NEW VINTAGE USA
DETROIT

SNAP ADAPT INSTRUCTION BOOKLET

97-03 DODGE DAKOTA/DURANGO
& 00-02 HD* DODGE RAM

REV 040824

INTRODUCTION

This product is designed to help the installer save time and create a professional installation of aftermarket gauges in less time than splicing in the old and new harnesses. Use this instruction manual as a guide. Due to the wide variety of variations over model years we have used the most popular applications as our wiring diagram guides.

The following will help you to an easy, trouble-free installation:

- Use the diagrams to help verify each pin and function as below.
- If you have a variation on a cluster/pinout, please let us know so we can add that to our diagrams for future installs
- Use a test light/multimeter to verify each connection before making a final decision/connection.
- Crimp wires to spade terminals (provided) in the same direction as the spade- this will save space between connections as we have done our best to minimize the size of the adapter plug.
- Commonize connections in the spade terminal crimp to save wiring and time. Power, ground, lights can all be common from all gauges
- LED lighting: All NVU gauges use LED lighting, ***which may or may not operate properly with OE dimmers.*** If your lights will not work on the plug try turning up the dimmer all the way. If that does not work, we recommend connecting directly into the parking lamp circuit for a constant 12v. If you would like to dim the gauges, we have our LED dimmer available, part number 99003-04
- Use care when removing spade terminals, the boards are held in with clips that snap into the housing. Hold the board in place while removing spade terminals (they are tight) so that the housing/snaps are not damaged or pull out.

Plugging into original harness plug:

Most plugs are directional meaning that it can only be plugged in one way. Some are not due to the original design. Note when plugging in , that the same pin count and any spacing is in the same direction as the original.

There are 2 types of connections used:

1. Snap in: Same as original, the plugs will snap in. To remove, depress the tabs just like OE
2. Mechanical: Other plugs did not have a mechanical attachment as part of the original design. While this may have been useful for use at the factory, our application needs to be mechanically held in place. This is done using the included hardware (screws, nuts) or a cable tie. In cable-tie applications, slide the tie through the holes and slot guides. Clamp tightly once you are ready to complete the installation.

TESTING THE TERMINALS BEFORE FINALIZING CONNECTIONS.

As stated earlier in the instruction booklet, the diagrams within are to be used as a guide. With the large variation and options available, we have provided the most popular/common diagrams to start with. If you find something new or better, please let us know so that this booklet can continually be updated with newer material.

HOW TO TEST FOR EACH FUNCTION:

Plug the adapter into the stock plug.

TESTING FOR 12V+ POWER:

Using a test light or multimeter, place one end on a good ground. Turn on the key if needed.

Turn on the function you would like to test, lights, ignition, etc that would be powered by 12v+.

Probe the pins/terminal with the other end of the test lamp/multimeter. When you reach the pin that operates that function, the lamp will illuminate, or the multimeter will read vehicle voltage (12V).

Turn that item on and off to verify that is the correct pin. Make a note of it so you remember.

TESTING FOR A GROUND TRIGGER:

Same procedure as above but swap the power to a good 12V source and probe the terminals with the ground side. The light will illuminate, or multimeter will show vehicle voltage (12V)

TESTING FOR OHMS (TYPICALLY FUEL SENDER)

This one is a little trickier as you will need to know what Ω (ohms) range you are looking for. In a fuel gauge its best to know how much fuel is in the tank before starting, and noting what the original fuel gauge was reading before removal. Give us a call if you need a hand with this.

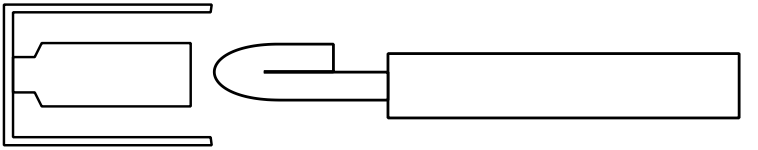
Using a multimeter set to the appropriate ohm scale (usually 200Ω), place the ground side probe on a good ground.

Start probing the terminals with your multimeter, look for the range that would be appropriate for your fuel gauge at that level.

