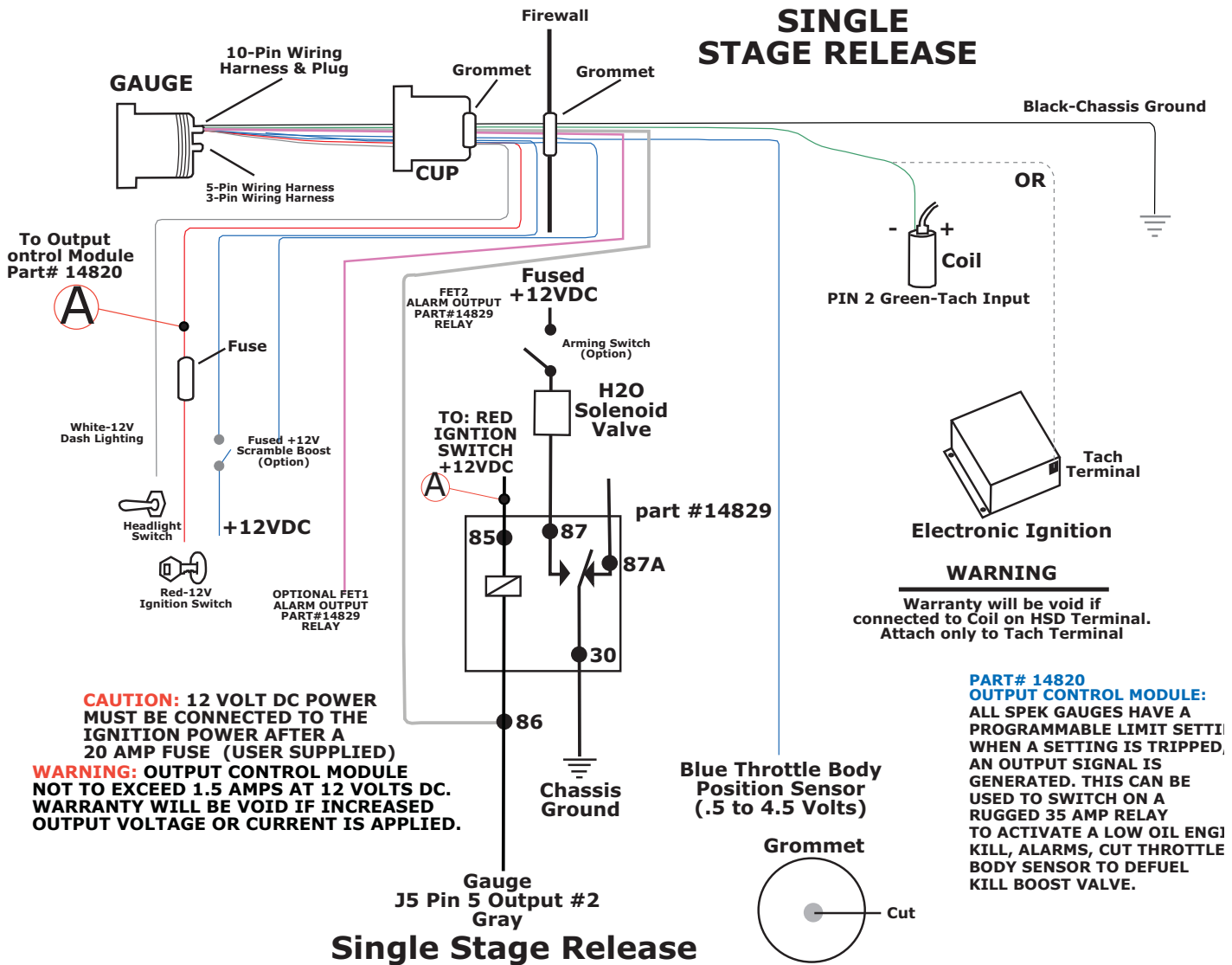
**PATENTED WIDE ANGLE DIAL  
FOR SUPERIOR VISIBILITY  
U.S. PATENT #7,278,749**



# Wiring Installation Instructions for : RPM Tachometer 2 1/16" Nitrous Oxide Controller

DIAGRAM 3

## Application Information

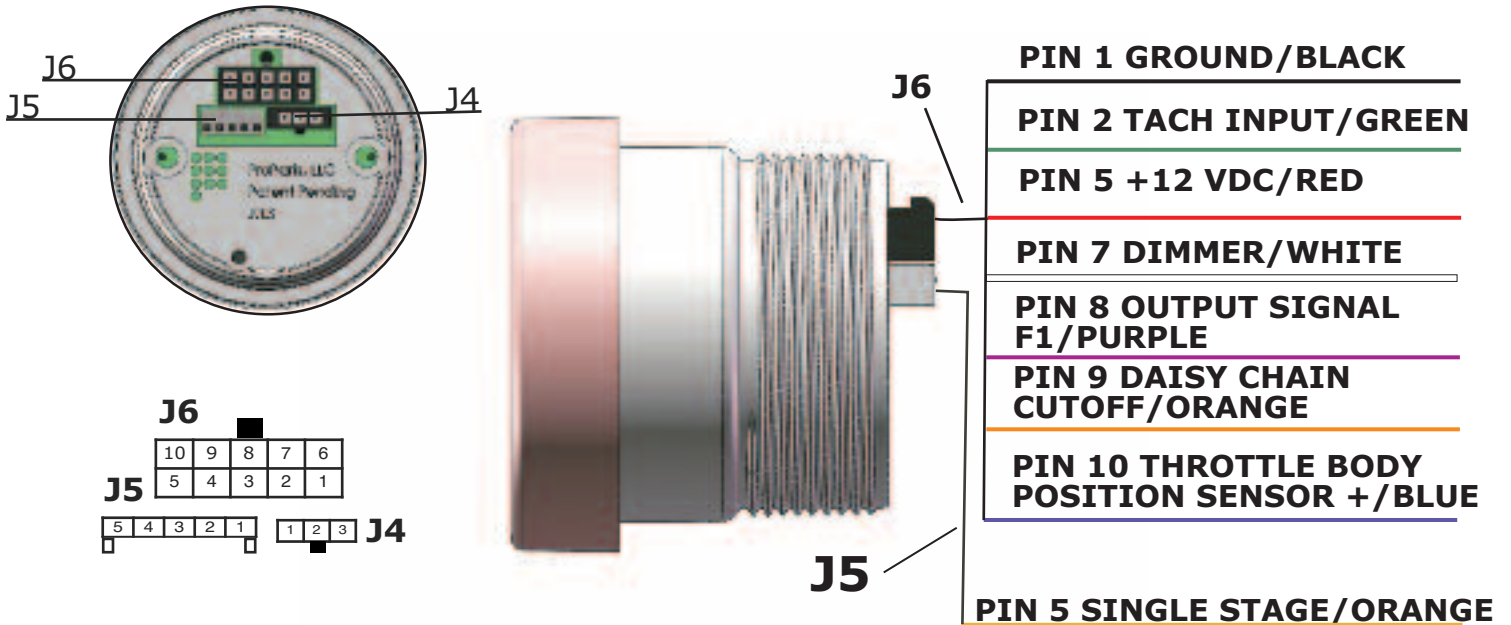


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# Wiring Installation Instructions for : RPM Tachometer 2 1/16" Nitrous Oxide Controller

