



99-06 GM FULL SIZE TRUCK KITS



USE THE QR CODE TO SEE THE FULL INSTALL VIDEO:





REMOVING THE ORIGINAL CLUSTER: Lower tilt column and place gear shifter in low gear. This will give you more room to work with.



REMOVING THE TRIM PANEL: Using a trim removal tool (or just your hands) pull trim panel off. It removes easily.



REMOVING THE ORIGINAL CLUSTER: Remove the 4 screws holding in the cluster using an 8mm socket or nut driver.

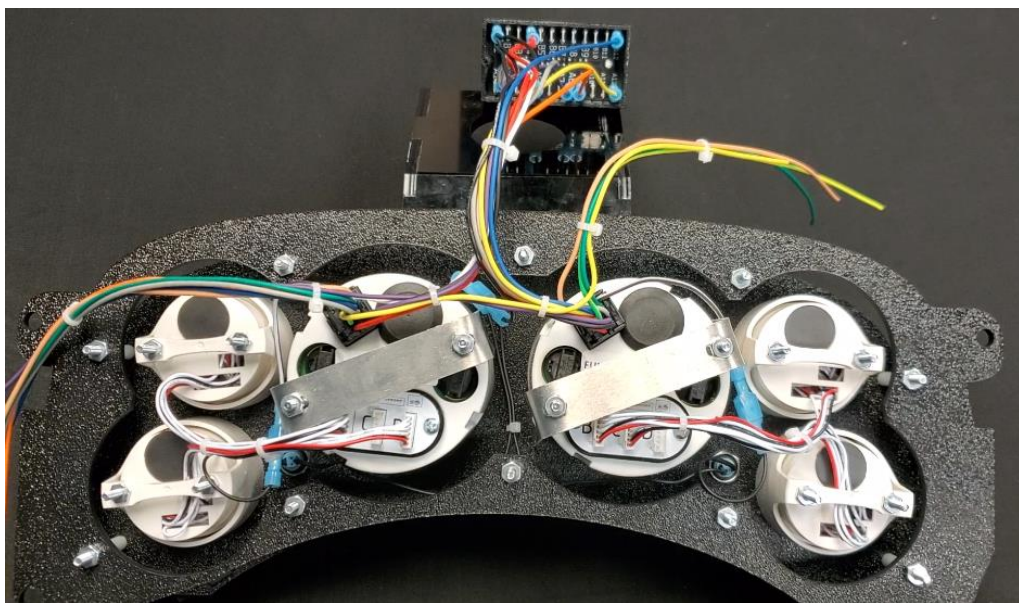
Rotate the cluster out bottom first as shown.

Un-plug the harness pigtail by reaching behind the cluster once rotated. There is a release clip on it, easy to un-plug. (below)





INSTALLING THE GAUGES: One thing that is great about NVU kits is you can customize the locations as you see fit. Place the gauges and programming buttons in the panel to your liking. Install the back-clamps, hardware and flip over.



WIRING UP THE GAUGES: Follow along with the wiring instructions for a 6-gauge kit in your BIG BOOK. Plug the minor gauges into the appropriate driver ports, Plug in AMP plugs and do the following:

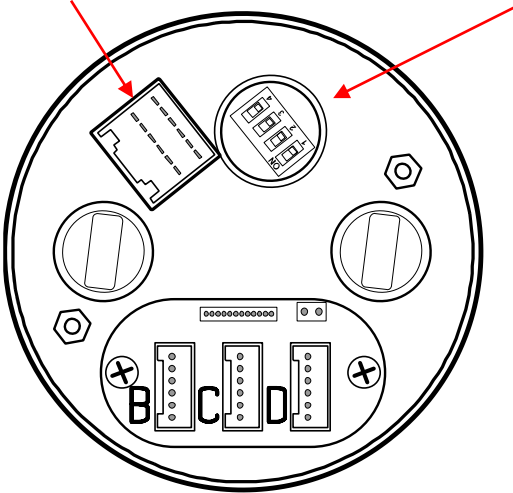
Separate the wires into 3 parts:

1. Follow the SNAP-ADAPT instructions for the center portion (red arrow)
2. Tie off and tuck the unused wires (green arrow)
3. Extend/build a plug/extension for the oil pressure, temperature, fuel sender and hi-beam wires, these will go into the engine compartment.