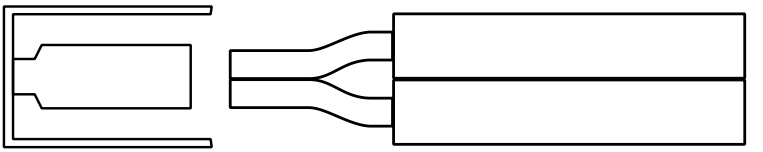
THE LAST RESORT:

Take a look at the back of the cluster, you can often trace the printed circuit to identify which pin does which function.

VIDEO LINK HERE:



Single wire: fold over



Multiple wires

CRIMPING WIRES TO SPADE TERMINALS

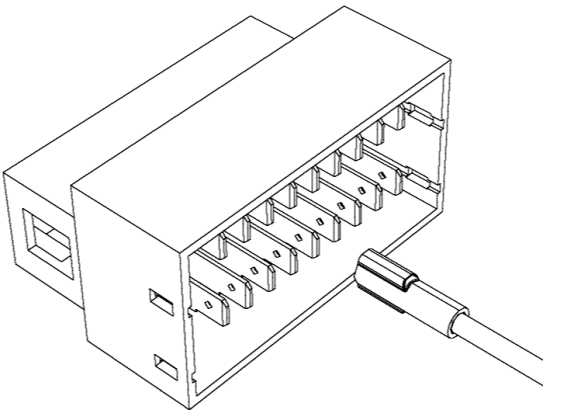
We have included BLUE spade terminals for 18-20 ga wire. This is a larger size that can be used for 1 or 2 wires to be attached.

- When using one wire in the terminal, we find its best to strip off extra wire and fold it over to create a thicker piece for the crimp to attach to.
- 2 wires should fit in there nicely, be sure to strip off enough wire to extend full into the end of the terminal.

Use a quality crimper to ensure a good connection.

Connection should be tight and not be able to pull out. Make sure the crimp is in the same direction as the spade (red arrows) so that there is enough room between terminals.

The spade terminals will bottom out on the male side in the plug making a good connection. Remember to hold the board in if you need to remove the spades afterward to not damage the housing or pull the board(s) out.



GAUGE SIGNALS AND WIRING TIPS

NVU adapter plugs are designed to minimize your searching for the right wires as much as possible. Your new gauges probably have features your original vehicle was never designed to have, so some additional wiring may be required. Here are some helpful tips for a successful gauge installation.

ELECTRONIC SPEEDOMETER: this signal may or may not be in your wiring harness, LS swaps, new PCMs, cableless senders in older vehicles will require some additional wires to be run. If in doubt, just run new wires down to the new speed sender or PCM, that 15-20 minutes now can save you hours of troubleshooting later. If you are using a new "conversion" or "update" harness from a trusted harness manufacturer, these are already in place and you can use those designated wires.

TACHOMETER: Similar to above, old wires can also deteriorate, if you are unsure, just run a new wire to the appropriate tachometer signal source. Check page 12 in the NVU BIG BOOK or give us a call to help you through.

OIL PRESSURE SENDER: NVU recommends installing a new wire to the pressure sender to ensure you have the correct connection established. If you are using a new "conversion" or "update" harness from a trusted harness manufacturer, these are already in place and you can use those designated wires.

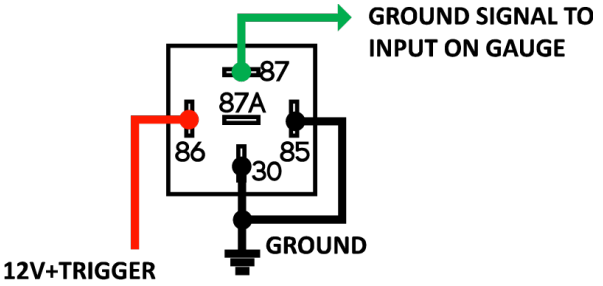
TEMPERATURE SENDER: NVU recommends installing a new wire to the temperature sender to ensure you have the correct connection established. If you are using a new "conversion" or "update" harness from a trusted harness manufacturer, these are already in place and you can use those designated wires.

FUEL SENDER: This one is a pain usually to run a new wire all the way to the tank. Its best to try to re-use the original wire unless there is an issue with the vehicle wiring.