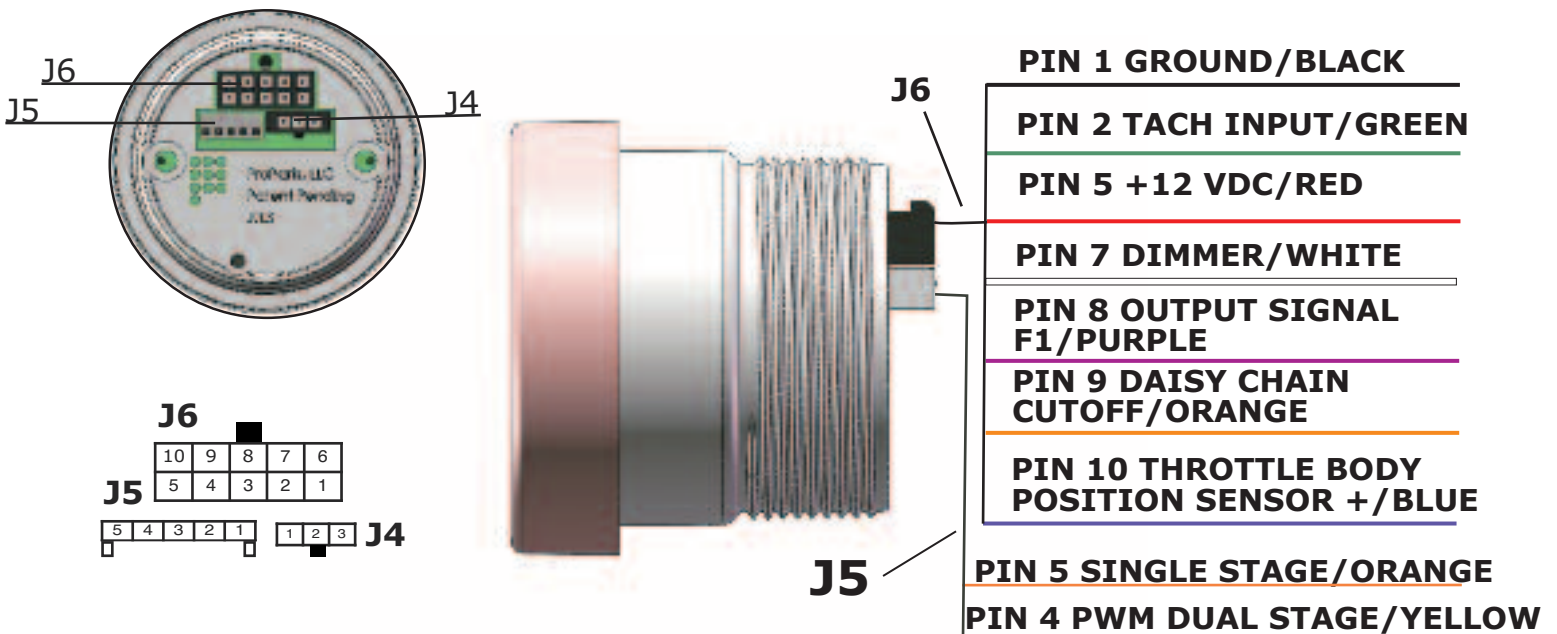
**DIAGRAM 4**

## WIRING FOR 2" SPEK TACHOMETER WITH SINGLE STAGE RELEASE FOR NITROUS OXIDE CONTROL



**DIAGRAM 5**

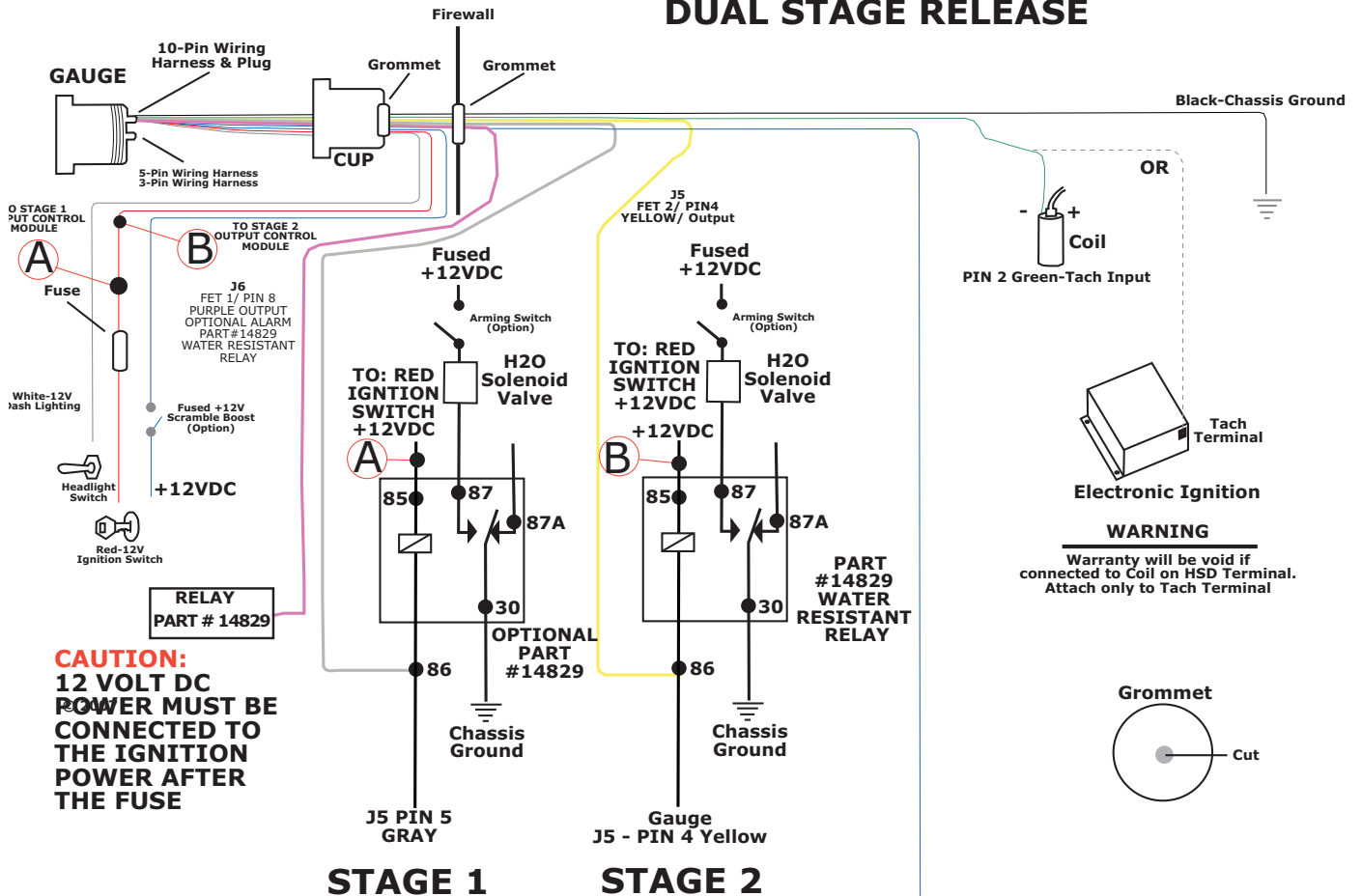
## WIRING FOR 2" SPEK TACHOMETER WITH DUA STAGE RELEASE FOR NITROUS OXIDE CONTROL



