SPEK™ MONITOR AND CONTROL PERFORMANCE GAUGE SPEEDOMETER

PACKAGE CONTAINS:

- Speedometer Gauge 5"
- Wiring Harness
- Mounting Cup (Not required for pod installation)
- (2) Neoprene EDPM Grommets



FEATURES: SPEEDOMETER FEATURES:

- •OPTIONAL 40 AMP OUTPUT CONTROL RELAY AND OUTPUT RELAY CABLE (PART # 14820) SOLD SEPARATELY
- GAUGES ARE PROGRAMMED THROUGH WATER RESISTANT STAINLESS STEEL SEALED COM-MAND KEYS LOCATED ON THE FACEPLATE. NO CONTROL BOXES OR HAND HELD REMOTE CONTROL NEEDED.
- FIVE (5") INCH SPEEDOMETER IS DESIGNED WITH A 2 1/16, 52MM CUP. THE GAUGE ATTACHES TO GAUGE MOUNTING BRACKET (PART # 81105) FOR EASY PILLAR POD MOUNTING. NO NEED TO DRILL HOLES IN YOUR DASH.

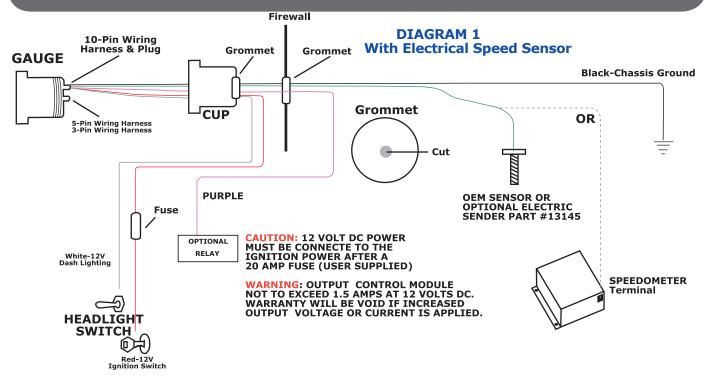
INSTALLATION INSTRUCTIONS:

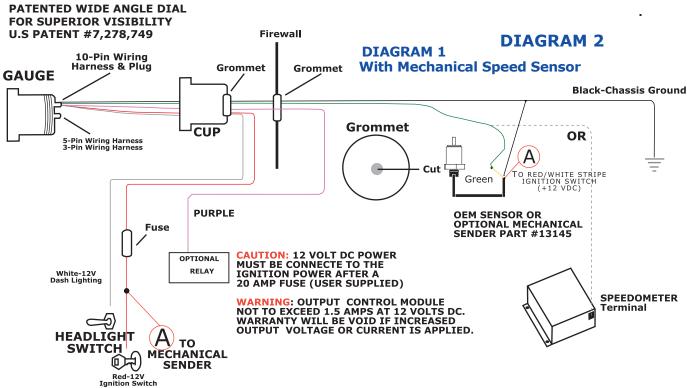
- 1 DISCONNECT NEGATIVE (-) BATTERY TERMINAL.
- 2 VARIOUS MOUNTING SOLUTIONS ARE PRESENTED BY PROPARTS, LLC ON THEIR WEBSITE AT

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 A GROMMET MUST BE CUT TO PERMIT INSTALLATION OF WIRING HARNESS. (SEE DIAGRAM 2)