LED lighting: All NVU gauges use LED lighting, ***which may or may not operate properly with OE dimmers.*** If your lights will not work on the plug try turning up the dimmer all the way. If that does not work, we recommend tying directly into the parking lamp circuit for a constant 12v. If you would like to dim the gauges, we have our LED dimmer available, part number 99003-04

SCAN THE QR CODE AT RIGHT TO SEE THE INSTRUCTIONAL VIDEO >>>

HOW TO SET UP A RELAY TO CONVERT A 12v+ OUTPUT TO A GROUND TRIGGER FOR THE GAUGE.



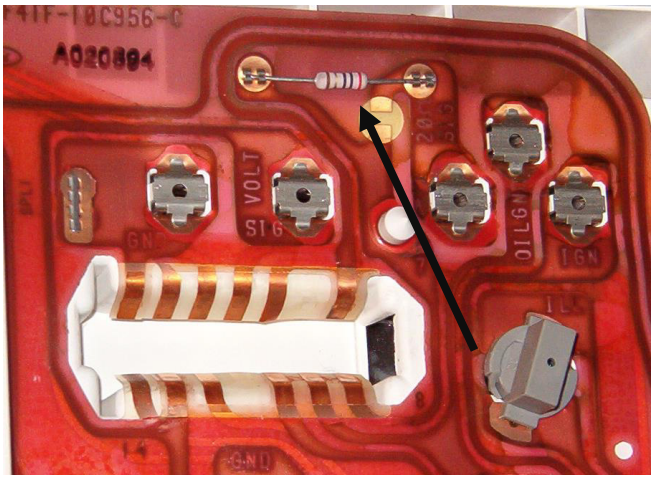
To trigger NVU indicator lights (in the gauge) will require 12V+ to illuminate the LEDs. If your signal is a ground trigger (brake light for example) there are 2 methods:

1. Use a relay as shown above, most any relay will do, LEDs draw less than 1 amp.
2. The NVU ground trigger controller can "flip" up to 3 ground triggers to power for use on almost any light or low amp circuit.

ALTERNATOR EXCITER JUMPER IF REQUIRED

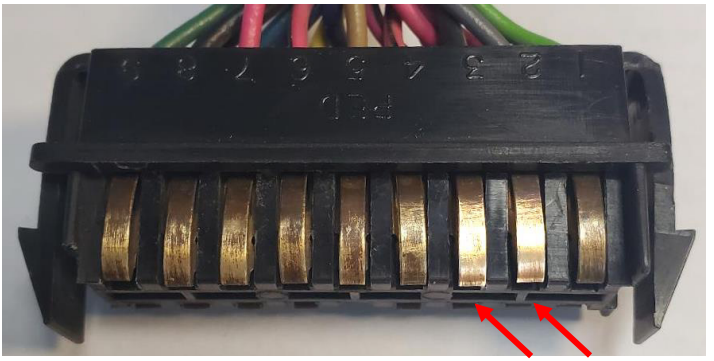
Some alternators may require a jumper to excite the unit to charge the battery. Often times the lamp in the cluster itself is "in charge" of that function. To simulate the bulb there are a few options:

- Use a 510 Ω resistor between the terminals. Most of the time there is already one on the back of the cluster itself.
- Convert to a 1 wire alternator
- Jump the excite wire on a 3-wire alternator basically converting it to one wire
- Use a bulb in that jumper location.