# Wiring Installation Instructions for : RPM Tachometer 2 1/16" Nitrous Oxide Controller

DIAGRAM 6

## DUAL STAGE RELEASE

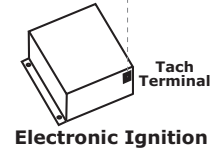
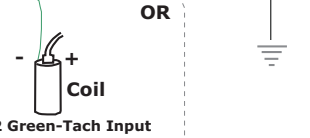


**CAUTION:**  
12 VOLT DC  
POWER MUST BE  
CONNECTED TO  
THE IGNITION  
POWER AFTER  
THE FUSE

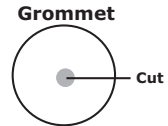
CAUTION: Dimmer  
circuit must have  
3-12 VDC to program  
PPR

**GAUGE**  
J5 - PIN 4 OUTPUT/ORANGE

**WARNING: OUTPUT CONTROL MODULE  
NOT TO EXCEED 1.5 AMPS AT 12 VOLTS DC.  
WARRANTY WILL BE VOID IF INCREASED  
OUTPUT VOLTAGE OR CURRENT IS APPLIED.**



**WARNING**  
Warranty will be void if  
connected to Coil on HSD Terminal.  
Attach only to Tach Terminal



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PART#14820: OUTPUT CONTROL  
MODULE ALL SPEK GAUGES HAVE  
A PROGRAMMABLE LIMIT SETTING.  
WHEN A SETTING IS  
TRIPPED, AN OUTPUT SIGNAL  
IS GENERATED. THIS CAN BE  
USED TO SWITCH ON A RUGGED  
35 AMP RELAY TO TO ACTIVATE  
A TRANSMISSION OIL COOLING  
FAN, LOW OIL ENGINE KILL,  
ALARMS, ETC.Z

# Wiring Installation Instructions for : RPM Tachometer 2 1/16" Nitrous Oxide Controller

## APPLICATION INFORMATION

### SPEK™ PRO-SERIES THREE (3) STAGE TACHOMETER WITH NITROUS OXIDE CONTROL (N2O)

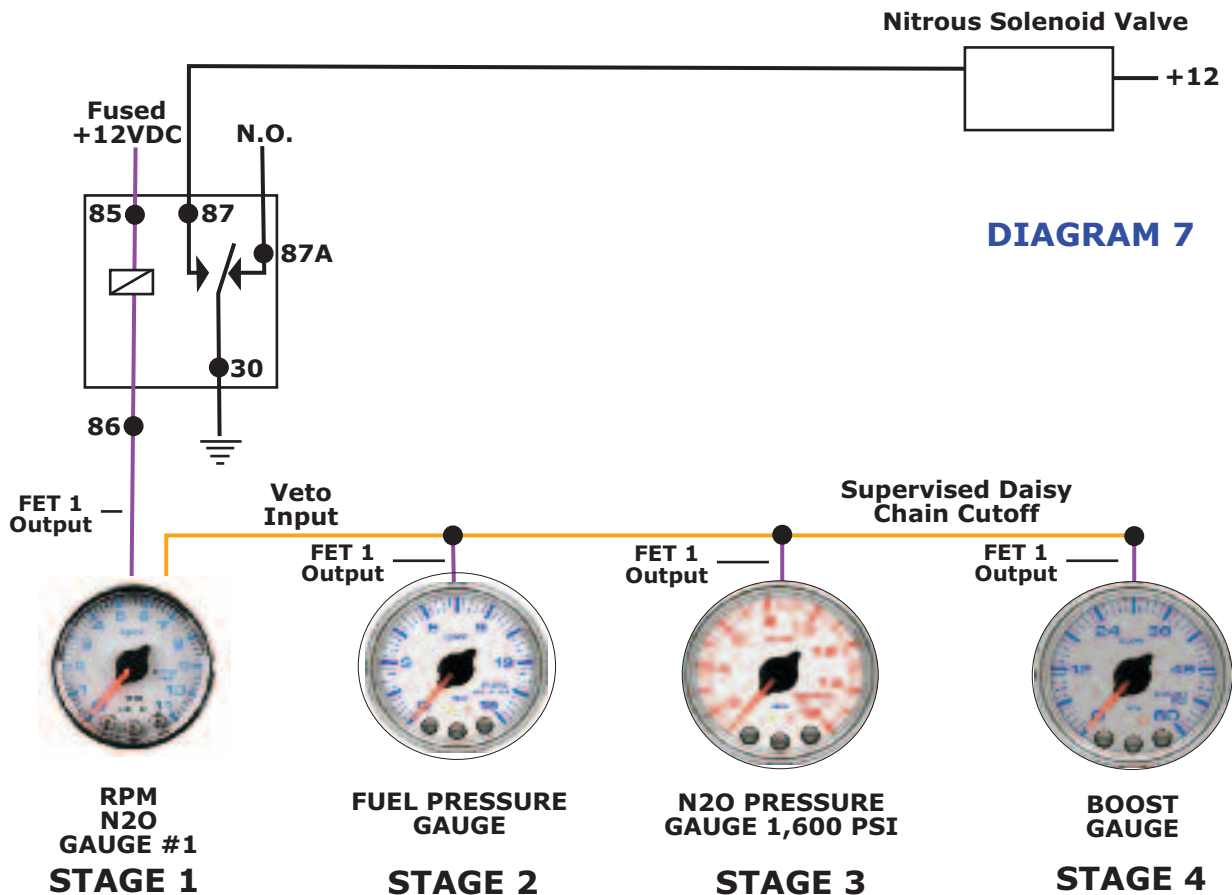


DIAGRAM 7

Stage 1 is the Spek™ Tachometer with Nitrous Oxide Control that can manage a N2O injector valve. You can preset the range of RPMs to inject the gas. Nitrous Oxide will be injected from the reservoir whenever the engine speed is between high and low field programmed limits and the throttle is flat out. To program the gauge to the characteristics of the vehicle follow the directions in the program manual.

Stage 2 includes the addition of the Spek™ Fuel Pressure Control Gauges. It works in conjunction with the nitrous oxide control by monitoring the pressure in the fuel supply. A significant decrease in fuel pressure will light the programmable **LOW** indicator led and produce a signal to the Tachometer that results in turning off the N2O release circuit. The trouble signal to the Tach is supervised. If the Tach loses the supervisory signal from the pressure gauge, the pressure gauge faceplate light will flash alternating from **RED** to **GREEN**. The low fuel pressure setting should be set at a race track under normal fuel pressure conditions. Fuel pressure under load can decrease in volume. Set the low pressure just below the normal fuel pressure to achieve a fast response.

Stage 3 adds the SPEK™ Nitrous Oxide Pressure Gauge to create a three gauge kit. If either gauge loses pressure both faceplates will flash alternately **RED** and **GREEN** and the programmable **LOW** indicator led will light in the gauge with low pressure. In addition, the Tach will activate a signal to close the N2O solenoid valve.