TACHOMETER SET-UP: All GM PCMs use a 4-cylinder signal that requires a pull-up. Change the tach setting to 4 CYL and turn your DIP-SWITCH to ON in the #5 position.

AMP PLUG SOCKET :

USE the NVU universal AMP plug and wire as shown in the proper diagram. NVU uses the same plug for all gauges so some wires may not be used in your application.

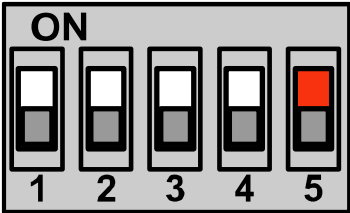


DIP SWITCHES:

Used to adjust fuel range on speedometers. See fuel gauge chart later in this booklet. Remove the black plastic cover to access this if needed.

TACHOMETER SETTING:
SET #5 TO ON FOR AN LS PCM OUTPUT

LEAVE ON FOR COIL SIGNAL



SPEEDOMETER SET-UP: All GM PCMs output a 4,000 PPM signal. Set your speedometer manually to 4,000 PPM or use the drive a mile function. We also recommend fine-tuning your setup by using drive a mile for the best results.



HIGH BEAM: The easiest way to get your hi beam to work is by tapping into the green hi beam wire at the headlight. The stock cluster uses CANBUS to trigger the hi beam in the dash and is not accessible via the plug.

FUEL GAUGE: The fuel level is sent to the stock cluster via CANBUS and is not in an analog format. The easiest way to access it is via the fuel sender wire prior to entering the PCM.

The PCM is located next to the battery in the engine compartment.

NOTE: the signal cannot be split, the wire must be cut from the PCM and bypassed to the green fuel sender wire on the speedometer.

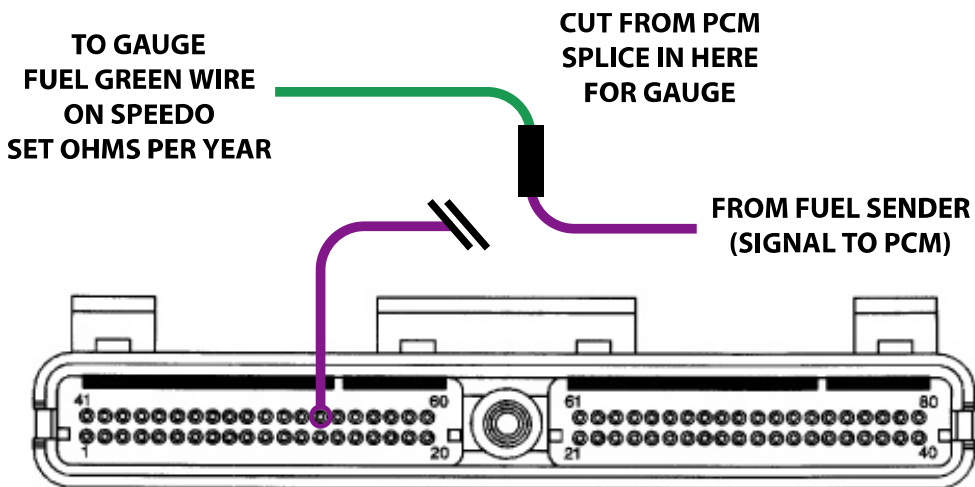
FUEL RANGES: There are two ranges for the fuel signal, which must be set on the back of the speedometer using the DIP switches. Use switches 1-4, ignore switch 5.