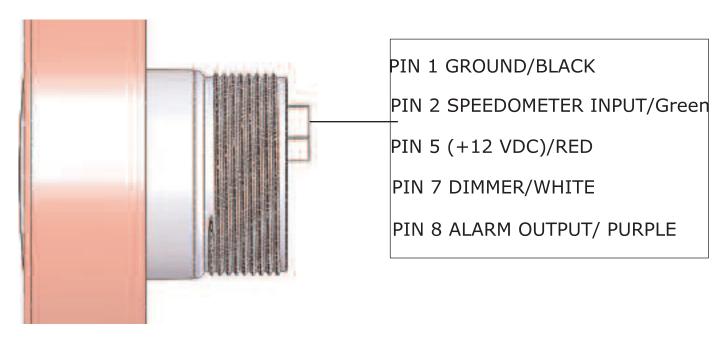
- 5 INSTALL THE GROMMET AND MOUNTING CUP ON THE WIRING HARNESS AS SHOWN IN **DIA-GRAM 1**. THE GROMMET IS FOR THE HOLE IN THE FIREWALL.
- **6** DO NOT CONNECT WIRING HARNESS TO THE GAUGE UNTIL THE OTHER CONNECTIONS HAVE BEEN MADE AND TESTED.
- **7** CONNECT THE **RED** (+ 12 VOLT SUPPLY) WIRE TO "ON" CIRCUITS THAT GET POWER WHEN THE IGNITION IS TURNED-ON. THIS CIRCUIT MUST BE FUSED BEFORE THE IGNITION SWITCH (1 AMP, 3AG FAST ACTING FUSE.
- **8** CONNECT THE SIGNAL WIRE TO THE ELECTRIC SPEED SENSOR FOLLOW DIRECTIONS IN THE WIRING INSTALLATION INSTRACTIONS FOR LOGIC OR PROXIMITY SENSOR.
- 9 CONNECT THE BLACK WIRE TO A GOOD GROUNDING POINT ON THE CAR'S CHASSIS.
- **10** 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.
- 11 PLUG THE WIRING HARNESSES INTO THE GAUGE AND MOUNT IN POD OR DASH.
- **12** FOR DASH MOUNTING, 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.
- **13** POWER UP THE GAUGE AND INSPECT ALL CONNECTIONS. IF GAUGE IS OPERATING NORMALLY, PROCEED TO "PROGRAMMING MANUAL".





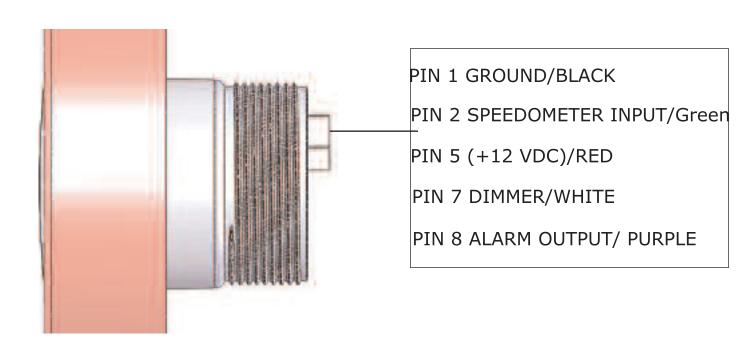
PATENTED WIDE ANGLE DIAL FOR SUPERIOR VISIBILITY U.S PATENT #7,278,749

DIAGRAM "A" MECHANICAL SIGNAL INPUT



10 9 8 7 6 5 4 3 2 1

DIAGRAM "B" ELECTRICAL SIGNAL INPUT



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.
- Σ 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 IN PRESENT.

CAUTION

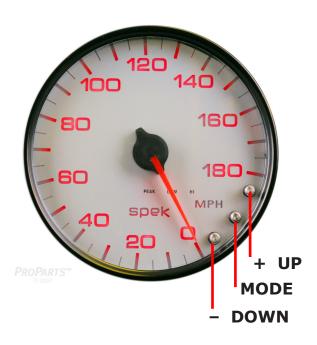
- PROPARTS LLC IS NOT RESPONSIBLE FOR INCORRECT INSTALLATION OR PROGRAMMING OF SPEK™ GAUGES OR CONTROLLERS.
- SPEK™ GAUGES AND CONTROLLERS ARE DESIGNED FOR 12V DC ELECTRICAL SYSTEMS WITH A NEGATIVE GROUND.
- DO NOT ADJUST THE GAUGES OR GAUGE PROGRAM WHILE DRIVING
- OBEY ALL RULES AND REGULATIONS OF HIGHWAY 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.