Stage 4 adds the SPEK™ Boost Controller to create a 4 gauge kit. Either one of these Stage 2, 3 or 4 can work independently. Set Boost limit to desired High Level, to deactivate the Nitrous controller when the limit is reached.

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# Wiring Installation Instructions for : RPM Tachometer 2 1/16" Nitrous Oxide Controller

## TACHOMETER WITH RPM NITROUS OXIDE CONTROL

**THERE ARE THREE SECTIONS TO THIS MANUAL: WIRING INSTRUCTIONS, PROGRAMMING INSTRUCTIONS AND FLOW CHART PROGRAMMING INSTRUCTIONS. PLEASE READ EACH SECTION CAREFULLY BEFORE ATTEMPTING TO INSTALL OR OPERATE THIS PRODUCT.**

### WARNING:

- **ALL INSTRUCTIONS IN THIS MANUAL MUST BE FOLLOWED TO INSURE SAFE INSTALLATION AND OPERATION OF THIS PRODUCT.**
- **NEVER DISASSEMBLE MODIFY OR TAMPER WITH THIS PRODUCT. THIS COULD CAUSE DAMAGE AND MAKE THEM UNSAFE TO USE. TAMPERING WITH THE PRODUCT WILL VOID THE LIMITED WARRANTY.**
- **INSTALLATION MUST BE PERFORMED BY AN EXPERIENCED AUTOMOTIVE TECHNICIAN.**
- **INSTALLER MUST USE SAFETY GLASSES.**
- **DISCONNECT THE NEGATIVE BATTERY TERMINAL BEFORE BEGINNING INSTALLATION. PROPARTS LLC IS NOT RESPONSIBLE FOR DAMAGE TO ENGINE, VEHICLE OR UNIT CAUSED BY ELECTRICAL SHORTS.**
- **DURING INSTALLATION, DO NOT INTERFERE WITH ANY EXISTING CONNECTIONS OR WIRES.**
- **ALL ELECTRICAL CONNECTIONS USE SOLDER LESS CONNECTORS AND INSULATE ALL CONNECTIONS WITH ELECTRICAL TAPE.**
- **AVOID WIRING NEAR ENGINE, EXHAUST SYSTEM, TURBINE OR ANY AREA THAT MAY RESULT IN DAMAGE.**
- **DISCONTINUE USE OF THE PRODUCT IF SMOKE OR A STRANGE ODOR IS PRESENT.**

### CAUTION

- **PROPARTS LLC IS NOT RESPONSIBLE FOR INCORRECT INSTALLATION OR PROGRAMMING OF SPEK™ GAUGES OR CONTROLLERS.**
- **SPEK™ GAUGES AND CONTROLLERS ARE DESIGNED FOR 12V DC ELECTRICAL SYSTEMS WITH A NEGATIVE GROUND.**
- **DO NOT ADJUST THE GAUGES OR GAUGE PROGRAM WHILE DRIVING**
- **OBEY ALL RULES AND REGULATIONS OF HIGHWAY AND STREET DRIVING.**
- **INSTALL SENSOR AND WIRE AWAY FROM HIGH HEAT AND / OR VIBRATION AREAS.**
- **USE CARE WHEN CONNECTING OR DISCONNECTING THE WIRING HARNESS. PULL OUT EACH CONNECTOR WHILE PRESSING THE LOCK OF THE CONNECTOR FIRMLY.**
- **IF THE BATTERY TERMINAL IS DISCONNECTED, THE AUDIO, CLOCK AND OTHER MEMORY DATA MAY BE LOST. THE NECESSARY DATA WILL HAVE TO BE RESET AFTER INSTALLATION.**

### ProParts, LLC Limited Warranty:

ProParts, LLC warrants all merchandise against defects in factory workmanship and material for 12 months from date of original purchase. Proof of purchase is required: otherwise the warranty period shall default to 12 months from date of manufacture as indicated by the date code on the product. This warranty applies to the first retail purchaser and covers only those products exposed to normal use or service. This warranty excludes items used for a purpose for which it is not designed, or which has been altered in any way that would be detrimental to the performance or life of the product or misapplication, misuse, negligence or accident. When it is determined by ProParts, LLC after examination that a product is defective, ProParts, LLC will repair, replace or issues credit for any defective product through the original selling dealer or on a direct bases. In no event shall this warranty ex-

## Wiring Installation Instructions for : RPM Tachometer 2 1/16" Nitrous Oxide Controller

ceed the original price of the product. ProParts, LLC assumes no responsibility for diagnosis, removal and/ or installation labor, loss of vehicles use, loss of time, inconvenience or any other consequential expense. ProParts, LLC disclaims any liability for consequential damages due to breach of any written or implied warranty on all products manufactured by ProParts LLC. Warranty is valid only for original purchaser and is not transferable. This Warranty gives you specific legal rights, and may also have other rights which may vary from state to state. Customer agrees to insure the Product or assume the risk of loss or damage in transit, to prepay shipping charges to ProParts, and to use the original shipping container or equivalent.

### **Important Disclaimer:**

This product may not be lawful for use on public roadway. No warranty is made or implied regarding the legality of offered products when they are installed in a motor vehicle in any particular state, province or municipality. It is the user's responsibility to determine the legality of any automotive alterations made in connection to products made by, obtained from or distributed by ProParts, LLC.

The purchaser or user of any products, sold or manufactured by ProParts, LLC assumes all risk related to and/ or arising from the ownership or use of said product and agrees to indemnify and hold ProParts, LLC harmless from any and all claims brought by any person or entity against ProParts, LLC related to and/or arising from ownership and/or use of said products.

### **Return Goods Authorization:**

Warranty returns will only be accepted by ProParts, LLC when accompanied by a valid Return Goods Authorization (RGA) number. Products must be received by ProParts, LLC within 30 days of the date the RGA is issued. Before a RGA can be issued, the installer or end user must contact ProParts, LLC Technical Department to discuss the problem. Any out of warranty ProParts, LLC products can be returned for repair. There is a minimum charge of

\$50.00 dollars for inspection and diagnosis. ProParts, LLC will provide an estimate of repairs and receive written authorization before repairs are made to the product.

### **Disclaimer:**

Performance products are designed to increase engine power and create stress not engineered by the Original Equipment Manufacture (OEM). This could result in damage to the engine and related systems. Purchaser uses this product at his own risk. ProParts, LLC, its agents, employees, and owners shall not be under any liability whether or not resulting from any negligence or content of information supplied for any damage or loss resulting from this information.