99-03 40-250 OHMS

SET DIP SWITCHES TO OFF - ON - ON - OFF

04-UP 250-40 OHMS

SET DIP SWITCHES TO ON - ON - ON - ON



**FUEL SIGNAL
PIN 54 ON THE C2 CONNECTOR**

**CHECK FOR OTHER PURPLE WIRES
BEFORE SPLICING!**

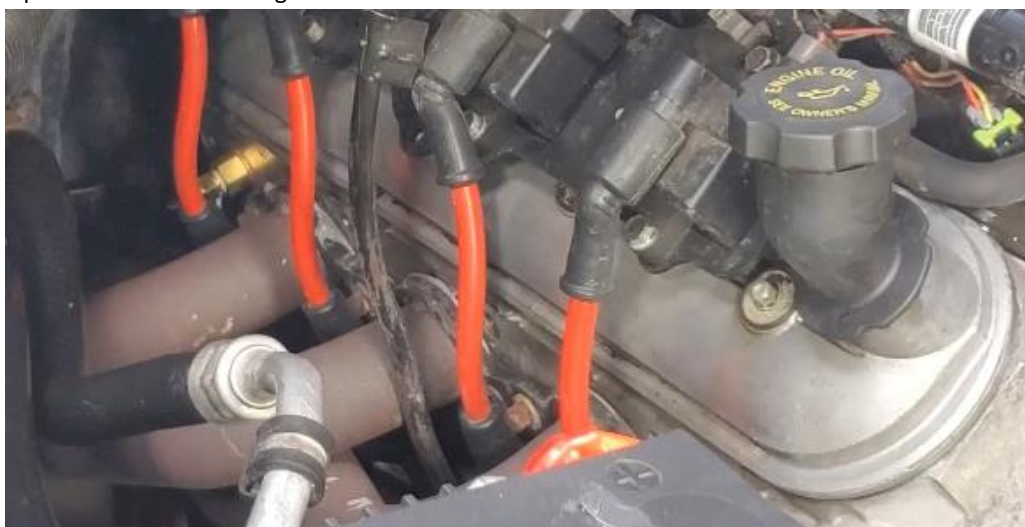
TEMPERATURE SENDER: Aftermarket analog instruments require their own standalone sender separate from the PCM. The gauge and PCM need to monitor this function separately, the signal cannot be split. You must use the matching sender included in the kit.

Using the 99004-04 LS kit, install the sender in the M12 bushing FIRST, before installing in the head. Use liquid sealant on the threads (not Teflon)

Locate the port on the passenger side rear of the head, remove the plug with an 8mm hex socket. Clean the head first to ensure a good fit of the socket.

Apply liquid thread sealant (not Teflon), add the seal washer, install in head until tight/snug. Apply tightening torque to the bushing hex, not the sender. **DO NOT OVERTIGHTEN!**

Install wiring leaving some slack for engine movement. Make sure wire is clear of any potential heat or cutting hazards.

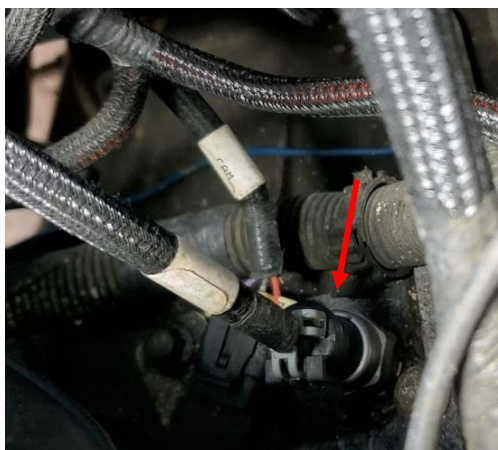


OIL PRESSURE SENDER: Aftermarket analog instruments require their own standalone sender. You must use the matching sender included in the kit. Using the 99004-04 LS kit, install the sender in the M-16 bushing FIRST, before installing in the engine. Use liquid sealant on the threads (not Teflon)

Apply liquid thread sealant (not Teflon), add the seal washer, install in engine until tight/snug. Apply tightening torque to the bushing hex, not the sender only. **DO NOT OVER-TIGHTEN!**

Install wiring leaving some slack for engine movement. Make sure wire is clear of any potential heat or cutting hazards.

LOCATION OPTION 1: Sender can be installed in the factory location behind the intake manifold by removing the original sender. Its easiest to use the special GM oil pressure sensor socket. These are generally around \$10 at most auto-parts stores.