Programming Instructions for: 5" Speedometer

SPEK™ MONITOR AND CONTROL PERFORMANCE GAUGE SPEEDOMETER

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

All gauges have "Factory Default Values", but those values can be changed to meet your requirements. MAIN MENU is accessed by pressing the MODE button repeatedly. It includes: Normal Operation / Dial Brightness, Peak Playback, High-Warning, Low-Warning, Set dial Color Scheme, Set Dial and Pointer Brightness, Back to NORMAL. Pressing and HOLDING both the UP and MODE or DOWN and MODE buttons for 5 seconds in any level will shift you to the Submenu.



MAIN MENU PRESS "MODE" BUTTON TO PROGRAM LEVEL. THEN PRESS BOTH CENTER AND LEFT OR CENTER AND RIGHT BUTTONS FOR FIVE SECONDS TO ENTER SUBMENU	
NORMAL/DIAL BRIGHTNESS	OPTION: LEARN BY EXAMPLE
	LOOK-UP CALIBRATION TABLE FOR SOME CARS
PEAK PLAYBACK	OPTION: RESTORE FACTORY DEFAULT
	OPTION: LEARN BY MEASURED MILE
HIGH RED-LINE SETTING	OPTION: SELECT METHOD OF CALIBRATION
LOW THRESHOLD SETTING	
COLOR SCHEME	OPTION: DEMO MODE
DIAL BRIGHTNESS	OPTION: POINTER BRIGHTNESS

Patent Pending. All Rights Reserved.

Programming Instructions for: 5" Speedometer

PROGRAMMING STARTS IN MAIN MENU

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

1 NORMAL OPERATION:

On power up, the meter usually starts operation in **NORMAL OPERATION**. 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 "ALARM Threshold". 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 return to **NORMAL OPERATION**

6 DIAL BRIGHTNESS:

Adjust the dial brightness for day or evening conditions by pushing the right or left button. The button will dim or brighten the faceplate illumination. Press the center "Mode" button to save the setting and advance to NORMAL OPERATION

Programming Instructions for: 5" Speedometer

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.

SPEK™ PERFORMANCE SPEEDOMETER GAUGE: THIS GAUGE USES MICROPROCESSOR TECHNOLOGY FOR MEASURING SPEED AND DISTANCE. IT CAN BE USED IN ORIGINAL EQUIPMENT MANUFACTURERS APPLICATIONS AS WELL AS IN AFTER-MARKET INSTALLATIONS. SPEK™ SPEEDOMETER DEFAULT SIGNAL IS 1000 PULSES PER MINUTE. ANY OTHER SIGNAL MUST BE LEARNED BY THE GAUGE. THE PREFERRED METHOD IS LEARN BY MEASURED MILE. ALTERNATE METHODS ARE LEARN SPEED BY EXAMPLE OR A PROXIMITY SIGNAL.

OPTION: SELECT METHOD OF CALIBRATION: PRESS THE CENTER BUTTON TWICE. THE FACEPLATE WILL LIGHT RED. PRESS AND HOLD BOTH THE CENTER AND LEFT BUTTONS FOR 5 SECONDS. USE THE UP OR DOWN BUTTONS TO MOVE THE POINTER TO SELECT THE METHOD OF CALIBRATION. SELECT ZERO (0) FOR A LOGIC SIGNAL. THE SENSOR WILL MONITOR A HALL EFFECT, 5 VOLT SQUARE-WAVE SIGNAL. WIRE THE SENSOR AS SHOWN ON THE INSTALLATION DIAGRAM.

SELECT 180 MPH FOR A PROXIMITY SIGNAL. THIS USES A VARIABLE-RELUCTANCE SENSOR AS AN INPUT. DIFFERENT MAKES, MODELS AND YEARS OF CAR CAN HAVE DIFFERENT PULSE RATES AND LEVELS OF SIGNALS FOR A GIVEN SPEED. THIS METHOD CONTAINS A LOOK-UP TABLE OF CALIBRATION FOR VARIOUS AUTO CONFIGURATION. WIRE THE SENSOR AS SHOWN ON THE INSTALLATION DIAGRAM.