### **Non-Warranty Repair/Retest**

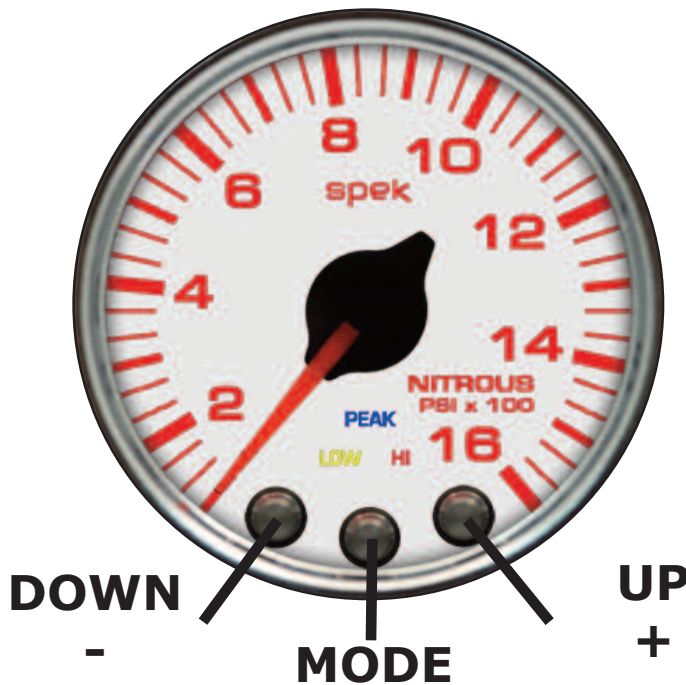
Products returned due to damage or misuse and Product retested with no problem found are subject to repair/retest charges. A purchase order or credit card number and authorization must be provided in order to obtain an RMA (Return Merchandise Authorization) number prior to returning product.

# Programming Instructions for : RPM Tachometer 2 1/16" Nitrous Oxide Controller

## SPEK™ MONITOR AND CONTROL PERFORMANCE GAUGE TACHOMETER WITH NITROUS OXIDE INJECTOR CONTROL

Refer to the "Flow Chart Programming Instructions" while reviewing this guide.

Gauge is field programmable by the operator while installed in the vehicle. This programming is accessed by pressing the control buttons located on the face or the meter dial, **ONE AT A TIME**. The "Down" and "Up" buttons move the pointer to a desired setting or controls the faceplate illumination. The center "Mode" button will save the setting you choose and proceed to the next level. Pressing the "Mode" and "Up" or "Mode" and "Down" buttons simultaneously and holding them for 5 seconds in any level will shift you to the Submenu.



MAIN MENU	SUBMENU
NORMAL/DIAL BRIGHTNESS	OPTION:SELECT PPR
PEAK PLAYBACK	OPTION:RESTORE FACTORY DEFAULT OR OPTION: SET THROTTLE POSITION
HIGH RED-LINE SETTING	NITROUS OXIDE INJECTOR VALVE CONTROL
LOW THRESHOLD SETTING	METHOD OF NITROUS OXIDE RELEASE
COLOR SCHEME	OPTION A:DEMO MODE OR OPTION B:POINTER BRIGHTNESS

# Programming Instructions for : RPM Tachometer 2 1/16" Nitrous Oxide Controller

## PROGRAMMING STARTS IN MAIN MENU MAIN MENU

PRESS PROGRAM BUTTON ONE (1) AT A TIME IN THE MAIN MENU MODE.

### 1 NORMAL/DIAL BRIGHTNESS:

On power up, the meter usually starts operation in **NORMAL/DIAL BRIGHTNESS**. Gauge reads the sensor value as temperature, pressure, etc. The "Down" and "Up" buttons will control the brightness of the dial lighting. Press the center "Mode" button to save the setting and advance you to

### 2 PEAK PLAYBACK

### 2 PEAK PLAYBACK:

Reads the highest value displayed on the meter since the last time the "Peak" value was displayed. Pressing the "Down" or "Up" control button will control the gauge dial illumination. Press the center "Mode" button to advance to

### 3 HIGH RED-LINE SETTING

### 3 HIGH RED-LINE SETTING:

Sets the point at which "**HIGH**" warning threshold is reached for that specific gauge. The "Down" and "Up" buttons will move the dial pointer to select **HIGH RED-LINE SETTING**. During normal operation the gauge constantly monitors the sensor value and compares it to the "**HIGH**" threshold. If the threshold is exceeded, the red "**HI**" indicator is turned on and an output signal generated. Press the center "Mode" button to save the setting and advance to

### 4 LOW THRESHOLD SETTING

### 4 LOW THRESHOLD SETTING:

Set the Minimum Threshold: Sets the point at which "**LOW**" warning threshold is reached for that specific gauge. The "Down" and "Up" buttons will move the dial pointer to select the **LOW THRESHOLD SETTING**. During normal operation the gauge constantly monitors the sensor value and compares it to the "**LOW**" threshold. If the sensor value drops below the threshold, the yellow "**LOW**" indicator is turned on and an output signal generated. Press the center "Mode" button save the setting and

advance to

### 5 COLOR SCHEME

### 5 COLOR SCHEME:

Set Faceplate Color Scheme: Operator can select the color of the gauge dial illumination. Each time you press the "Down" control button you scroll through dial color selection until the dial light goes off. Then press the "Up" button to reverse the scroll. Select your dial color illumination by pressing the center "Mode" button to save the setting and advance to

### 1 NORMAL/DIAL BRIGHTNESS

# Programming Instructions for : RPM Tachometer 2 1/16" Nitrous Oxide Controller

## SUBMENU

SUBMENU IS ACCESSED THROUGH THE MAIN MENU. FIRST GO TO THE APPROPRIATE LEVEL OF THE MAIN MENU AND THEN FOLLOW THE INSTRUCTIONS IN THE PROGRAMMING FLOW DIAGRAM TO ENTER THE SUBMENU. PRESS THE "MODE" AND "UP" OR "MODE" AND "DOWN" BUTTONS SIMULTANEOUSLY FOR 5 SECONDS TO ENTER THE SUBMENU AND ONE BUTTON AT A TIME WHILE IN THAT SUBMENU.

**OPTION:SELECT PPR:** (Pulses Per Revolution) Select the PPR value by pressing "Down or "Up" button to move dial pointer to corresponding RPM. For additional information see the Tachometer Sense Line Attachment and Meter Scaling section on page 5.

**OPTION:RESTORE FACTORY DEFAULT:** Activation of the Default will erase all field calibration setup settings that are programmed. Factory calibrations will not be affected.

**OPTION:SET THROTTLE POSITION:** Turn the ignition on to the accessory position without starting the vehicle and your foot off of the accelerator. Press the accelerator to the floor and hold it for 5 seconds. Release the accelerator and press the mode button on the gauge. The gauge has learned the throttle position for release of nitrous oxide.

**OPTION:NITROUS OXIDE INJECTOR VALVE CONTROL:** The Tachometer can control a Nitrous Oxide Injector valve. Nitrous Oxide will be injected from the reservoir whenever the engine speed is between set limits and the throttle is flat out. Before the injector will work the Tachometer limits must be set, and the traction control mode learned by the gauge. For installation instructions, see Gauge Programming Flow Chart.

### OPTION: SET NITROUS OXIDE RELEASE

Factory Default is a proportional injector valve. To change this setting press and hold the center and right buttons for 5 seconds. Refer to the dial as a clock, use left or right buttons to select injection, use right or left buttons to move pointer to:

7:00- No injection

9:00- Two stage solenoid valve injector

12:00- PWM Digital Proportional Valve

Press center button to save and return

**OPTION A:DEMO MODE:** Displays the features of the meter. The pointer goes up and down the scale, the dial colors change and the **HI**, **LOW** and **PEAK** warning indicators light. The Demo mode does not time out. If the gauge is turned off in the Demo mode, it will start up in the Demo Mode. Press the "Mode" button to return the gauge to NORMAL operation.

**OPTION B:POINTER BRIGHTNESS MODE:** The "Down" and "Up" buttons adjust the dial pointer brightness to blend in with original manufacturer's gauges and the owner's requirements.