LOCATION OPTION2: An adapter that mounts to the side of the oil filter housing can also be used (not included). This is a good option when you can't easily access the stock location while the engine is installed in some vehicles (mostly LS swaps)



SNAP-ADAPT INSTRUCTION SECTION

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)

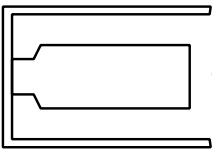
This one is a little trickier as you will need to know what Ω (ohms) range you are looking for. In a fuel gauge its best to know how much fuel is in the tank before starting, and noting what the original fuel gauge was reading before removal. Give us a call if you need a hand with this.

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

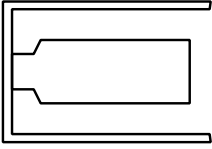
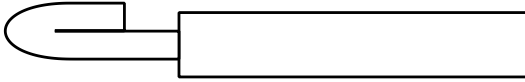
Start probing the terminals with your multimeter, look for the range that would be appropriate for your fuel gauge at that level.

THE LAST RESORT:

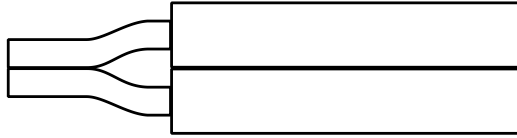
Take a look at the back of the cluster, you can often trace the printed circuit to identify which pin does which function.



**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.

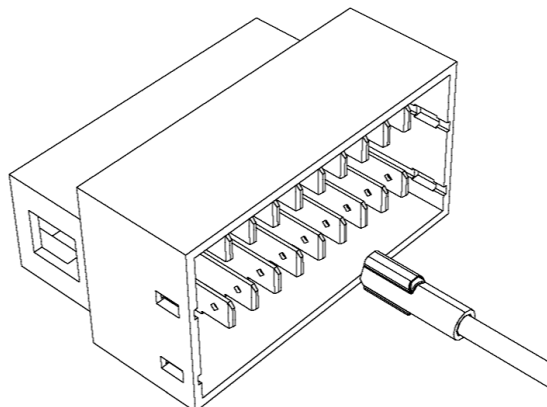
- When using one wire in the terminal, we find its best to strip off extra wire and fold it over to create a thicker piece for the crimp to attach to.
- 2 wires should fit in there nicely, be sure to strip off enough wire to extend full into the end of the terminal.



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.

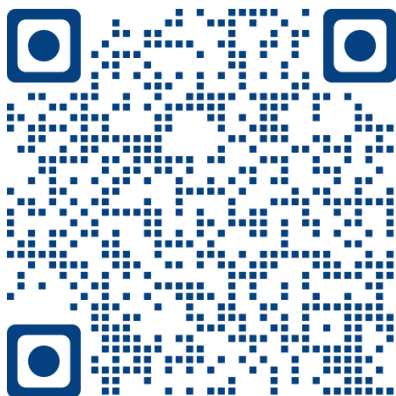
OIL PRESSURE SENDER: NVU recommends installing a new wire to the pressure sender to ensure you have the correct connection established. If you are using a new “conversion” or “update” harness from a trusted harness manufacturer, these are already in place and you can use those designated wires.

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.

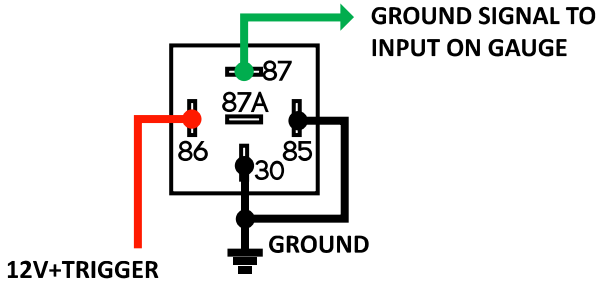
FUEL SENDER: This one is a pain usually to run a new wire all the way to the tank. Its best to try to re-use the original wire unless there is an issue with the vehicle wiring.

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.