OPTION: LEARN SPEED MEASURED MILE: Contact the authority to locate a measured mile. Follow the calibration instructions on the FLOW CHART PROGRAMMING INSTRUCTIONS.

OPTION: LEARN SPEED BY EXAMPLE: This is an alternative method to learn speed by mile posts. Proceed to a race shop with a dynamometer or racetrack. Follow the directions on the FLOW CHART PROGRAMMING INSTRUCTIONS.

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

Programming Instructions for: 5" SPEEDOMETER

GAUGE CRITICAL CONDITION

GAUGE TYPE	ALERT FLASHES "RED"
TEMPERATURE	нідн
PRESSURE	LOW
TACHOMETER	нідн
PYROMETER	HIGH
NITROUS OXIDE PRESSURE	LOW
BOOST PRESSURE	HIGH
AIR/FUEL	LOW
VOLTMETER	LOW

ALERT/ OUTPUT GUIDE

- 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 FOR THE DEMO MODE. THE DEMO MODE WILL NOT TIME OUT UNTIL THE CENTER MODE BUTTON IS DEPRESSED. 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.

Flow Chart Programming Instructions for: Speedometer 5" Controller

PROGRAM MAIN MENU

(Press one button at a time)

START HERE MAIN MENU



PEAK LOW HI

NORMAL/DIAL BRIGHTNESS

Press down and up buttons to adjust dial brightness. Press the center button to save and advance to PEAK PLAYBACK.



NORMAL/DIAL BRIGHTNESS

ON POWER UP THE GAUGE READS THE **SENSOR MPH.** Press the center button to advance to **PEAK PLAYBACK.** OR



NORMAL LIGHTING PEAK LOW HI **OPTION: LOOK-UP CALIBRATION** TABLE FOR SOME POPULAR CAR MOD-**ELS (FUTURE PROGRAM)**



PEAK PLAYBACK

Pointer will now display peak playback. The peak value is constantly monitored and the gauge updated every 15 seconds. Press the center button to advance to



PEAK PLAYBACK

Press the center button to advance to HIGH RED-LINE SETTING. OR **OPTION: RESTORE FACTORY DEFAULT**



HIGH RED-LINE SETTING.

OPTION: LEARN SPEED FROM MEAS -URED MILE



LIGHT LIT

PEAK LOW HI

. **HIGH RED-LINE SETTING**

Press down and up buttons to move dial pointer to the high threshold. Press the center button to save and advance to LOW THRESHOLD SETTING



PEAK LOW HI

PEAK LOW HI

HIGH RED-LINE SETTING

Press the center button to advance to LOW THRESHOLD SETTING. **OPTION: SELECT METHOD OF CALI-**





ONE

PRESS

AT A

ONE

LOW THRESHOLD SETTING

Press down and up buttons to move pointer to low threshold. Press the center button to save and advance to **COLOR SCHEME.**



LOW THRESHOLD SETTING

Press the center button to advance to **COLOR SCHEME.**



DOWN

COLOR SCHEME

Press down and up buttons to select a color scheme. (OFF-VIOLET-BLUE-GREEN-YELLOW-ORANGE-RED-WHITE). Press the center button to save and advance to SHIFT LIGHT BRIGHTNESS



PEAK, LOW, HI

PEAK LOW HI

COLOR SCHEME

Press the center button to advance to NORMAL/DIAL BRIGHTNESS. OR **OPTION A:DEMO MODE**





PEAK LOW HI

DOWN

Dial Brightness

Press the RIGHT or LEFT command button to control the brightness of the faceplate illumination. Press the CEN-TER button to save and return to NOR-**MAL Operation**



Dial Brightness

Press the CENTER button to advance to NORMAL OPERATION Option: Pointer Brightness





DOWN



PEAK,LOW,HI LIGHT LIT PEAK LOW HI

Flow Chart Programming Instructions for : Speedometer 5" Controller

SUBMENU

(ENTER FROM MAIN MENU)