# Programming Instructions for : RPM Tachometer 2 1/16" Nitrous Oxide Controller

**OPTION: THRESHOLD ALERT SIGNAL:** While in "Low Threshold Setting: press and hold the center and left buttons for five seconds. Dial pointer will step five times and then go to zero or the twelve o'clock position. Select alert signal status: The alert signal is deactivated if the pointer is at the twelve o'clock position. Pressing the left button selects alert signal "ON". Pressing the right button selects alert signal "OFF"

## PROGRAMMING INFORMATION:

- TO RESET THE PROGRAM TO NORMAL OPERATION FROM ANY MODE PRESS THE "UP" AND "DOWN" BUTTONS SIMULTANEOUSLY. THIS SOFT RESET CANCELS THE INFORMATION YOU PROGRAMMED IN THAT MODE ONLY AND RETURN YOU TO NORMAL OPERATION.
- THE FACEPLATE WILL "FLASH" WHEN BUTTONS ARE DEPRESSED TO ACKNOWLEDGE COMMANDS.
- PROGRAMMING ERRORS WILL BE SIGNALLED BY FLASHING THE FACEPLATE LIGHTING "PURPLE", "BLUE", "GREEN" THEN "ORANGE".
- IF PROGRAMMING IS INACTIVE FOR 120 SECONDS THE MODE WILL TIME OUT AND THE GAUGE WILL RETURN TO NORMAL OPERATION, EXCEPT IN THE DEMO MODE. THE DEMO MODE WILL NOT TIME OUT UNTIL THE CENTER MODE BUTTON IS PRESSED. IF THE GAUGE IS TURNED OFF IN THE DEMO MODE IT WILL START UP IN THE DEMO MODE.
- TO RESTORE FACTORY DEFAULTS, PRESS THE "MODE" BUTTON ONCE TO ENTER THE **PEAK PLAYBACK**. THEN PRESS AND HOLD THE "MODE" AND "UP" BUTTONS FOR FIVE SECONDS. YOUR PROGRAMMING WILL BE ERASED BUT FACTORY PROGRAM WILL NOT BE AFFECTED.

# Programming Instructions for : RPM Tachometer 2 1/16" Nitrous Oxide Controller

The White/dimmer circuit must be installed and supplied with 3-12VDC before PPR can be programmed.

## TACHOMETER SENSE LINE ATTACHMENTS AND METER SCALING

### GASOLINE ENGINES

Attach the sensing line to the primary side of a spark coil, and then set the calibration PPR value for your spark configuration, using directions for the CALIBRATION option.

Once upon a time, there was just one configuration: a spark coil, a distributor, and then wires from the distributor cap to the individual sparkplugs. If your car is like this, use the table below

#### FOR "CLASSIC" ONE-IGNITION-COIL ENGINES

# PLUG	METER SETTING	"RPM"
2	1	1000
4	2	2000
6	3	3000
8	4	4000
10	5	5000
12	6	6000

#### IF YOU HAVE ONE COIL PER PLUG CONNECT TO ANY SPARK COIL PRIMARY

# PLUG	METER SETTING	"RPM"
Any	1	1000

#### IF YOU HAVE ONE COIL PER TWO PLUGS CONNECT TO ANY SPARK COIL PRIMARY

# PLUG	METER SETTING	"RPM"
Any	1/2	500

### DIESEL ENGINES

Modern diesel engines usually have camshaft sensors or electronic injector pumps. If there is one injector per cylinder, the signal from the pump drive will be 1/2 PPR. Similarly, if there is a camshaft sensor signal the signal will be 1/2 PPR. Set the calibration at a reading of 500.

If there is no electronic cam sensing or fuel injection in your diesel engine, the procedure is more complex. A signal can be obtained from the alternator by attaching a wire directly to the winding of the stator before it goes to one of the rectifier diodes. This signal will be proportional to engine speed, but the proportionality must be learned. See the TACH CALIBRATION procedure for details, using

# Programming Instructions for : RPM Tachometer 2 1/16" Nitrous Oxide Controller

meter setting 0 to force learning.

## SPECIAL SCALING FUNCTIONS

Several Proparts meters require a setup procedure to define the kind of input they are looking at. These are:

**Tachometer** – the user needs to tell it the number of “pulses per revolution” (PPR) coming into its sense line. This number varies widely between makes and models of cars. The default is an eight cylinder engine with 4 PPR. The program setting is 4000RPM.

**Speedometer** – the user needs to tell it the number of pulses that come in, per mile of travel.

**O2 sensor** – the user needs to tell it whether the sensor is narrowband (with a 0-1 volt output) or a wideband sensor with a 0...5 volt output

Once the meter is hooked up, the procedures are relatively painless.

## TO SET UP SCALING

Turn the ignition off and on again to assure that the meter is in a reset state.

If it starts up with the face changing color and the pointer going up and down continuously, the meter is in demo mode. Press the center button before continuing.

## TACH CALIBRATION

First read the section on TACHOMETER SENSE LINE ATTACHMENTS AND METER SCALING in order to find out how you need to set the meter. When you have figured out what PPR setting you are to use, press the Mode and Up buttons simultaneously for five (5) seconds. The dial will flash blue rapidly. This places the meter in the scale-setting mode. Use the Down and Up buttons to move the meter pointer to the appropriate RPM reading according to the table. If you have selected an “RPM” reading of 1000 or up, just press the center button to leave the scale setting mode and resume normal operation with the selected scaling.

If you were forced to use the alternator as a signal source, you selected an RPM of “0.” Now you must tell the motor when it is operating at 2000 RPM. Using a strobe light, slowly increase the engine speed till you hit 2000 RPM. The meter will read some nonzero value that increases and decreases with engine speed, but it will not be accurate. While the engine is running steadily at 2000 RPM, press the mode button. Your meter is calibrated.

You can verify the setting by turning the ignition switch off and on again, starting the car, and checking whether the idle speed on your tachometer is the same as the speed you measure with a strobe light.

## N2O CONTROL SETTINGS

The Tachometer can control a nitrous oxide injector valve. Nitrous oxide will be injected from the reservoir whenever the engine speed is between set limits and the throttle is flat out. Before the injector will work, the limits must be set. Here is how to set the limits.

Proceed to a Race Shop with a dynamometer or a race track where the vehicle throttle can be

# Programming Instructions for : RPM Tachometer 2 1/16" Nitrous Oxide Controller

operated in a flat out position. This is necessary for the gauge to learn the traction control mode and confirm that the rate of acceleration is within the upper and lower limits

Turn the ignition switch off and then on. Press the Mode button twice to enter the Set High Red-Line Setting. Now, press the Mode and Up buttons simultaneously for 5 seconds. The dial will flash "**Red**" rapidly and the "**Hi**" light will be lit. You are now setting the UPPER limit on release of nitrous oxide. Speeds higher than this will result in the valve turning off. Use the Down and Up buttons to adjust this upper limit.