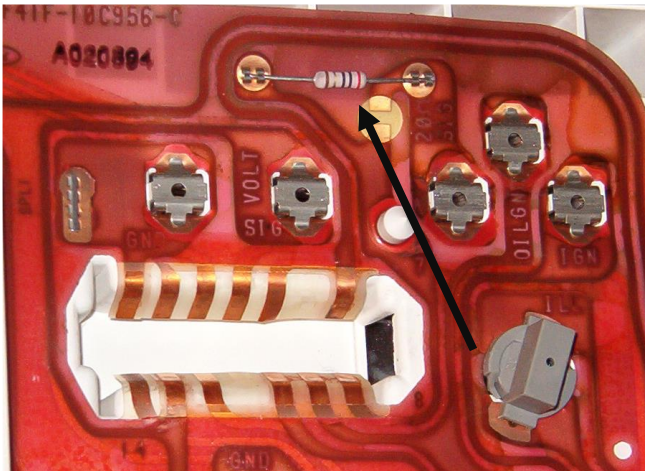
To trigger NVU indicator lights (in the gauge) will require 12V+ to illuminate the LEDs. If your signal is a ground trigger (brake light for example) there are 2 methods:

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

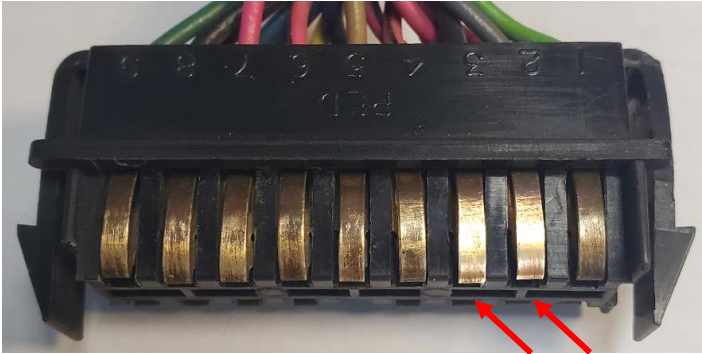
Some alternators may require a jumper to excite the unit to charge the battery. Often times the lamp in the cluster itself is “in charge” of that function. To simulate the bulb there are a few options:

- 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.



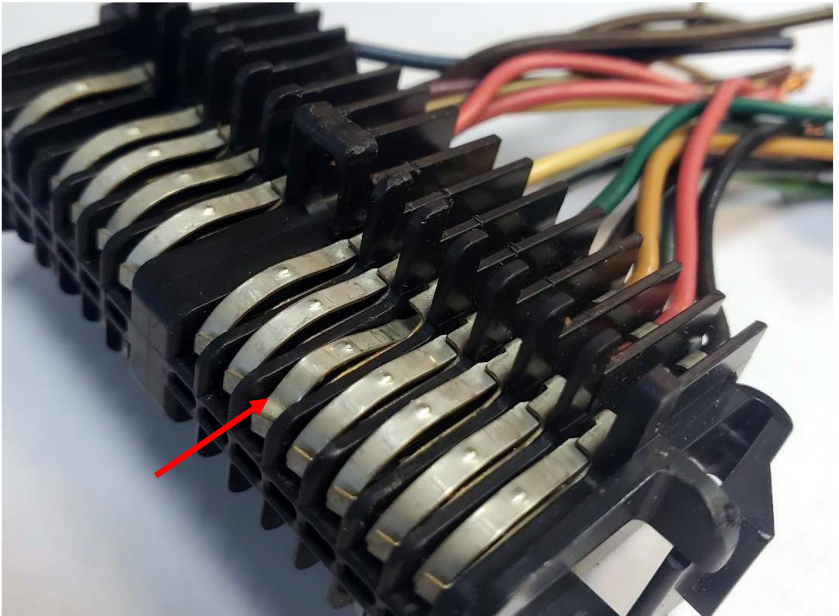
CLEANING PINS

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

It's 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.