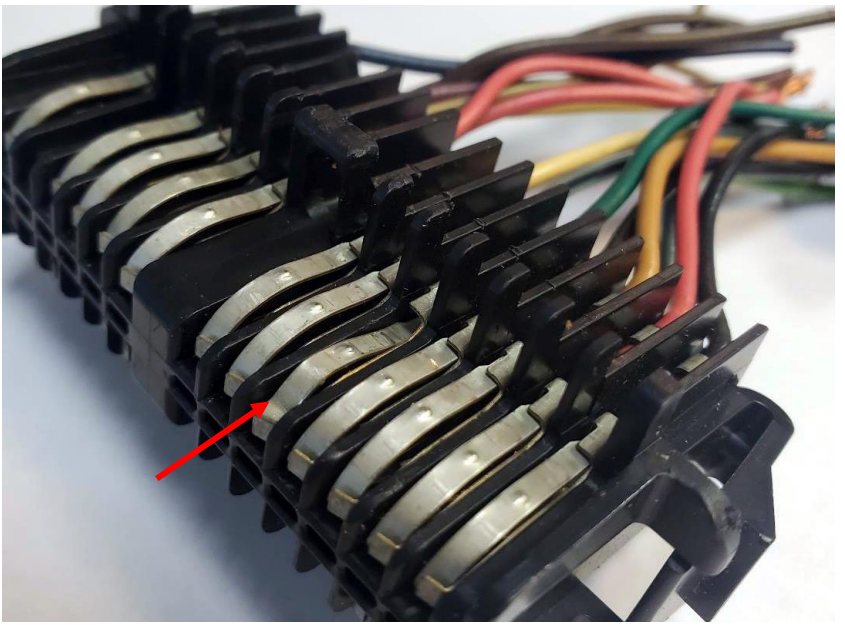
CLEANING PINS

The original plugs have been in the vehicle for a long time, for best results the pins should be gently cleaned. Use a Scotchbrite or similar pad or an eraser. Gently clean the contact area. DO NOT USE SANDPAPER OR STEEL WOOL OR A SHORT/FIRE MAY RESULT. Cleaned pins shown below (arrows)



BENT PINS

Before plugging together, inspect the original plug pins for any bent or pushed down pins that may not have good contact with the adapter. CAREFULLY adjust as needed.



CHECKING CONNECTIONS

Its always a good idea to make sure you have a good connection, bent or dirty pins can lead to frustration. A multimeter set to OPEN/CLOSED can be a fast way to double-check before you button things up.

LABELS ON BOARD

The boards have labels that match the pin layout on your drawings, use those as you install the wires onto the spade terminals.

VEHICLE MODELS AND USE

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The number of clusters and variations on builds vary greatly. The following diagrams are for your guidance only. Please verify each connection prior to final installation of your NVU gauges or damage will result. Follow the pin verification procedure on prior pages in the book to ensure an easy installation.

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TERMINAL SIDE OF PLUG– NOTE: OE PLUG CAN ONLY BE PLUGGED IN ONE WAY- THERE ARE LOCATORS ON THE PLUG AND ADAPTER.

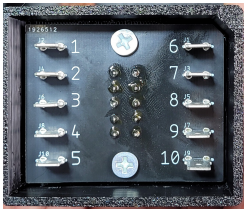
Below and next page are the available items on the stock cluster wiring. The above cluster is the only style supported by this diagram. Other options, pinouts and functions may be available based on your cluster, plug , PCM, model and year.

For ground trigger functions please see USING A RELAY in the previous section of this booklet.

99-02 DODGE RAM TRUCK*(HD 2002)

Note:This vehicle has a right & left side Factory Connector Wire accordingly!

x 2



Speed & Tach Signal Info: Page 11-14

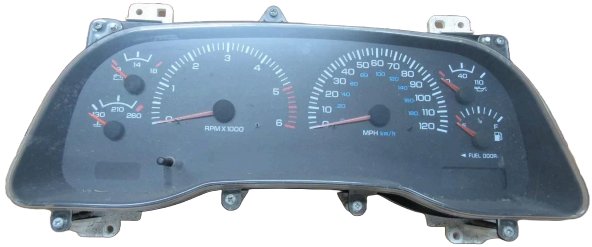
00-01 RAM		GREY CONNECTOR	LEFT SIDE CONNECTOR
INSTRUMENT CLUSTER C2 - 10 WAY			
NVU COLOR	PIN	**OE COLOR**	**FUNCTION**
SPEEDO & TACH WHITE	1	ORANGE	PANEL LAMPS FEED
NOT USED	2	BLK/WHT	WASHER FLUID SWITCH SENSE
NOT USED	3	LIGHT GREEN/RED	SEAT BELT SWITCH SENSE
NOT USED	4	NOT USED	NOT USED
NOT USED	5	YELLOW/BLACK	BRIGHTNESS SENSE
SPEEDO BLUE	6	LIGHT GREEN	LEFT TURN SIGNAL
NOT USED	7	DARK BLUE/RED	CHIME REQUEST SIGNAL
SPEEDO BLUE	8	TAN	RIGHT TURN SIGNAL
SPEEDO TAN	9	RED/GREY	HIGH BEAM INDICATOR DRIVER
NOT USED	10	GREY	4WD SWITCH SENSE