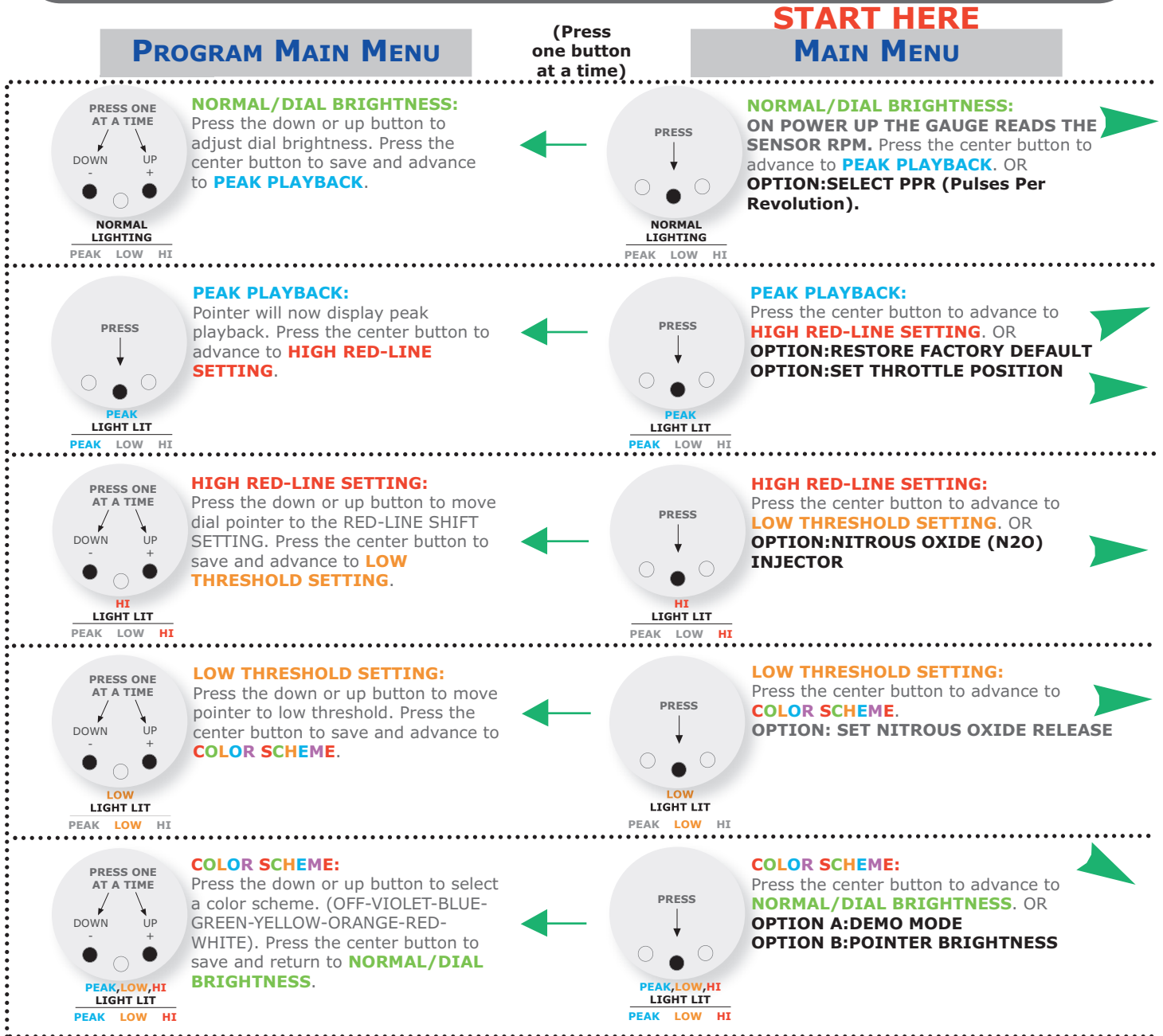
When you are satisfied with the limit, press the Mode button to advance to setting the lower limit. The dial will flash "**Green**" rapidly and the yellow "**LOW**" light will flash to indicate that you are in the N2O lower-limit setting mode. N2O will be released when the throttle is flat out and the tachometer is between this limit and the upper limit you just set. Use the Down and Up buttons as before to set the value.

With the ignition on and the accelerator at rest press the MODE button to affirm your setting and advance to the Traction Control Mode. The dial faceplate will slowly flash "**Blue**". Accelerate gently to the lowest gear you intend to inject N2O. When the pointer is just below the low limit, press the accelerator to the floor until the dial pointer passes the "**High**" Limit Setting. Resume normal speed and press the "Mode" button. Traction control has been learned. The system is armed and ready to activate. If you interrupt the operation, you must repeat the Traction Control learning mode.

N2O dispensing may be disabled by setting both limits to zero.

# Flow Chart Programming Instructions for : RPM Tachometer

## 2 1/16" Nitrous Oxide Controller



- **CAUTION:** FOLLOW WIRING INSTRUCTION CAREFULLY. INCORRECT RELAY WIRING WILL LEAD TO PREMATURE NITROUS OXIDE ACTIVATION.
- **WARNING:** INSTALLATION MUST BE PERFORMED BY AN EXPERIENCED TECHNICIAN. SYSTEM MUST BE INSTALLED ACCORDING TO MANUFACTURER RECOMMENDATIONS.
- DISCONNECT THE NEGATIVE BATTERY TERMINAL BEFORE INSTALLATION.
- USE CARE WHEN CONNECTING OR DISCONNECTING THE WIRING HARNESS. PULL OUT EACH CONNECTOR WHILE PRESSING THE LOCK OF THE CONNECTOR FIRMLY.
- NEVER DISASSEMBLE, MODIFY OR TAMPER WITH THE UNIT.
- PROPARTS,LLC IS NOT RESPONSIBLE FOR INCORRECT TURBOCHARGER

- SIZING, EXCESSIVE EXHAUST PRESSURE, OR INADEQUATE WASTEGATE OPERATION.
- THIS UNIT IS DESIGNED ONLY FOR DC 12V TYPE VEHICLES WITH NEGATIVE GROUND.
- CHECK THE AIR/FUEL RATIO ONCE THE BOOST PRESSURE IS SET TO PROTECT AGAINST LEAN FUEL SUPPLY THAT COULD CAUSE ENGINE DAMAGE.
- DO NOT USE BOOST CONTROL IN CONJUNCTION WITH ANY TYPE OF "DRAW THROUGH" FUEL SYSTEM.
- DO NOT ADJUST THE UNIT WHILE DRIVING.
- DO NOT USE THIS UNIT UNDER EXTREMELY HOT OR COLD CONDITIONS.
- DISCONTINUE USE OF THIS PRODUCT IF THE GAUGE DOES NOT OPERATE OR A STRANGE ODOR OR SMOKE IS PRESENT. © 2007

# Flow Chart Programming Instructions for : RPM Tachometer

## 2 1/16" Nitrous Oxide Controller

### SUBMENU

(ENTER FROM MAIN MENU)

(Press two(2) buttons simultaneously for 5 seconds)

### Program Nitrous Oxide in Numerical Sequence

**OPTION: SELECT PPR (Pulses Per Revolution):** The WHITE/DIMMER circuit must be installed and supply 3-12VDC before ppr can be programmed. While in **NORMAL DIAL BRIGHTNESS**, press and hold center and right buttons for 5 seconds. Dial will flash blue rapidly. Press down and up buttons to select PPR value by moving dial pointer to corresponding RPM. Press the center button to save and return to **NORMAL/DIAL BRIGHTNESS**. (See PPR Chart Page 4).