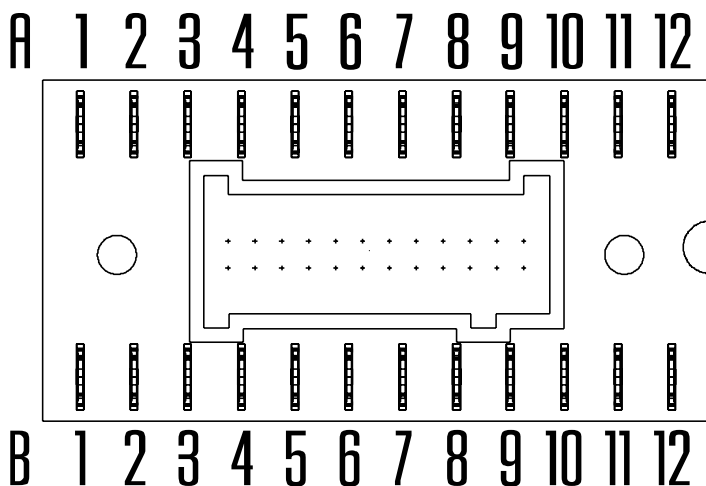
LABELS ON BOARD

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

This plug was used by many OE vehicle manufacturers over a period of over a decade. 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.



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.

O= Optional: use this for warning lights and such

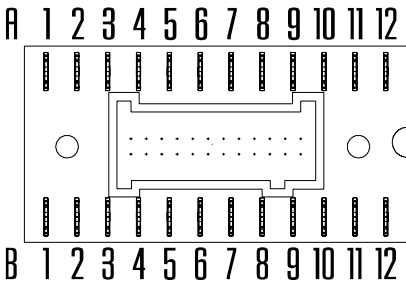
R= Required: the minimum items needed to get your gauges up and running

N/A= Available pin but not used on NVU gauges.

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

99-02 GM TRUCK NOTES:

There are 3 model segments and 3 cluster configurations. Please check your SNAP-ADAPT plug wiring BEFORE connecting to the gauges!



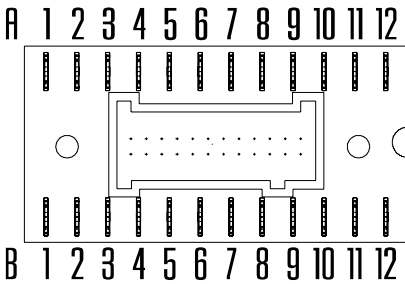
99-02 GM TRUCK

NVU COLOR	PIN	OE COLOR	FUNCTION
	A 1	TAN/WHITE	OIL PRESSURE SENSOR (USE NVU SENDER)
VIOLET (TACH)	A 2	WHITE	TACH SIGNAL 4 CYL USE LS PULL-UP SWITCH #5 (ON)
ORANGE (SPEEDO)	A 3	DK GRN/WHT	SPEED SIGNAL 4,000 PPM (GM PCM)
RED (SPDO/TACH)	A 4	BROWN	12V+ IGN ON
	A 5	GREY	SERIAL DATA
BLACK (SPDO/TACH)	A 6	BLACK	GROUND
WHITE (SPDO/TACH)	A 7	GREY	ILLUMINATION (LIGHTS Y'ALL)
BLACK (SPDO/TACH)	A 8	BLK/WHT	GROUND
	A 9	ORANGE	BATTERY (CONSTANT) 12V+
	A 10	PINK	12V+ IGN ON/START
	A 11		N/A
	A 12	DK GRN/WHT	PARK BRAKE LIGHT (GROUND TRIGGER)

NVU COLOR	PIN	OE COLOR	FUNCTION
BLUE (SPEEDO)	B 1	LT BLUE	LEFT TURN SIGNAL 12V+
	B 2	BR/WHT	WAIT TO START GROUND TRIGGER (DIESEL ONLY)
TAN TACH	B 3	DK BLUE	CHK ENG LIGHT GROUND TRIGGER
	B 4		N/A
	B 5	PPL/WHT	INTERIOR LIGHTS
	B 6	PINK	12V+ IGN ON/START
	B 7		N/A
	B 8		N/A
	B 9		N/A
GREY (SPEEDO)	B 10	DK BLUE	RIGHT TURN 12V+
	B 11		N/A
	B 12	BLK/WHT	LOW WASHER LIGHT (CHECK + OR -)