00-01 RAM		BLACK CONNECTOR	RIGHT SIDE CONNECTOR
INSTRUMENT CLUSTER C1 - 10 WAY			
NVU COLOR	PIN	**OE COLOR**	**FUNCTION**
NOT USED	1	NOT USED	NOT USED
SPEEDO&TACH RED	2	DARK BLUE/WHITE	FUSED IGNITION SWITCH OUTPUT (RUN-START)
NOT USED	3	WHITE/LIGHT GREEN	PARK BRAKE SWITCH SENSE
SPEEDO&TACH BLACK	4	BLACK/LIGHT GREEN	GROUND
NOT USED	5	BLACK/ORANGE	GROUND
NOT USED	6	YELLOW	FUSED B(+)
NOT USED	7	NOT USED	NOT USED
TACH GREY	8	ORANGE/BLACK	(DIESEL) WAIT-TO-START WARNING INDICATOR DRIVER
NOT USED	9	NOT USED	WT/BK CCD BUS (-)
NOT USED	10	NOT USED	VT/BR CCD BUS (+)

97-03 DAKOTA/DURANGO

Note:This vehicle has a right & left side Factory Connector Wire accordingly!

x 2



Speed & Tach Signal Info: Page 11-14

97-03 DAKOTA/DURANGO		GREY CONNECTOR	LEFT SIDE CONNECTOR
INSTRUMENT CLUSTER C2 - 10 WAY			
NVU COLOR	PIN	OE COLOR	FUNCTION
NOT USED	1	ORANGE	NOT USED
NOT USED	2	BLK/WHT	WASHER FLUID SWITCH SENSE
NOT USED	3	LIGHT GREEN/RED	SEAT BELT SWITCH SENSE
NOT USED	4	NOT USED	TRANSMISSION RANGE MIX
SPEEDO/TACH WHITE	5	YELLOW/BLACK	HEADLAMP SWITCH OUTPUT
SPEEDO BLUE	6	LIGHT GREEN	LEFT TURN SIGNAL
NOT USED	7	NOT USED	NOT USED
SPEEDO BLUE	8	TAN	RIGHT TURN SIGNAL
SPEEDO TAN	9	RED/GREY	HIGH BEAM INDICATOR DRIVER
NOT USED	10	NOT USED	NOT USED

97-03 DAKOTA/DURANGO		BLACK CONNECTOR	RIGHT SIDE CONNECTOR
INSTRUMENT CLUSTER C1 - 10 WAY			
NVU COLOR	PIN	OE COLOR	FUNCTION
NOT USED	1	NOT USED	TRANMISSION RANGE SENSOR
SPEEDO&TACH RED	2	DARK BLUE/WHITE	FUSED IGNITION SWITCH OUTPUT (RUN-START)
3	3	WHITE/LIGHT GREEN	VTSS INDICATOR DRIVER
SPEEDO&TACH BLACK	4	BLACK/LIGHT GREEN	GROUND
NOT USED	5	BLACK/ORANGE	GROUND
NOT USED	6	YELLOW	FUSED B(+)
NOT USED	7	NOT USED	FUSED IGNITION SWITCH OUTPUT (OFF-RUN-START)
NOT USED	8	NOT USED	UNUSED
NOT USED	9	NOT USED	PCI BUS
NOT USED	10	NOT USED	BTSI SOLENOID SUPPLY

SPEED & TACH SIGNAL INFORMATION

In order for your new Speedometer to read correctly you will first need to calibrate your Speedometer to:

8000 PPM (Pulses Per Mile)

If you do not currently have a factory tachometer, you will need to pull the Tach signal from -Side of the Coil.

Based on our research: This model already has a Tach signal from factory connector via Snap Adapt!

Simply Calibrate # of Cylinders (Set to V8 from the factory)

You will find information on how to do this in the Phoenix Big Book or by snapping a picture of this QR code link to the NVU Youtube Page below or **flip to next pages**

SPEED & TACH SIGNAL INFORMATION

The setup menu contains menus used for functions not used during normal operation. These features are in this sub-menu to avoid inadvertently changing them during normal operation.
While the vehicle is off press and hold the button. Turn the vehicle on. The odometer will display "SETUP MENU" Short pushes on the button will scroll through these, long hold of the button will select the item. . To exit the SETUP menu turn off the vehicle and restart. You may operate the speedometer in setup mode if required the speedometer will operate to make fine tuning easier.