**OPTION:RESTORE FACTORY DEFAULT:**

While in **PEAK PLAYBACK**, press and hold the center and right buttons for five seconds. Dial pointer will step five times and return to zero. This will erase all user-programmed calibrations and settings, and return to **NORMAL/DIAL BRIGHTNESS**.

**OPTION:SET THROTTLE POSITION:**

While in **PEAK PLAYBACK**, press and hold the center and left buttons for five seconds until the dial starts flashing "RED". Turn the ignition on to the accessory position without starting the vehicle and your foot off the accelerator. Press the accelerator to the floor and hold for 5 seconds. Press the "MODE" button to save the setting then release the accelerator to continue N2O programming from Red-Line Output" Setting.

**OPTION:FIRST STAGE NITROUS OXIDE (N2O) INJECTOR VALVE CONTROL:**

The "set throttle position" must be programmed before this section. Proceed to a race shop with a dynamometer or a race track where the vehicles throttle can be operated in a flatout position. this is necessary for the gauge to learn the traction control mode and confirm that the rate of acceleration is within the upper and lower limits set. Start the engine and let it idle. While in the main menu **HIGH RED-LINE SETTING**, press the "MODE" and "UP" buttons simultaneously for 5 seconds.

**OPTION: SET NITROUS OXIDE RELEASE:**

Factory Default is a proportional injector valve. To change this setting press and hold the center and right buttons for 5 seconds. Refer to the dial as a clock, use left or right buttons to select injection, use right or left buttons to have pointer point to:

- 7:00- No injection
  - 9:00- Two stage solenoid valve injector
  - 12:00- Pwm Digital Proportional Valve
- Press center button to save and return

**1. SET HIGH THRESHOLD N2O LIMIT RED-LINE CUTOFF:**

DIAL WILL FLASH RAPIDLY "RED" AND THE RED "HI" LIGHT WILL FLASH. PRESS "UP" OR "DOWN" BUTTONS TO MOVE THE DIAL POINTER TO SELECT THE RPM UPPER LIMIT FOR N2O RED-LINE CUTOFF. THE SYSTEM WILL NOT PERMIT N2O RELEASE AT A HIGHER RPM. **PRESS THE CENTER "MODE" BUTTON TO SAVE THE SETTING AND ADVANCE TO N2O LOWER LIMIT MODE.**

**2. SET LOW THRESHOLD N2O LIMIT N2O VALVE ON:**

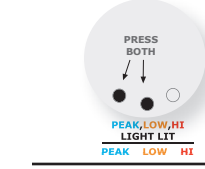
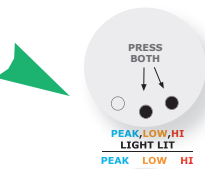
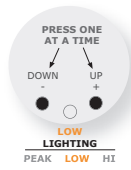
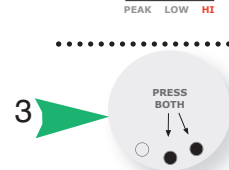
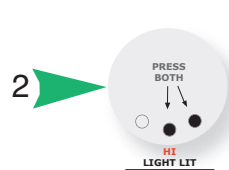
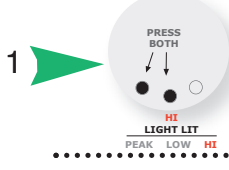
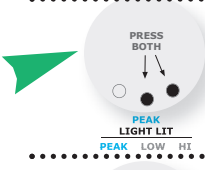
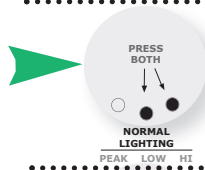
THE DIAL BACKGROUND WILL FLASH "GREEN" AND THE "AMBER" "LOW" INDICATOR WILL FLASH. MOVE THE "DOWN" OR "UP" BUTTONS TO MOVE DIAL POINTER TO SELECT THE RPM LOWER ACTIVATION LIMIT. THIS SETTING IS RESTRICTED TO AT LEAST 8% OF THE FULL SCALE AND 1/2 THE "HIGH" LIMIT SETTING. THAT IS, IF A "HIGH" THRESHOLD RED-LINE N2O LIMIT OF 8000 RPM IS SELECTED, THE "LOW" SETTING WOULD BE NO LESS THAN 1000 RPM OR ABOVE. PRESS THE "MODE" BUTTON TO SAVE THIS SETTING AND ENTER THE TRACTION CONTROL MODE.

**3. TRACTION CONTROL LEARNING MODE:**

THE DIAL WILL SLOWLY FLASH "BLUE" TO CONFIRM THIS MODE. ACCELERATE GENTLY TO THE LOWEST GEAR, PROBABLY SECOND, WHERE YOU INTEND TO INJECT N2O. WHEN THE DIAL POINTER IS JUST BELOW THE "LOW" LIMIT SETTING, PRESS THE ACCELERATOR TO THE FLOOR. CONTINUE TO ACCELERATE UNTIL THE POINTER PASSES THE "HIGH" LIMIT SETTING. RESUME NORMAL DRIVING AND PRESS THE "MODE" BUTTON. N2O WILL BE INJECTED IF THE THROTTLE IS FLAT OUT, THE ENGINE SPEED IS BETWEEN THE SET LIMITS, AND THE RATE OF ACCELERATION IS NO GREATER THAN IT SAW DURING THE TRACTION LEARNING MODE. IF THE VEHICLE BREAKS TRACTION DURING THIS LAST STAGE, THE TRACTION CONTROL MODE MUST BE REPEATED. IF YOU WISH TO DISABLE N2O INJECTION, SET THE "HIGH" AND "LOW" LIMITS TO ZERO (0) ON YOUR GAUGE.

**SECOND STAGE NITROUS (N2O) CONTROLLER:**

**NOTE: FIRST STAGE NITROUS (N2O) CONTROLLER MUST BE PROGRAMMED BEFORE THIS STAGE.** WHILE IN THE MAIN MENU, RED-LINE SHIFT SETTING, PRESS THE CENTER AND DOWN BUTTONS SIMULTANEOUSLY FOR FIVE SECONDS. THE DIAL WILL FLASH "GREEN" TO CONFIRM THIS MODE. PRESS THE UP OR DOWN BUTTONS TO MOVE THE DIAL POINTER TO SELECT THE RPM SETTING FOR THE SECOND STAGE NITROUS RELEASE. THIS SETTING MUST BE AT LEAST 500 RPM GREATER THAN THE FIRST STAGE RELEASE SETTING. (IF THE FIRST STAGE SETTING IS 2000, THE SECOND STAGE MUST BE AT LEAST 2500). PRESS CENTER BUTTON TO SAVE AND RETURN TO NORMAL OPERATION.



**OPTION A:DEMO MODE:**

WHILE IN **COLOR SCHEME**, press and hold the center and right buttons for five seconds. Dial will scroll through the seven color schemes. The **HI,LOW** and **PEAK** will light, and the dial pointer will move. Press the center button to return to **NORMAL/DIAL BRIGHTNESS**.

**OPTION B:POINTER BRIGHTNESS:**

While in **COLOR SCHEME**, press and hold the center and left buttons for five seconds to enter pointer brightness mode. The dial pointer will start to flash and point to the upper right. Press down and up buttons to adjust the pointer brightness. Press the center button to save and return to **NORMAL/DIAL BRIGHTNESS**.

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