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

PRESS BOTH

OPTION: LEARN SPEED BY EXAMPLE:

THE FACTORY DEFAULT IS 1000 PULSES PER MILE. ANY CHANGE REQUIRES A LEARNING SETUP. PROCEED TO A SHOP WITH A DYNAMOMETER OR RACE TRACK. IF TRACK, HAVE A PACE CAR DRIVE AT 60 MPH. HAVE A PASSENGER PRESS THE GAUGE BUTTONS. PRESS BOTH AND HOLD THE CENTER AND DOWN BUTTONS FOR 5 SECONDS. THE FACEPLATE WILL FLASH GREEN. CAREFULLY MATCH THE SPEED OF THE PACE CAR AND PRESS THE CENTER BUTTON AT 60 MPH TO SET THE CALIBRATION. NOTICE THAT THIS METHOD DEPENDS ON THE ACCURACY OF THE PACE CAR'S SPEEDOMETER.



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: LEARN SPEED FROM MEASURED MILE

FIND A DESERTED STRETCH OF HIGHWAY WITH MILEPOST. STOP THE CAR JUST BEFORE THE MEASURED MILEPOST. HAVE A PASSENGER PRESS THE CENTER BUTTON ONCE, THE FACEPLATE WILL LIGHT BLUE. NOW, PRESS AND HOLD BOTH THE CENTER AND DOWN BUTTON FOR 5 SECONDS. THE FACEPLATE WILL FLASH BLUE. START MOVING FORWARD. PRESS THE UP BUTTON AS YOU PASS THE START MILEPOST. CONTINUE DRIVING AT NORMAL SPEED LIMIT, BUT SLOW DOWN AS YOU APPROACH THE FINISH MILEPOST. PRESS THE CENTER BUTTON AS YOU PASS THE FINISH MILEPOST. PROGRAMMING COMPLETE. THIS IS THE MOST ACCURATE CALIBRATION.



OPTION: SELECT METHOD OF CALIBRATION

WHEN YOU PRESSED THE CENTER BUTTON TWICE, THE FACEPLATE LIGHTS RED. NOW, PRESS AND HOLD THE CENTER AND LEFT BUTTONS FOR 5 SECONDS. THE FACEPLATE WILL FLASH RED. USE THE UP AND DOWN BUTTONS TO MOVE THE POINTER TO THE SELECT METHOD OF CALIBRATION. A SETTING OF ZERO (9) MPH IS A LOGIC SIGNAL WHICH USES TACHOMETER (HALL EFFECT) SENSOR PRODUCING A 5 VOLT SQUARE-WAVE SIGNAL. PRESS THE CENTER BUTTON TO SAVE. THIS IS THE FACTORY DEFAULT SETTING. FOLLOW WIRING INSTALLATION FOR LOGIC SIGNAL INPUT.

A SETTING OF 180 MPH IS A PROXIMITY SIGNAL THIS USES A VARIABLE-RELUCTANCE (VR) SENSOR AS AN INPUT. DIFFERENT MAKES, MODELS AND YEARS OF CAR CAN HAVE DIFFERENT PULSE RATES AND LEVELS OF SIGNALS FOR A GIVEN SPEED. THE METHOD CONTAINS A LOOK-UP TABLE OF CALIBRATIONS FOR VARIOUS POPULAR AUTO CONFIGURATION. LOOK UP TABLE IS FOUND BELOW. FOLLOW WIRING INSTRUCTIONS FOR VARIABLE-RELUCTANCE SENSOR.



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.



OPTION A:DEMO MODE

Press the center button to return to **NORMAL/DIAL BRIGHTNESS**.

160

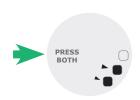
180

Button

Mode

Button

Button



OPTION B:POINTER BRIGHTNESS

While in **Dial Brightness**, 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.



OPTION B:POINTER BRIGHTNESS

Press down and up buttons to adjust the pointer brightness. Press the center button to save and return to **NORMAL/DIAL BRIGHTNESS**.