03-06 GM TRUCK NOTES:

There are 3 model segments and 3 cluster configurations. Please check your SNAP-ADAPT plug wiring BEFORE connecting to the gauges! 04-UP FUEL 250-40 Ω

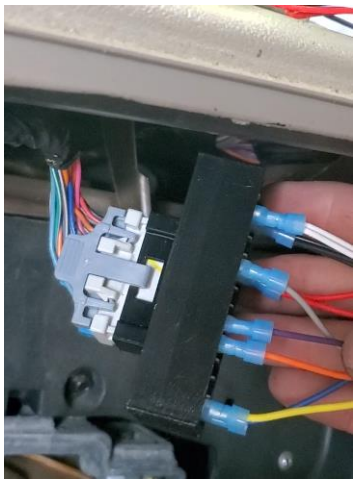


03-06 GM TRUCK

NVU COLOR	PIN	OE COLOR	FUNCTION
TAN TACH	A 1	BRN/WHT	CHK ENG GROUND TRIGGER
	A 2	DK BLUE	WAIT TO START GROUND TRIGGER (DIESEL ONLY)
	A 3	BLK/WHT	LOW WASHER LIGHT (CHECK + OR -)
ORAANGE (SPEEDO)	A 4	DK GRN/WHT	SPEED SIGNAL 4,000 PPM (GM PCM)
VIOLET (TACH)	A 5	WHITE	TACH SIGNAL 4 CYL USE LS PULL-UP SWITCH #5 (ON)
	A 6	GREY	SERIAL DATA
	A 7		N/A
GREY (SPEEDO)	A 8	DK BLUE	RT TURN 12V+
	A 9	DK BLUE	SBA SIGNAL (NOT USED)
	A 10	DK GRN/WHT	TRANS SELECT PARK SIGNAL
WHITE (SPDO/TACH)	A 11	RED	ILLUMINATION (LIGHTS Y'ALL)
BLACK (SPDO/TACH)	A 12	BLACK	GROUND

NVU COLOR	PIN	OE COLOR	FUNCTION
BLUE (SPEEDO)	B 1	LIGHT BLUE	LEFT TURN SIGNAL 12V+
	B 2	N/A	
	B 3	N/A	
	B 4	ORANGE	DIC MODE SWITCH SIGNAL
	B 5	DK GRN/WHT	DIC TOGGLE SWITCH SIGNAL
	B 6	DK DRN/WHT	DIC SWITCH SIGNAL
	B 7	YELLOW	DIC FUEL SIGNAL (NOT USED)
	B 8		N/A
RED (SPDO/TACH)	B 9	PINK	IGNITION POWER 12V+
	B 10		N/A
	B 11	ORANGE	BATTERY (CONSTANT) 12V+
OPT GROUND	B 12	BLK/WHT	GROUND

CLUSTER INSTALLATION: Plug in SNAP-ADAPT to OE plug, connect any additional wires (fuel, temp, oil, hi beam, etc).
Rotate cluster in as when removing.



Wiring and SNAP-ADAPT can be tucked up in the gap at the top of the cluster opening (RED arrow).

Use the locators (BLUE arrows) to locate and hold the panel in place while attaching the stock attachment screws (GREEN arrows)



CLUSTER INSTALLATION: Re-install OE bezel trim. The fit around the new bracket will be tight and you will have to maneuver the top of the cluster opening around the top of the bracket first. This design enables the proper clearance for the gauges and wiring so that no cutting or modifications of the dash are required.



FINAL ASSEMBLY: Your installation is complete, check function of all gauges and features.

OPTIONAL: Due to the slip-fit of the OE panel and the bracket to provide clearance of the parts behind the gauges and to ensure NO modifications are required, there may be a small gap at the top of the panel that allows a small amount of light to be seen through at night when the lights are on. To hide this gap, apply the included rubber adhesive-backed gasket. Remove backing and apply to the OE bezel (not the new bracket) cut end(s) as needed.





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