SERVICE RESET (Push and hold button to enter) This is used to reset service interval if you have saved any (Oil Changes, Tire Rotations, Tune Ups…) You can Set service intervals later in this menu (Service Set section).
Short push to scroll, long push to select

MANUAL CALIBRATE: (Push and hold button to enter) Manual calibration of the speedometer is used to manually enter the pulse setting. You must know the pulse setting of the speed signal to use this feature. Common uses are on OE (pre-configured) senders, GM PCMs GPS senders. Note: using this method will usually get you close enough and fine tuning or auto calibration may be required. Although many speed senders are standard output, various gear ratios and tire sizes will change the pulse settings depending on the vehicle build. The speedometer will accept between 2,000-250,000 PPM. See next page for a chart with common pulse settings.

To enter the manual calibration mode, hold the button until the current pulse setting is shown. NVU ships all speedometer with a 16,000 PPM setting. If the number shown is not 16,000 the speedometer has already been auto-calibrated by the end user. If the pulse count shows zero, the previous autocal attempts resulted in not receiving a speed signal, check you sender and input filter.

Continued, next page:

SPEED SIGNAL INFORMATION

MANUAL CALIBRATE, CONTINUED:
The current pulses will be shown, with the first number highlighted. To change that number short push scrolling will increase the digit. Stop on the number required and hold the button to select the next number and follow the same sequence until all numbers are correct and your are on the last digit to the right

The final dialog box will display asking to set. Select Y to accept, N to cancel. Hold the button on Y and the setting will be saved. The speedometer is now manually calibrated.

AUTO CALIBRATE
This feature allows the speedometer to automatically calibrate the speedometer by driving a measured mile (or kilometer). See quick setup earlier in this manual for instructions.

INPUT FILTER:
The digital filter in the speedometer is used to properly read the signal from virtually any pulsed source. Enter the filter by holding the button. Scroll to the filter selection desired, refer to the chart below. Select L, M or H (Low, Medium, High). Hold the button to select FILTER, set yes or no, hold to select, saved! Will display to indicate a successful session. You can change this at any time to adjust as needed or to experiment for the best results for your application.

SOURCE	TYPICAL PPM	SIGNAL TYPE	INPUT FILTER SET
GM PCM (ALL)	4,000	5-12V HALL EFFECT	5V=M, 12V=H
AFTERMARKET 3 WIRE	16,000	12V HALL EFFECT	H
AFTERMARKET 2 WIRE	8,000 OR 16,000	AC SINEWAVE	L
OE 2 WIRE (GM)	40,000	AC SINEWAVE	L
NV4500	108,000	AC SINEWAVE	L
TREMEC	16,000 OR 40,000	LOW AC SINEWAVE	L
GPS SENDER	8,000 OR 16,000	VARIES	5V=M, 12V=H

TACH SIGNAL INFORMATION

SET CYLINDERS Allows the user to set the tachometer to accommodate different number of cylinders for their vehicle. See notes on connecting to GM PCMs for later in this manual if required. Tachometers ship from the factory pre-set for 8 cylinders, all set up for 4 stroke engines. Custom ranges and inputs are available for diesel and 2-stroke engines.

To set the number of cylinders, hold in the button until the current setting is displayed. Scroll to the desired setting and hold until the confirmation message is visible. Select yes or no, and hold in the button until the setting is saved.

INPUT FILTER. Generally this setting does not require any adjustment. You may change the settings if you are having difficulty with noise in your signal or sharp spikes. To enter the filter mode, hold in the button until the settings are shown. There are 3 options low "L" medium "M" and high "H". You can experiment to see if the filters aid your signal. The changes can be made with the vehicle running so you can see the difference in settings.
To change the setting, scroll to L, M or H and hold in the button. Once you are at the desired setting, hold in the button until the confirmation message is displayed, and select Yes or NO, hold in the button to select. SAVED! will confirm the setting has been changed and now the filter is set.

SHIFT ALERT. The shift alert is built-into the OLED display and will give the driver a warning of when to shift based on RPM. The alert is a 3 stage display, warning 1,000 and 500 RPM before the shift point, and the actual shift point. This can be used to pre-set shift points for optimal horsepower, mileage or to prevent over-revving the engine, it is up to the driver to decide how they would like it to be set up. The shift alert can also be disabled by setting to zero RPM.

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